



Rules of
Department of Natural Resources
Division 10—Air Conservation Commission
Chapter 5—Air Quality Standards and
Air Pollution Control Rules Specific
to the St. Louis Metropolitan Area

Title	Page
10 CSR 10-5.010 Ambient Air Quality Standards (Rescinded February 11, 1978)	5
10 CSR 10-5.020 Definitions (Rescinded February 11, 1978)	5
10 CSR 10-5.030 Maximum Allowable Emission of Particulate Matter From Fuel Burning Equipment Used for Indirect Heating	5
10 CSR 10-5.040 Use of Fuel in Hand-Fired Equipment Prohibited	6
10 CSR 10-5.050 Restriction of Emission of Particulate Matter From Industrial Processes (Rescinded March 30, 2001)	6
10 CSR 10-5.060 Refuse Not to be Burned in Fuel Burning Installations (Rescinded February 11, 1979)	6
10 CSR 10-5.070 Open Burning Restrictions	6
10 CSR 10-5.080 Incinerators (Rescinded December 9, 1991)	7
10 CSR 10-5.090 Restriction of Emission of Visible Air Contaminants (Rescinded May 30, 2000)	7
10 CSR 10-5.100 Preventing Particulate Matter From Becoming Airborne (Rescinded September 28, 1990)	7
10 CSR 10-5.110 Restrictions of Emission of Sulfur Dioxide for Use of Fuel (Rescinded July 30, 1997)	7
10 CSR 10-5.120 Information on Sales of Fuels to be Provided and Maintained	7
10 CSR 10-5.130 Certain Coals to be Washed	7
10 CSR 10-5.140 Emission of Certain Settleable Acids and Alkaline Substances Restricted (Rescinded February 11, 1978)	8
10 CSR 10-5.150 Emission of Certain Sulfur Compounds Restricted (Rescinded July 30, 1997).....	8
10 CSR 10-5.160 Control of Odors in the Ambient Air	8



10 CSR 10-5.170	Control of Odors From Processing of Animal Matter.....	9
10 CSR 10-5.180	Emission of Visible Air Contaminants From Internal Combustion Engine (Rescinded November 30, 2002).....	9
10 CSR 10-5.190	Approval of Planned Installations (Rescinded April 11, 1980).....	10
10 CSR 10-5.200	Measurement of Emissions of Air Contaminants (Rescinded April 9, 1992).....	10
10 CSR 10-5.210	Submission of Emission Information (Rescinded November 12, 1984).....	10
10 CSR 10-5.220	Control of Petroleum Liquid Storage, Loading and Transfer	10
10 CSR 10-5.230	Circumvention (Rescinded September 28, 1990)	16
10 CSR 10-5.240	Additional Air Quality Control Measures May be Required When Sources Are Clustered in a Small Land Area	16
10 CSR 10-5.250	Time Schedule for Compliance	17
10 CSR 10-5.260	Rules for Controlling Emissions During Periods of High Air Pollution Potential (Rescinded October 11, 1984).....	17
10 CSR 10-5.270	Public Availability of Emission Data (Rescinded November 12, 1984).....	17
10 CSR 10-5.280	New Source Performance Regulation (Rescinded April 11, 1980)	17
10 CSR 10-5.290	More Restrictive Emission Limitations for Particulate Matter in the South St. Louis Area	17
10 CSR 10-5.295	Control of Emissions From Aerospace Manufacture and Rework Facilities	18
10 CSR 10-5.300	Control of Emissions From Solvent Metal Cleaning.....	23
10 CSR 10-5.310	Liquefied Cutback Asphalt Paving Restricted	27
10 CSR 10-5.320	Control of Emissions From Perchloroethylene Dry Cleaning Installations (Rescinded January 30, 2003)	27
10 CSR 10-5.330	Control of Emissions From Industrial Surface Coating Operations	27
10 CSR 10-5.340	Control of Emissions From Rotogravure and Flexographic Printing Facilities.....	29
10 CSR 10-5.350	Control of Emissions From Manufacture of Synthesized Pharmaceutical Products	30
10 CSR 10-5.360	Control of Emissions From Polyethylene Bag Sealing Operations.....	31
10 CSR 10-5.370	Control of Emissions From the Application of Deadeners and Adhesives	32
10 CSR 10-5.375	Motor Vehicle Emission Inspection Waiver.....	32

10 CSR 10-5.380	Motor Vehicle Emissions Inspection.....	33
10 CSR 10-5.390	Control of Emissions From Manufacture of Paints, Varnishes, Lacquers, Enamels and Other Allied Surface Coating Products	43
10 CSR 10-5.400	Control of Emissions From Production of Maleic Anhydride (Rescinded March 11, 1989)	44
10 CSR 10-5.410	Control of Emissions From Manufacture of Polystyrene Resin	44
10 CSR 10-5.420	Control of Equipment Leaks From Synthetic Organic Chemical and Polymer Manufacturing Plants.....	44
10 CSR 10-5.430	Control of Emissions From the Surface Coating of Chrome-Plated and Resist Plastic Parts.....	45
10 CSR 10-5.440	Control of Emissions from Bakery Ovens	46
10 CSR 10-5.442	Control of Emissions from Lithographic Printing Operations.....	46
10 CSR 10-5.443	Control of Gasoline Reid Vapor Pressure (Rescinded January 30, 2003)	48
10 CSR 10-5.450	Control of VOC Emissions from Traffic Coatings	48
10 CSR 10-5.451	Control of Emissions from Aluminum Foil Rolling.....	49
10 CSR 10-5.455	Control of Emission from Solvent Cleanup Operations	51
10 CSR 10-5.480	St. Louis Area Transportation Conformity Requirements.....	51
10 CSR 10-5.490	Municipal Solid Waste Landfills.....	57
10 CSR 10-5.500	Control of Emissions From Volatile Organic Liquid Storage.....	63
10 CSR 10-5.510	Control of Emissions of Nitrogen Oxides.....	67
10 CSR 10-5.520	Control of Volatile Organic Compound Emissions From Existing Major Sources	71
10 CSR 10-5.530	Control of Volatile Organic Compound Emissions From Wood Furniture Manufacturing Operations.....	72
10 CSR 10-5.540	Control of Emissions From Batch Process Operations	79
10 CSR 10-5.550	Control of Volatile Organic Compound Emissions From Reactor Processes and Distillation Operations Processes in the Synthetic Organic Chemical Manufacturing Industry	83

**Title 10—DEPARTMENT OF
NATURAL RESOURCES
Division 10—Air Conservation
Commission**

**Chapter 5—Air Quality Standards and
Air Pollution Control Rules
Specific to the St. Louis
Metropolitan Area**

**10 CSR 10-5.010 Ambient Air Quality
Standards**
(Rescinded February 11, 1978)

AUTHORITY: section 203.050, RSMo 1969. Original rule filed March 14, 1967, effective March 24, 1967. Amended: Filed Jan. 2, 1970, effective Jan. 12, 1970. Rescinded: published Sept. 1, 1977, effective Feb. 11, 1978.

10 CSR 10-5.020 Definitions
(Rescinded February 11, 1978)

AUTHORITY: section 203.050, RSMo 1969. Original rule March 14, 1967, effective March 24, 1967. Amended: Filed Jan. 31, 1972, effective Feb. 10, 1972. Rescinded: published Sept. 1, 1977, effective Feb. 11, 1978.

**10 CSR 10-5.030 Maximum Allowable
Emission of Particulate Matter From Fuel
Burning Equipment Used for Indirect
Heating**

PURPOSE: This rule restricts the emission of particulate matter from fuel burning equipment used for indirect heating except where 10 CSR 10-6.070 would be applied.

(1) General Provisions.

(A) This rule applies to installations which have indirect heating sources.

(B) The heat content of solid fuels shall be determined as specified in 10 CSR 10-6.040(2). The heat content of liquid hydrocarbon fuels shall be determined as specified in 10 CSR 10-6.040(3).

(C) The heat input used for each indirect heating source shall be the equipment manufacturer's or designer's guaranteed maximum input in millions of British Thermal Units (BTUs) per hour, whichever is greater.

(D) The amount of particulate matter emitted shall be determined as specified in 10 CSR 10-6.030(5).

(E) For the purpose of this rule only, the following terms shall have the meaning ascribed:

1. Existing—means any source which was in being, installed or under construction on February 15, 1979, except that if any source is subsequently altered, repaired or

rebuilt at a cost of thirty percent (30%) or more of its replacement cost, exclusive of routine maintenance, it shall no longer be existing but shall be considered as new; and

2. New—means any source which is not an existing source, as defined in paragraph (1)(E)1.

(F) This regulation shall not apply to indirect heating sources subject to the provisions of 10 CSR 10-6.070.

(G) Indirect heating sources requiring permits under 10 CSR 10-6.060 that in turn may require particular air pollution control measures to meet more stringent emission limitations than in this rule shall meet the requirements of 10 CSR 10-6.060 Permits Required.

(2) Maximum Allowable Particulate Emission Rate (ER) From Existing Indirect Heating Sources.

(A) The total heat input of all existing indirect heating sources within an installation shall be used to determine the maximum allowable particulate ER, which is to be applied to each existing indirect heating source within the installation. After that, each indirect heating source within the installation shall be tested and considered independently for compliance with this rule.

(B) Emission Limitations.

1. The maximum allowable particulate ER for an installation of existing indirect heating sources with a heat input rate of less than ten (10) million BTUs per hour shall be 0.60 pounds per million BTUs of heat input.

2. The maximum allowable particulate ER for an installation of existing indirect heating sources with a heat input rate equal to or greater than ten (10) million BTUs per hour and less than or equal to five thousand (5000) million BTUs per hour shall be determined by the following equation:

$$E = 1.09(Q)^{-0.259}$$

where

E = the maximum allowable particulate ER in pounds per million BTUs of heat input, rounded off to two (2) decimal places; and Q = the installation heat input in millions of BTUs per hour.

3. The maximum allowable particulate ER for an installation of existing indirect heating sources with a heat input rate greater than five thousand (5000) million BTUs per hour shall be 0.12 pounds per million BTUs of heat input.

(3) Maximum Allowable Particulate ER From New Indirect Heating Sources.

(A) The total heat input of all new and existing indirect heating sources within an installation shall be used to determine the

maximum allowable particulate ER which is to be applied to each new indirect heating source within the installation. The maximum allowable particulate ER from the existing indirect heating sources within such an installation shall be determined as specified in 10 CSR 10-5.030(2). After that, each indirect heating source within the installation shall be tested and considered independently for compliance with this rule.

(B) Emission Limitations.

1. The maximum allowable particulate ER for new sources in an installation of indirect heating sources with a heat input rate of less than ten (10) million BTUs per hour shall be 0.40 pounds per million BTUs of heat input.

2. The maximum allowable particulate ER for new sources in an installation of indirect heating sources with a heat input rate equal to or greater than ten (10) million BTUs per hour and less than or equal to one thousand (1000) million BTUs per hour shall be determined by the following equation:

$$E = 0.80(Q)^{-0.301}$$

where

E = the maximum allowable particulate ER in pounds per million BTU of heat input, rounded off to two (2) decimal places; and Q = the installation heat input in millions of BTUs per hour.

3. The maximum allowable particulate ER for new sources in an installation of indirect heating sources with a heat input rate greater than one thousand (1000) million BTUs per hour shall be 0.10 pounds per million BTUs of heat input.

(4) Compliance with this rule shall be accomplished by any installation as expeditiously as practicable, but in no case shall final compliance extend beyond three (3) years (March 25, 1979) from the effective date of this rule (March 25, 1976). In the interim each installation shall meet the allowable particulate emission rate applicable to that installation on October 25, 1978.

(5) Alternate Method of Compliance.

(A) Compliance with this rule also may be demonstrated if the weighted average ER of two (2) or more indirect heating sources is less than or equal to the maximum allowable particulate ER determined in section (2) or (3). The weighted average ER for the indirect heating sources to be averaged shall be calculated by the following formula:

$$WAER = \frac{\sum_{i=1}^n (ER_i \cdot Q_i)}{\sum_{i=1}^n Q_i}$$

where
 WAER = the weighted average ER in pounds per million BTUs;
 ER_i = the actual ER of the ith indirect heating source in pounds per million BTUs;
 Q_i = the rated heat input of the ith indirect heating source in millions of BTUs per hour; and
 n = the number of indirect heating sources in the average.

(B) Installations demonstrating compliance with this rule in accordance with the requirements of section (5) shall do so by making written application to the director. The application shall include the calculations performed in paragraph (5)(A)1. and all necessary information relative to making this demonstration. After written approval by the director, the ER used in the calculations of paragraph (5)(A)1. shall become the maximum allowable particulate ER for each specified indirect heating source under this rule.

(C) Section (5) shall apply—

1. To indirect heating sources while burning coal; and
2. If the maximum allowable particulate ER determined in subsection (5)(B) for each indirect heating source does not exceed the maximum allowable particulate ER determined for that source from section (2) or (3) using the rated heat input, Q_i, for the individual indirect heating source as if that individual indirect heating source was the only such source at the installation.

*AUTHORITY: section 643.050, RSMo 1994. *Original rule filed March 14, 1967, effective March 24, 1967. Rescinded and readopted: Filed Aug. 11, 1978, effective Feb. 11, 1979. Amended: Filed March 14, 1984, effective Sept. 14, 1984.*

**Original authority: 643.050, RSMo 1965, amended 1972, 1992, 1993.*

10 CSR 10-5.040 Use of Fuel in Hand-Fired Equipment Prohibited

PURPOSE: This rule prohibits the operation of hand-fired fuel-burning equipment.

(1) General.

(A) This regulation shall apply to all fuel-burning equipment including, but not limited

to, furnaces, heating and cooking stoves and hot water furnaces. It shall not apply to wood-burning fireplaces and wood-burning stoves in dwellings, fires used for recreational purpose nor to fires used solely for the preparation of food by barbecuing.

(B) Hand-fired fuel-burning equipment is any stove, furnace or other fuel-burning device in which fuel is manually introduced directly into the combustion chamber.

(2) Prohibition.

(A) After three (3) years (March 25, 1976) from the effective date of this regulation (March 25, 1976), it shall be unlawful to operate any hand-fired fuel-burning equipment in the St. Louis, Missouri metropolitan area.

(B) The director may order that any hand-fired fuel-burning equipment not be used at any time earlier than three (3) years (March 25, 1976) from the adoption of this regulation (March 25, 1976), whenever that equipment has been found in violation of any air contaminant emission regulation on three (3) or more occasions in any six (6)-month period.

AUTHORITY: section 643.050, RSMo 1994. Original rule filed March 14, 1967, effective March 24, 1967.

**Original authority: 643.050, RSMo 1965, amended 1972, 1992, 1993.*

10 CSR 10-5.050 Restriction of Emission of Particulate Matter From Industrial Processes

(Rescinded March 30, 2001)

AUTHORITY: section 643.050, RSMo 1994. Original rule filed March 14, 1967, effective March 24, 1967. Amended: Filed June 30, 1975, effective July 10, 1975. Amended: Filed March 15, 1979, effective Nov. 11, 1979. Amended: Filed Oct. 13, 1983, effective March 12, 1984. Rescinded: Filed Aug. 4, 2000, effective March 30, 2001.

10 CSR 10-5.060 Refuse Not to be Burned in Fuel Burning Installations

(Rescinded February 11, 1979)

AUTHORITY: section 203.050, RSMo 1975. Original rule filed March 14, 1967, effective March 24, 1967. Rescinded: Filed Aug. 11, 1978, effective Feb. 11, 1979.

10 CSR 10-5.070 Open Burning Restrictions

PURPOSE: This rule prohibits the disposal of refuse by open burning except as provided under specified conditions.

(1) Open Burning Restrictions.

(A) No person shall dispose of household refuse by open burning, or cause, allow or permit open burning of refuse except in areas outside of incorporated municipalities.

(B) All open burning of leaves, brush, or other vegetation shall be prohibited except in areas outside of incorporated municipalities.

(C) No person shall conduct, cause or permit the conduct of a salvage operation by open burning.

(D) No person shall cause or permit the disposal of trade wastes or tires by open burning.

(E) This regulation shall not apply to the following:

1. Fires used for recreational purposes or fires used for the noncommercial preparation of food, such as barbecuing;
2. Flares burning for the combustion of gaseous trade waste;
3. Fires set for the purpose of training fire fighters or industrial employees in fire fighting methods if the director is notified in writing twenty-four (24) hours prior to the fire training. Fire training for industrial employees shall be permitted by the fire department having jurisdiction. In the case of a local fire department accepting buildings for purposes of fire training, it is the responsibility of that fire department to assure all asbestos containing products or materials or petroleum based products or materials such as asphalt shingles and floor or ceiling tiles are removed prior to fire training; and
4. A prescribed burning for natural resource management purposes.

(2) Definitions. Definitions of some of the terms used in this rule may be found in 10 CSR 10-6.020.

(3) Other Restrictions and Provisions.

(A) Effective April 15, 1996, open burning of household refuse shall be a violation of this rule in the entire St. Louis ozone nonattainment area.

(B) Effective April 15, 1996, the open burning of tree leaves or residential brush or any other type of vegetation is limited to the period beginning September 16 and ending April 14 of each calendar year.

(C) Piled material to be open burned under subsection (3)(B) shall be limited to a total base area not to exceed sixteen (16) square feet.

(D) Any open burning allowed under the provisions of subsections (3)(A) and (B) of this rule shall be conducted only between the hours of 10:00 a.m. and 4:00 p.m.



(E) Open burning of vegetation for the purpose of weed and pest control or for the purpose of crop production in the course of agricultural operation is permitted. If the burning is conducted between April 15 and September 15 of each calendar year, the person conducting the burning must notify the director in writing at least forty-eight (48) hours prior to commencement of burning. The notification shall include, but not be limited to, the following: name of the person(s) conducting the burning, description of the burning, phone number, and the duration of burning. The department reserves the right to delay the burning in days when the ambient air level for ozone is high.

(F) An open burning permit may be issued by the director on yearly basis for open burning of vegetation at a solid waste processing or disposal facility provided that an air curtain destructor is utilized. The open burning permit shall not be in lieu of obtaining a construction permit, as applicable, under 10 CSR 10-6.060.

(G) Open burning of vegetation grown on the premises undergoing land clearing operations may be permitted under conditions established by the director.

(H) Any person intending to dispose of vegetation by open burning under subsection (3)(F) or (G) shall file a written request with the director. The director will evaluate the request for air quality impact to determine whether the request should be granted. The request shall state the following:

1. The name, address and telephone number of the person submitting the request;
2. The type of business or activity involved;
3. A description of the proposed open burning operations, including the type, quantity and composition of vegetation to be burned;
4. The schedule of burning operations;
5. The exact location where open burning will be conducted to dispose of vegetation;
6. Reasons why no method other than open burning can be used for disposal of vegetation; and
7. Evidence that the proposed open burning has been approved by any fire department which has jurisdiction. Upon approval of the application by the director, the person may proceed with the operation without being in violation of subsection (3)(F) or (G).

AUTHORITY: section 643.050, RSMo 1994. Original rule filed March 14, 1967, effective March 24, 1967. Amended: Filed Nov. 9, 1983, effective April 12, 1984. Amended: Filed June 30, 1994, effective Jan. 29, 1995.*

**Original authority: 643.050, RSMo 1965, amended 1972, 1992, 1993.*

10 CSR 10-5.080 Incinerators
(Rescinded December 9, 1991)

AUTHORITY: section 203.050, RSMo 1986. Original rule filed March 14, 1967, effective March 24, 1967. Amended: Filed Dec. 15, 1982, effective May 12, 1983. Amended: Filed June 15, 1983, effective Nov. 11, 1983. Amended: Filed Oct. 13, 1983, effective March 12, 1984. Rescinded: Filed May 20, 1991, effective Dec. 9, 1991.

10 CSR 10-5.090 Restriction of Emission of Visible Air Contaminants
(Rescinded May 30, 2000)

AUTHORITY: section 643.050, RSMo 1994. Original rule filed March 14, 1967, effective March 24, 1967. Amended: Filed Jan. 14, 1977, effective July 11, 1977. Rescinded: Filed Sept. 15, 1999, effective May 30, 2000.*

10 CSR 10-5.100 Preventing Particulate Matter From Becoming Airborne
(Rescinded September 28, 1990)

AUTHORITY: section 203.050, RSMo 1986. Original rule filed March 14, 1967, effective March 24, 1967. Amended: Filed June 30, 1975, effective July 10, 1975. Amended: Filed May 11, 1984, effective Oct. 11, 1984. Rescinded: Filed March 5, 1990, effective Sept. 28, 1990.

10 CSR 10-5.110 Restrictions of Emission of Sulfur Dioxide for Use of Fuel
(Rescinded July 30, 1997)

AUTHORITY: section 643.050, RSMo 1986. Original rule filed March 14, 1967, effective March 24, 1967. Amended: Filed Sept. 14, 1978, effective April 12, 1979. Rescinded: Filed Dec. 13, 1996, effective July 30, 1997.

10 CSR 10-5.120 Information on Sales of Fuels to be Provided and Maintained

PURPOSE: This rule provides that information pertaining to the sale of coal or residual fuel oil shall be maintained and provided upon request.

(1) Tickets to be Furnished and Retained. After thirty (30) days from the effective date of this regulation (April 24, 1976), every delivery of coal or residual fuel oil when first delivered to a consumer or wholesaler in the

St. Louis metropolitan area must be accompanied by a ticket prepared in triplicate and containing at least the name and address of the seller and the buyer and the source of the fuel. Tickets on delivery of coal shall also show the ash content of the coal. One (1) copy of each ticket shall be kept by the person delivering the fuel and be retained for one (1) year; one (1) copy is to be given to the recipient of the fuel to be retained for one (1) year; and upon request, within thirty (30) days after delivery of the fuel, the delivering party shall mail one (1) copy to the Air Conservation Commission.

(2) Lists May Be Published. The director is authorized to publish lists of approved sources or other descriptive lists of fuels available in the area which meet the requirements of this regulation.

AUTHORITY: section 643.050, RSMo 1994. Original rule filed March 14, 1967, effective March 24, 1967.*

**Original authority: 643.050, RSMo 1965, amended 1972, 1992, 1993.*

Op. Atty. Gen. No. 331, Shell (11-15-71). The Missouri Air Conservation Commission does not have any specific authority to require the installation of emission monitoring devices, but does have the authority to require reports from sources of air pollution relating to rate, period of emission and composition of effluent, and to make such information available to the public, unless any such information is "confidential" as defined by section 203.050.4, RSMo (1969). The Missouri Air Conservation Commission has the authority under Chapter 203, RSMo (1969) to adopt emission control regulations, including limitations on the content of fuels, which will attain and maintain national air quality standards, if the state standards are the same or more stringent.

10 CSR 10-5.130 Certain Coals to be Washed

PURPOSE: This rule provides that specified coals shall be cleaned by washing prior to their sale or use.

(1) Certain Coals to be Washed. After December 1, 1968, it shall be unlawful for any person to import, sell, offer for sale, expose for sale, exchange, deliver or transport for use and consumption in the St. Louis metropolitan area or to use or consume in the area any coal which as mined contains in excess of two percent (2%) sulfur or twelve percent (12%) ash calculated as described in



10 CSR 10-5.110, unless it shall have been cleaned by a process known as washing so that it shall contain no more than twelve percent (12%) ash on a dry basis. The term washing is meant to include purifying, cleaning or removing impurities from coal by mechanical process, regardless of the cleaning medium used.

(2) Samples May Be Taken. The director is authorized to take or cause or to have taken samples of any coal at any reasonable time or place for purposes of determining compliance with this regulation.

(3) Exception. This regulation shall not apply if a person proposing to use unwashed coal can show that the emission of sulfur dioxide from the plant in which the coal is to be burned will not exceed two and three-tenths (2.3) pounds of sulfur dioxide per million British Thermal Units of heat input to the installation and that emission of particulate matter will be no more than that allowed in 10 CSR 10-5.030.

*AUTHORITY: section 643.050, RSMo 1994. * Original rule filed March 14, 1967, effective March 24, 1967.*

**Original authority: 643.050, RSMo 1965, amended 1972, 1992, 1993.*

10 CSR 10-5.140 Emission of Certain Settleable Acids and Alkaline Substances Restricted

(Rescinded February 11, 1978)

AUTHORITY: section 203.050, RSMo 1969. Original rule filed March 14, 1967, effective March 24, 1967. Rescinded: published Sept. 1, 1977, effective Feb. 11, 1978.

10 CSR 10-5.150 Emission of Certain Sulfur Compounds Restricted

(Rescinded July 30, 1997)

AUTHORITY: section 643.050, RSMo 1996. Original rule filed March 14, 1967, effective March 24, 1967. Amended: Filed Aug. 11, 1978, effective March 11, 1979. Rescinded: Filed Dec. 13, 1996, effective July 30, 1997.

10 CSR 10-5.160 Control of Odors in the Ambient Air

PURPOSE: This rule restricts the emission of excessive odorous matter.

PUBLISHER'S NOTE: The secretary of state has determined that the publication of the entire text of the material which is incorporated by reference as a portion of this rule

would be unduly cumbersome or expensive. This material as incorporated by reference in this rule shall be maintained by the agency at its headquarters and shall be made available to the public for inspection and copying at no more than the actual cost of reproduction. This note applies only to the reference material. The entire text of the rule is printed here.

(1) General Provisions.

(A) No person shall emit odorous matter as to cause an objectionable odor on or adjacent to—

1. Residential, recreational, institutional, retail sales, hotel or educational premises;

2. Industrial premises when air containing odorous matter is diluted with twenty (20) or more volumes of odor-free air; or

3. Premises other than those in paragraphs (1)(A)1. and 2. when air containing odorous matter is diluted with four (4) or more volumes of odor-free air.

(B) The previously mentioned requirement shall apply only to objectionable odors. An odor will be deemed objectionable when thirty percent (30%) or more of a sample of the people exposed to it believe it to be objectionable in usual places of occupancy, the sample size to be at least twenty (20) people or seventy-five percent (75%) of those exposed if fewer than twenty (20) people are exposed.

(2) Exception. The provisions of this rule shall not apply to the emission of odorous matter from the raising and harvesting of crops, nor from the feeding, breeding and management of livestock or domestic animals or fowl except as described in section (3) of this rule.

(3) Control of Odors from Class 1A Concentrated Animal Feeding Operations.

(A) Notwithstanding any provision in any other regulation to the contrary, all Class 1A concentrated animal feeding operations as defined in section 640.703(3), RSMo, operating on or after January 1, 1999, shall prepare and implement an odor control plan describing measures to be used to control odor emissions. The plan shall identify all sources of odor emissions and describe the measures to be used to reduce the overall odor emissions associated with the facility operations. The schedule for these activities shall be as follows:

1. Not later than July 1, 2000, an odor control plan shall be submitted to the Air Pollution Control Program (APCP). The odor control plan shall contain the following:

A. A listing of all potentially innovative and proven odor control options for the facility. Odor control options may include

odor reductions achieved through: odor prevention, odor capture and treatment, odor dispersion, add-on control devices, modifications to feed-stock or waste handling practices, or process changes;

B. A detailed discussion of feasible odor control options for the facility. The discussion shall include options determined by the facility to be infeasible. Determination of infeasibility should be well documented and based on physical, chemical and engineering principles demonstrating that technical difficulties would preclude the success of the control option;

C. A ranking of feasible odor control options from most to least effective. Ranking factors shall include odor control effectiveness, expected odor reduction, energy impacts and economic impacts;

D. An evaluation of the most effective odor control options. Energy, environmental and economic impacts shall be evaluated on a case-by-case basis;

E. Description of the odor control options to be implemented by the facility;

F. A schedule for implementation. The schedule shall establish interim milestones in implementing the odor control plan prior to the implementation deadline; and

G. An odor monitoring plan;

2. The APCP, in consultation with the Water Pollution Control Program, shall review and approve or disapprove the odor control plan.

A. After the APCP receives an odor control plan they shall perform a completeness review. Within thirty (30) days of receipt, the APCP shall notify the facility if the plan contains all the elements of a complete odor control plan. If found incomplete, the APCP shall give the facility a written explanation of the plan's deficiencies.

B. Within sixty (60) days after determining an odor control plan submittal is deemed complete, the APCP shall approve or disapprove the plan. During this sixty (60)-day technical review period, the APCP may request additional information needed for review. If the plan is disapproved, the APCP shall give the owner or operator a written evaluation explaining the reason(s) for disapproval;

3. Not later than March 1, 2001, the facility shall submit to the APCP a written progress report on implementing the odor control plan. The progress report shall, at a minimum, compare the actual schedule of implementation to that approved in the odor control plan; and

4. Not later than January 1, 2002, implementation of the odor control plan shall be complete and controls shall be operational.



(B) Notwithstanding any provision in any other regulation to the contrary, all new Class 1A concentrated animal feeding operations, prior to commencement of construction, shall obtain approval from the APCP of an odor control plan as described above.

(C) After January 1, 2002, no Class 1A concentrated animal feeding operation may cause, permit or allow the emission of odorous matter, beyond the property boundary of the facility or beyond the property boundary of a remote spreading location—

1. In concentrations and frequencies or for durations that the odor can be perceived when one (1) volume of odorous air is diluted with seven (7) volumes of odor-free air for two (2) separate trials not less than fifteen (15) minutes apart within the period of one (1) hour. This odor evaluation shall be taken at a site not at the installation and will be used as a screening evaluation. A positive screening evaluation for odor shall require an odor sample to be taken and evaluated by olfactometry as described in paragraph (3)(C)2. of this rule. These measurements may be made with a Scentometer as manufactured by the Barnebey & Sutcliffe Corporation or by a similar technique that will give equivalent results; and

2. When one (1) of the following conditions is met:

A. In concentrations with a best estimate detection threshold, represented as $Z_{OL} \geq 110$, as determined using American Society for Testing and Materials Standard E 679-04 (published April 2004) at an olfactometer flow rate of twenty (20) liters per minute. This standard is incorporated by reference in this rule, as published by ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2959. This rule does not incorporate any subsequent amendments or additions; or

B. At intensities greater than that of two hundred twenty-five (225) parts per million of n-butanol odorant in air, which serves as the reference scale, as determined by an olfactometry panel evaluation of a sample of the odorous air.

(D) The director may require an ambient air monitoring quality assurance project plan. This plan shall be approved by the director and include or reference the documented and approved standard operating procedures for monitoring, field collection and analysis for any Class 1A CAFO that exceeds the odor emission limits found in paragraph (3)(C)2. of this rule following implementation of its odor control plan. Monitoring shall be done for pollutants or gases reasonably expected to be emitted by the CAFO and implemented on a schedule as agreed to by the source operator and the staff director. Monitoring shall begin and continue as approved in the plan

and shall not exceed eight (8) quarters of complete data unless subsequent violations are determined.

AUTHORITY: section 643.050, RSMo 2000. Original rule filed March 14, 1967, effective March 24, 1967. Amended: Filed Aug. 15, 1983, effective Jan. 13, 1984. Amended: Filed Nov. 2, 1998, effective July 30, 1999. Amended: Filed Feb. 14, 2003, effective Sept. 30, 2003. Amended: Filed Dec. 4, 2006, effective July 30, 2007.*

**Original authority: 643.050, RSMo 1965, amended 1972, transferred from 203.050, 1986, 1992, 1993, 1995.*

10 CSR 10-5.170 Control of Odors From Processing of Animal Matter

PURPOSE: This rule establishes methods and procedures for odor control during the processing of animal matter.

(1) General.

(A) For purposes of this regulation the word reduction is defined as any heated process, including rendering, cooking, drying, dehydrating, digesting, evaporating and protein concentrating. Animal matter is defined as any product or derivative of animal life.

(B) The provisions of this regulation shall not apply to any device, machine, equipment or other contrivance used exclusively for the processing of food for human consumption in food service establishments.

(C) For purposes of this regulation, a food service establishment shall be defined as follows: any fixed or mobile restaurant; coffee shop; cafeteria; short order cafe; luncheonette; grill; tearoom; sandwich shop; soda fountain; tavern; bar; cocktail lounge; night club; roadside stand; industrial feeding establishment; private, public or nonprofit organization or institution routinely serving food; catering kitchen, commissary or similar place in which food or drink is placed for sale or for service on the premises or elsewhere; and any other eating or drinking establishment or operation where food is served or provided for the public with or without charge.

(2) Odor Control Equipment Required on Reduction Processes.

(A) No person shall operate or use any device, machine, equipment or other contrivance for the reduction of animal matter unless all gases, vapors and gas-entrained effluents from the facility are incinerated at a temperature of not less than twelve hundred degrees Fahrenheit (1200°F) for a period of not less than 0.3 second, or processed in a manner as determined by the director to be

equally or more effective for the purpose of air pollution control.

(B) A person incinerating or processing gases, vapors or gas-entrained effluents pursuant to this rule shall provide, properly install and maintain, in good working order and in operation, devices as specified by the director for indicating temperature, pressure or other operating conditions.

(3) Other Odor Control Measures Required.

(A) Effective devices and/or measures shall be installed and operated so that no vent, exhaust pipe, blow-off pipe or opening of any kind shall discharge into the outdoor air any odorous matter, vapors, gases or dusts or any combination which create odors or other nuisances in the neighborhood of the plant.

(B) Odor-producing materials shall be stored and handled in a manner so that odors produced from the materials are confined. Accumulation of odor-producing materials resulting from spillage or other escape is prohibited.

(C) Odor-bearing gases, vapors, fumes or dusts arising from materials in process shall be confined at the point of origin so as to prevent liberation of odorous matter. Confined gases, vapors, fumes or dusts shall be treated before discharge to the atmosphere, as required in subsection (3)(A).

(4) Enclosure of Building May Be Required. Whenever dust, fumes, gases, mist, odorous matter, vapors or any combination thereof escape from a building used for processing of animal matter in a manner and amount as to cause a violation of 10 CSR 10-5.160, the director may order that the building(s) in which processing, handling and storage are done be tightly closed and ventilated in a way that all air and gases and air or gas-borne material leaving the building are treated by incineration or other effective means for removal or destruction of odorous matter or other air contaminants before discharge into the open air.

AUTHORITY: section 643.050, RSMo 2000. Original rule filed March 14, 1967, effective March 24, 1967. Amended: Filed July 19, 2002, effective April 30, 2003.*

**Original authority: 643.050, RSMo 1965, amended 1972, 1992, 1993, 1995.*

10 CSR 10-5.180 Emission of Visible Air Contaminants From Internal Combustion Engine

(Rescinded November 30, 2002)

AUTHORITY: section 643.050, RSMo 1994. Original rule filed March 14, 1967, effective



March 24, 1967. Rescinded Filed Feb. 28, 2002, effective Nov. 30, 2002.

Op. Atty. Gen. No. 331, Shell (11-15-71). The state of Missouri has the authority to inspect for "air pollution control devices" which may be installed on motor vehicles as a requirement to comply with applicable emission regulations, but whether the regulations and inspections would accomplish the purpose of "enforcing compliance with applicable emission standards" which are federal standards, and whether the preemption provision of 42 U.S.C.A., Section 1857f-6a, has been complied with are questions that only the appropriate federal officials can answer.

10 CSR 10-5.190 Approval of Planned Installations

(Rescinded April 11, 1980)

AUTHORITY: section 203.050, RSMo 1978. Original rule filed March 14, 1967, effective March 24, 1967. Amended: Filed Jan. 31, 1972, effective Feb. 10, 1972. Amended: Filed Aug. 25, 1972, effective Sept. 4, 1972. Amended: Filed Aug. 16, 1977, effective Feb. 11, 1978. Rescinded: Filed Dec. 10, 1979, effective April 11, 1980.

Op. Atty. Gen. No. 331, Shell (11-15-71). The Missouri Air Conservation Commission has the authority under Chapter 203, RSMo (1969) to provide for the equivalent of a construction permit system by promulgating regulations to require the submission of plans and specifications for approval before any person may construct any facility which will cause air pollution, but that the commission has no such authority regarding an equivalent permit system for the operation of existing facilities which are the source of air pollution.

10 CSR 10-5.200 Measurement of Emissions of Air Contaminants

(Rescinded April 9, 1992)

AUTHORITY: section 203.050, RSMo 1986. Original rule filed March 14, 1967, effective March 24, 1967. Rescinded: Filed Oct. 16, 1991, effective April 9, 1992.

10 CSR 10-5.210 Submission of Emission Information

(Rescinded November 12, 1984)

AUTHORITY: section 203.050, RSMo 1978. Original rule filed March 14, 1967, effective March 24, 1967. Amended: Filed Aug. 25,

1972, effective Sept. 4, 1972. Rescinded: Filed June 13, 1984, effective Nov. 12, 1984.

Op. Atty. Gen. No. 331, Shell (11-15-71). The Missouri Air Conservation Commission does not have any specific authority to require the installation of emission monitoring devices, but does have the authority to require reports from sources of air pollution relating to rate, period of emission and composition of effluent, and to make such information available to the public, unless any such information is "confidential" as defined by section 203.050.4, RSMo (1969).

10 CSR 10-5.220 Control of Petroleum Liquid Storage, Loading and Transfer

PURPOSE: This rule restricts volatile organic compound emissions from the handling of petroleum liquids in five specific areas: petroleum storage tanks with a capacity greater than forty thousand gallons, the loading of gasoline into delivery vessels, the transfer of gasoline from delivery vessels into storage containers, gasoline delivery vessels and the fueling of motor vehicles from storage containers. This rule is required to achieve the federally mandated reduction of hydrocarbon emissions in the St. Louis metropolitan area that contribute to the formation of ozone.

(1) Definitions.

(A) Definitions of certain terms used in this rule may be found in 10 CSR 10-6.020.

(B) Definitions Specific to this Rule.

1. CARB—California Air Resources Board, 2020 L Street, P.O. Box 2815, Sacramento, CA 95812.

2. Department—Missouri Department of Natural Resources, 205 Jefferson Street, P.O. Box 176, Jefferson City, MO 65102.

3. Director—The director of the Missouri Department of Natural Resources, or a designated representative to carry out the duties as described in 643.060 of the Missouri Air Conservation Law.

4. System—Manufacturer's application of one of the specific designs for Stage II vapor recovery.

5. Staff director—Director of the Air Pollution Control Program of the Department of Natural Resources, or a designated representative.

6. Vapor recovery system modification—Any repair, replacement, alteration or upgrading of vapor recovery equipment or gasoline dispensing equipment beyond normal maintenance of the system as permitted by the staff director. Replacement of equip-

ment with like equipment shall not be considered a vapor recovery system modification.

7. MO/PETP—The Missouri *Performance Evaluation Test Procedures*, a set of test procedures for evaluating performance of Stage I/II vapor control equipment and systems to be installed or that have been installed in Missouri. Contact the department for a copy of the latest MO/PETP.

8. Initial fueling of motor vehicles—The operation of dispensing gasoline fuel into a newly assembled motor vehicle at an automobile assembly plant while the vehicle is still being assembled on the assembly line. The newly assembled motor vehicles being fueled on the assembly line must have fuel tanks that have never before contained gasoline fuel.

9. Ancillary refueling system—Any gasoline dispensing facility that shares a common storage tank with an initial fueling system as defined in paragraph (1)(B)8. of this rule. The purpose of an ancillary refueling system is to refuel in-use motor vehicles at automobile assembly plants.

(2) Applicability.

(A) This rule shall apply throughout St. Louis City and Jefferson, St. Charles, Franklin and St. Louis Counties.

(B) Compliance with this rule does not relieve the owner or operator of the responsibility to comply with other applicable governmental requirements.

(3) Petroleum Storage Tanks.

(A) No owner or operator of petroleum storage tanks shall cause or permit the storage in any stationary storage tank of more than forty thousand (40,000) gallons capacity of any petroleum liquid having a true vapor pressure of one and five-tenths (1.5) pounds per square inch absolute (psia) or greater at ninety degrees Fahrenheit (90°F), unless the storage tank is a pressure tank capable of maintaining working pressures sufficient at all times to prevent volatile organic compound (VOC) vapor or gas loss to the atmosphere or is equipped with one (1) of the following vapor loss control devices:

1. A floating roof, consisting of a pontoon type, double-deck type or internal floating cover or external floating cover, that rests on the surface of the liquid contents and is equipped with a closure seal(s) to close the space between the roof edge and tank wall. Storage tanks with external floating roofs shall meet the additional following requirements:

A. The storage tank is fitted with—



(I) A continuous secondary seal extending from the floating roof to the tank wall (rim-mounted secondary seal); or

(II) A closure or other device approved by the staff director that controls VOC emissions with an effectiveness equal to or greater than a seal required under part (3)(A)1.A.(I) of this rule;

B. All seal closure devices meet the following requirements:

(I) There are no visible holes, tears or other openings in the seal(s) or seal fabric;

(II) The seal(s) is intact and uniformly in place around the circumference of the floating roof between the floating roof and the tank wall; and

(III) For vapor-mounted primary seals, the accumulated area of gaps exceeding 0.32 centimeters, one-eighth inch (1/8") width, between the secondary seal and the tank wall shall not exceed 21.2 cm² per meter of tank diameter (1.0 in² per foot of tank diameter);

C. All openings in the external floating roof, except for automatic bleeder vents, rim space vents and leg sleeves, are equipped with—

(I) Covers, seals or lids in the closed position except when the openings are in actual use; and

(II) Projections into the tank which remain below the liquid surface at all times;

D. Automatic bleeder vents are closed at all times except when the roof is floated off or landed on the roof leg supports;

E. Rim vents are set to open when the roof is being floated off the leg supports or at the manufacturer's recommended setting; and

F. Emergency roof drains are provided with slotted membrane fabric covers or equivalent covers which cover at least ninety percent (90%) of the area of the opening;

2. A vapor recovery system with all storage tank gauging and sampling devices gas-tight, except when gauging or sampling is taking place. The vapor disposal portion of the vapor recovery system shall consist of an absorber system, condensation system, incinerator or equivalent vapor disposal system that processes the vapor and gases from the equipment being controlled; or

3. Other equipment or means of equal efficiency for purposes of air pollution control that may be approved by the staff director.

(B) Control equipment described in paragraph (3)(A)1. of this rule shall not be allowed if the petroleum liquid other than gasoline has a true vapor pressure of 11.1 psia or greater at ninety degrees Fahrenheit (90°F). All storage tank gauging and sam-

pling devices shall be gas-tight except when gauging or sampling is taking place.

(C) Owners and operators of petroleum storage tanks subject to this section shall maintain written records of maintenance (both routine and unscheduled) performed on the tanks, all repairs made, the results of all tests performed and the type and quantity of petroleum liquid stored in them. The records shall be maintained for two (2) years and made available to the staff director upon request.

(D) This section shall not apply to petroleum storage tanks which—

1. Are used to store processed and/or treated petroleum or condensate when it is stored, processed and/or treated at a drilling and production installation prior to custody transfer;

2. Contain a petroleum liquid with a true vapor pressure less than 27.6 kilopascals (kPa) (4.0 psia) at ninety degrees Fahrenheit (90°F);

3. Are of welded construction, and equipped with a metallic-type shoe primary seal and have a shoe-mounted secondary seal or closure devices of demonstrated equivalence approved by the staff director; and

4. Are used to store waxy, heavy pour crude oil.

(4) Gasoline Loading.

(A) No owner or operator of a gasoline loading installation or delivery vessel shall cause or permit the loading of gasoline into any delivery vessel from a loading installation unless the loading installation is equipped with a vapor recovery system or equivalent. This system or system equivalent shall be approved by the staff director and the delivery vessel shall be in compliance with section (6) of this rule.

(B) Loading shall be accomplished in a manner that the displaced vapors and air will be vented only to the vapor recovery system. Measures shall be taken to prevent liquid drainage from the loading device when it is not in use or to accomplish complete drainage before the loading device is disconnected. The vapor disposal portion of the vapor recovery system shall consist of one (1) of the following:

1. An absorber system, condensation system, incinerator or equivalent vapor disposal system that processes the vapors and gases from the equipment being controlled and limits the discharge of VOC into the atmosphere to ten (10) milligrams of VOC vapor per liter of gasoline loaded. Each owner or operator shall comply as expeditiously as practicable but no later than December 31, 1995;

2. A vapor handling system that directs the vapor to a fuel gas system; or

3. Other equipment of an efficiency equal to or greater than paragraph (4)(B)1. or 2. of this rule if approved by the staff director.

(C) Owners or operators of loading installations shall keep complete records documenting the number of delivery vessels loaded and their owners. Records shall be kept for two (2) years and shall be made available to the staff director upon request.

(D) This section shall not apply to a loading installation whose average monthly throughput of gasoline is less than or equal to one hundred twenty thousand (120,000) gallons when averaged over the most recent calendar year, provided that the installation loads gasoline by submerged loading.

1. To maintain the exemption, these installations shall submit to the staff director on a form supplied by the department by February 1 of each year, a report stating gasoline throughput for each month of the previous calendar year. After the effective date of this rule, any revision to the department supplied forms will be presented to the regulated community for a forty-five (45)-day comment period.

2. Delivery vessels purchased after December 31, 1995, shall be Stage I equipped.

3. A loading installation that fails to meet the requirements of the exemption for one (1) calendar year shall not qualify for the exemption again.

4. To maintain the exemption owners or operators shall maintain records of gasoline throughput and gasoline delivery.

5. Delivery vessels operated by an exempt installation shall not deliver to Stage I controlled tanks unless the delivery vessel is equipped with and employs Stage I controls.

(5) Gasoline Transfer.

(A) No owner or operator of a gasoline storage tank or delivery vessel shall cause or permit the transfer of gasoline from a delivery vessel into a gasoline storage tank with a capacity greater than five-hundred (500) gallons unless—

1. The storage tank is equipped with a submerged fill pipe extending unrestricted to within six inches (6") of the bottom of the tank, and not touching the bottom of the tank, or the storage tank is equipped with a system that allows a bottom fill condition;

2. All storage tank caps and fittings are vapor-tight when gasoline transfer is not taking place; and

3. Each storage tank is vented via a conduit that is—



A. At least two inches (2") inside diameter;

B. At least twelve feet (12') in height above grade; and

C. Equipped with a pressure/vacuum valve that is CARB certified at three inches water column pressure/eight inches water column vacuum (3" wcp/8" wcv) except when the owner or operator provides documentation that the system is CARB certified for a different valve and will not function properly with a 3" wcp/8" wcv valve.

(B) Stationary storage tanks having a volume greater than one thousand (1,000) gallons shall also be equipped with a Stage I vapor recovery system and the delivery vessels to these tanks shall be in compliance with section (6) of this rule.

1. The vapor recovery system shall collect no less than ninety percent (90%) by volume of the vapors displaced from the stationary storage tank during gasoline transfer and shall return the vapors via a vapor-tight return line to the delivery vessel. After the effective date of this rule, all coaxial systems shall be equipped with popped fittings.

2. A delivery vessel shall be refilled only at installations complying with the provisions of section (4) of this rule.

3. This section shall not be construed to prohibit safety valves or other devices required by governmental regulations.

(C) No owner or operator of a gasoline delivery vessel shall cause or permit the transfer of gasoline from a delivery vessel into a storage tank with a capacity greater than one thousand (1,000) gallons unless—

1. The owner or operator employs one (1) vapor line per product line during the transfer. The staff director may approve other delivery systems upon submittal to the department of test data demonstrating compliance with paragraph (5)(B)1. of this rule;

2. The vapor hose(s) employed is no less than three inches (3") inside diameter; and

3. The product hose(s) employed is no more than four inches (4") inside diameter.

(D) The owner or operator of stationary storage tanks subject to this section shall keep records documenting the vessel owners and number of delivery vessels unloaded by each owner. Records shall be kept for two (2) years and shall be made available to the staff director within five (5) days of a request. The owner or operator shall retain on-site copies of the loading ticket, manifest or delivery receipt for each grade of product received, subject to examination by the staff director upon request. If a delivery receipt is retained rather than a manifest or loading ticket, the delivery ticket shall bear the following information: vendor name, date of delivery, quan-

tity of each grade, point of origin, and the manifest or loading ticket number. The required retention on-site of the loading ticket, manifest or delivery receipt shall be limited to the four (4) most recent records for each grade of product.

(E) The provisions of subsection (5)(B) of this rule shall not apply to transfers made to storage tanks equipped with floating roofs or their equivalent.

(F) The provisions of subsections (5)(A)–(D) of this rule shall not apply to stationary storage tanks having a capacity less than or equal to two thousand (2,000) gallons used exclusively for the fueling of implements of agriculture.

(6) Gasoline Delivery Vessels.

(A) No owner or operator of a gasoline delivery vessel shall operate or use a gasoline delivery vessel which is loaded or unloaded at an installation subject to section (4) or (5) unless—

1. The delivery vessel is tested annually to demonstrate compliance with the test method specified in 40 CFR part 63, subpart R, section 63.425(e);

2. The owner or operator obtains the completed test results signed by a representative of the testing facility upon successful completion of the leak test. Blank test certification application forms for the test results will be provided to the testing facilities by the department. After the effective date of this rule, any revision to the department supplied forms will be presented to the regulated community for a forty-five (45)-day comment period. The owner or operator shall send a copy of the signed successful test results to the staff director. The staff director, upon receipt of acceptable test results, shall issue an official sticker to the owner or operator;

3. The Missouri sticker is placed on the upper left portion of the back end of the vessel;

4. The delivery vessel is repaired by the owner or operator and retested within fifteen (15) days of testing if it does not meet the leak test criteria of subsection (6)(A) of this rule; and

5. A copy of the vessel's current Tank Truck Tightness Test results are kept with the delivery vessel at all times and made immediately available to the staff director upon request.

(B) An owner or operator of a gasoline delivery vessel who can demonstrate to the satisfaction of the staff director that the vessel has passed a current annual leak test in another state shall be deemed to have satisfied the requirements of paragraph (6)(A)1. of this rule, if the other state's leak test pro-

gram requires the same gauge pressure and test procedures as specified in paragraph (6)(A)1. of this rule. The owner or operator shall apply for a Missouri sticker and display the Missouri sticker on the upper left portion of the back end of the delivery vessel.

(C) Owners or operators of gasoline delivery vessels shall keep records of all tests and maintenance performed on the vessels for not less than two (2) years and these records shall be made available to the staff director upon request.

(D) This section shall not be construed to prohibit safety valves or other devices required by governmental safety regulations.

(7) Fueling of Motor Vehicles.

(A) General Provisions.

1. Except as provided in sections (3)–(5), no owner or operator shall install, permit the use of or maintain any stationary gasoline tank with a capacity of more than one thousand (1,000) gallons or operate a facility with a monthly throughput of greater than ten thousand (10,000) gallons of gasoline unless the storage tank(s) is equipped with a vapor recovery system. The system shall be approved by the staff director based on the current MO/PETP and shall be capable of—

A. Collecting the hydrocarbon vapors and gases discharged during motor vehicle fueling;

B. Preventing their emission into the atmosphere; and

C. Maintaining ninety-five percent (95%) efficiency of total capture and emission reduction.

2. The MO/PETP referenced in paragraph (7)(A)1. of this rule shall not be required before January 1, 1998. Prior to January 1, 1998, CARB documentation of ninety-five percent (95%) efficiency on a belovled balance system shall be required.

3. After January 1, 1999, no facility subject to this section shall employ remote vapor check values.

4. After January 1, 1999, no construction permit for modification or replacement of any equipment or component, including a like for like replacement, shall be approved unless the equipment or component is MO/PETP approved. After January 1, 1999, if a construction permit is not required, no facility utilizing an approved system shall modify or replace any equipment or component, including a like for like replacement, unless the equipment or component is MO/PETP approved. In the event that the staff director finds a violation of this provision, the staff director may require replacement of components or equipment with



MO/PETP approved components or equipment.

5. For the purpose of section (7) of this rule, no vapor recovery systems or devices shall be installed, used or maintained until they are permitted by the director in accordance with sections (10) and (11) of this rule.

6. All tank gauging and sampling sites or ports, valves, breakaways, joints and disconnects on the vapor recovery systems shall be gas-tight to prevent VOC emissions except during gauging or sampling.

7. All vapor recovery systems shall be maintained in good working order in accordance with the manufacturer's specifications and with no indication of visible liquid leaks.

8. The operator of each affected facility shall post operation instructions conspicuously in the gasoline dispensing area for the system in use at each station. The instructions shall clearly describe how to fuel vehicles correctly with vapor recovery nozzles utilized at that station. The instructions shall also include a warning that repeated attempts to continue dispensing gasoline after the system has indicated that the vehicle fuel tank is full may result in spillage of gasoline.

9. The operator of each affected facility shall ensure gasoline is not dispensed at a rate greater than ten (10) gallons per minute.

10. The staff director shall identify and list specific defects that substantially impair the effectiveness of components or systems used for the control of gasoline vapors resulting from motor vehicle fueling operations. This ongoing list shall be used by the staff director as a basis for marking the components or systems out-of-order and shall be made available to any gasoline dispensing facilities subject to subsection (7)(A) of this rule. The list shall be made available to the facility's designated person for use in performing system maintenance.

11. Upon the staff director's identification of substantial defects in equipment or installation of a gasoline vapor control system, the system or components shall be marked "out-of-order" and no person shall use or permit the use of that system or component until those defects and all other defects have been repaired, replaced or adjusted to establish compliance. The components or system may be released into operation when the staff director has reinspected the facility; found the system and components to be in good working order; and removed the "out-of-order" notice. The staff director shall reinspect the previously marked "out-of-order" system or component and other noted defects as expeditiously as possible after notification from the operator that the repairs have been completed. In no case shall the reinspection be more than four

(4) days from the operator's notification that the repairs have been completed. In those cases in which the reinspection cannot be scheduled within the required time, the owner or operator may remove the "out-of-order" notice with permission of the staff director. If reinspection reveals that compliance has not been established, the system or components shall remain tagged "out-of-order." The staff director shall conduct a second reinspection within seven (7) days from the operator's notification that repairs have been completed.

(B) Section (7) of this rule shall not apply to any stationary tank used primarily for the fueling of agricultural implements or implements of husbandry. For purposes of this section, agricultural implements and implements of husbandry shall refer to vehicles exempted from licensing requirements by the Missouri Department of Revenue.

(C) Section (7) of this rule shall not apply to any fueling system used for the initial fueling of motor vehicles as defined in paragraph (1)(B)8. of this rule.

(D) Subsection (7)(A) of this rule shall apply to any ancillary refueling system as defined in paragraph (1)(B)9. of this rule.

(8) Initial Fueling of Motor Vehicles.

(A) Section (8) of this rule shall only apply to the fueling system used for the initial fueling of motor vehicles as defined in paragraph (1)(B)8. of this rule.

(B) General Provisions.

1. No owner or operator shall install, permit the use of or maintain any stationary gasoline tank for the purpose of initial fueling of new motor vehicle gasoline tanks unless the dispensing system is equipped with a vapor recovery system. The system shall be approved by the staff director based on the current MO/PETP and shall be capable of—

A. Collecting the hydrocarbon vapors and gases discharged during initial motor vehicle fueling, storage tank loading, breathing, and working losses;

B. Preventing their emission into the atmosphere; and

C. Maintaining ninety-five percent (95%) efficiency of total capture and emission reduction of the fueling and dispensing operation and the storage tank loading, breathing, and working loss emissions.

2. After January 1, 1999, no facility utilizing an approved system shall modify or replace any equipment or component, including a like for like replacement, unless the equipment or component is MO/PETP approved. In the event that the staff director finds a violation of this provision, the staff director may require replacement of compo-

nents or equipment with MO/PETP approved components or equipment.

3. All tank gauging and sampling sites or ports, valves, flanges, breakaways, joints and disconnects on the vapor recovery systems shall be gas-tight to prevent VOC emissions except during gauging or sampling. Under no circumstances shall there be any visible liquid leaks or detectable vapor emissions.

4. All vapor recovery systems shall be maintained in good working order in accordance with the manufacturer's specifications and with no indication of visible liquid leaks.

5. These facilities and their vapor recovery systems are subject to all conditions of the MO/PETP Approval document.

6. The owner or operator of a vapor recovery system must conduct regular preventative maintenance self-inspections and conduct any necessary repairs upon identification of those defects. The facility must conduct all maintenance specified by manufacturer guidelines. These manufacturer guidelines must be made available to inspectors upon request.

7. Records must be kept on-site of all self-inspections, defects found, repairs, and maintenance activities. Records must be made available to the department inspectors upon request.

8. Facilities will allow the department to make vapor recovery inspections at any time to ensure systems are in working order and are being maintained and operated according to permits and regulations, MO/PETP approvals, and manufacturer recommendations.

9. The department and local agency Stage II inspectors will make every attempt to avoid disrupting assembly line production. This may be done by allowing initial fueling site personnel to make repairs on the spot, or within a reasonable time frame. However, this consideration will not affect recording of defects or enforcement action.

10. After repairs are made and notification by the plant is received, the department or local agency will reinspect all defects found in official Stage II inspections. Failure by a facility to notify the department of repairs and request reinspection within fifteen (15) days of repair may result in enforcement action.

(9) Permits Required.

(A) All facilities subject to subsection (7)(A) of this rule, except facilities subject to subsection (7)(D) of this rule, shall meet the following permitting requirements:

1. No facility subject to section (7) of this rule shall construct or undergo vapor



recovery system modification without permits obtained according to section (10) of this rule; and

2. No facility subject to section (7) of this rule shall operate without an operating permit obtained according to section (11) of this rule.

(B) All facilities subject to subsection (7)(D) and section (8) of this rule shall meet the following permitting requirements:

1. The facility must apply for a Stage II construction permit for all modifications or construction of initial fueling systems or ancillary refueling systems. All performance testing in sections (10) and (11) of this rule shall be conducted to ensure system integrity; and

2. All operating permitting requirements of section (11) of this rule, except subsection (11)(B) of this rule, are applicable to any initial fueling systems or ancillary refueling systems. Except for the initial Stage II Operating Permit, Stage II Operating Permits shall be incorporated as part of the facility applicable requirements of Part 70 Operating Permits according to 10 CSR 10-6.065.

(10) Construction Permits for Vapor Recovery Systems for New Facilities and Vapor Recovery System Modification for Existing Facilities. No new gasoline dispensing facility that requires a Stage II vapor recovery system shall begin construction prior to obtaining a construction permit according to subsection (10)(A) of this rule. Facilities shall apply for permits to test experimental technology according to subsection (10)(B) of this rule. Existing facilities that undergo vapor recovery system modification shall obtain permits according to subsection (10)(C) of this rule. Owners, operators and contractors beginning construction without first obtaining a construction permit are subject to enforcement action.

(A) Owners or operators of new gasoline dispensing facilities that require Stage II equipment shall—

1. Submit an application on a form supplied by the department for a permit to construct at least sixty (60) days prior to beginning construction. The application shall include:

A. Complete diagrams and a thorough description of the planned facility;

B. Plumbing diagrams including vapor lines, vent lines, slope of return vapor lines, material of all underground, above ground and dispenser plumbing, grade of site in relation to tanks, plumbing, and dispensers;

C. Current CARB executive orders for the proposed system and/or the system

components. After January 1, 1998, no facility shall be issued a construction permit unless the system that will be installed has been demonstrated to achieve ninety-five percent (95%) efficiency according to paragraph (7)(A)1. of this rule. After January 1, 1999, no facility shall be issued a construction permit unless the equipment and components of the approved system that will be installed have been MO/PETP tested and approved;

D. At the option of the owner/operator, full port ball valves may be installed just below the riser of the vapor chamber. The ball valves shall be sealed fully open at all times except during testing. The ball valve shall be tested in line during the dynamic back pressure blockage test;

E. Detailed description of the storage tank(s). The storage tank(s) shall be—

(I) Type I tank(s). A Type I tank is an underground storage tank that shall be covered with not less than six inches (6") of soil and/or concrete; or

(II) Type II tank(s). A Type II tank is one that has any portion of the shell exposed to the atmosphere. A Type II tank shall be equipped with a vapor processor; and

F. Schedule of construction;

2. Obtain a construction permit prior to beginning construction. The director shall issue a construction permit or a permit rejection within thirty (30) days of receipt of the application. When an appeal is made following rejection of the application to construct, that appeal shall be filed within thirty (30) days of the notice of rejection;

3. Display the construction permit in a prominent location during construction;

4. Notify the department seven (7) calendar days prior to the anticipated completion date of underground piping and schedule a mutually acceptable inspection date. In the event that no mutually acceptable date is available, the staff director shall schedule the inspection date. The underground piping shall not be covered without visual inspection by the staff director. If defects are found, the staff director shall provide written notice of those defects;

5. Establish compliance with all rules and requirements of the department including those in Title 10 of the *Code of State Regulations*;

6. Document for the staff director that prior to the introduction of product, the tank and piping system were subjected to a construction pressurization test of not more than five pounds per square inch (5 psi) and not less than four and five-tenths pounds per square inch (4.5 psi) and maintained this pressure for not less than thirty (30) minutes;

7. Obtain staff director approval of final test methods and procedures that will be used to prove compliance;

8. Within thirty (30) days of completion of construction, conduct and pass final leak tests and dynamic back pressure/liquid blockage tests to show compliance with department requirements. The staff director may observe the test; and

9. Obtain and maintain on-site in a prominent location the current operating permit from the director for the site and the specific vapor recovery system that was installed. The operating permit is renewable every five (5) years and shall be maintained according to section (11) of this rule.

(B) The director may approve experimental technology for a specific gasoline dispensing facility. Experimental technology may be approved for up to one (1) year for a limited number of stations under specific conditions determined by the staff director. Facilities applying for approval of experimental technology shall—

1. Submit an application for director approval at least ninety (90) days prior to beginning construction. The application shall include, but not be limited to:

A. Complete diagrams and a thorough description of the planned facility;

B. Plumbing diagrams including vapor lines, vent lines, slope of return vapor lines, material of all underground, above ground and dispenser plumbing, grade of site in relation to tanks, plumbing, and dispensers; and

C. Standards, test data, history, and related information for the proposed system;

2. Submit to the staff director a detailed plan for the construction and operation of the system. The plan shall include a description of the planned testing and record keeping for the facility. The director may issue the construction permit when all conditions of the testing facility are deemed satisfactory;

3. Display the construction permit in a prominent location during construction;

4. Install monitoring equipment to prove that the vapor recovery system is leak-tight if requested by the staff director; and

5. Upon completion of testing, obtain and maintain on-site in a prominent location a current operating permit from the director for the specific innovative technology that is in operation. The permit shall specify the technology, the location and the time period the technology will be tested.

(C) Existing facilities that are subject to section (7) or (8) of this rule and undergo vapor recovery system modification shall—



1. Submit an application on a form supplied by the department for a permit to construct prior to beginning modifications. After the effective date of this rule, any revision to the department supplied forms will be presented to the regulated community for a forty-five (45)-day comment period. Applications for construction permits shall be submitted for projects that include, but are not limited to:

A. Modifications that require breaking concrete in an area that may affect the vapor lines; and

B. Modifications that may affect the vapor lines themselves;

2. Supply any information required by the staff director for the specific facility. Such information may include, but not be limited to, plumbing diagrams, including vapor lines, vent lines, slope of vapor lines, material of all underground, above ground and dispenser plumbing, grade of site in relation to tanks, plumbing and dispensers, current CARB executive orders for the proposed system and equipment, and proof of compliance with all rules and requirements of the department including those in Title 10 of the *Code of State Regulations*;

3. Obtain a construction permit prior to beginning the modification. Continued operation during the construction requires department approval. The director shall issue a construction permit or a permit rejection within thirty (30) days of receipt of the application. When an appeal is made following rejection of the application, that appeal shall be filed within thirty (30) days of the notice of rejection;

4. Display the construction permit in a prominent location during construction;

5. Establish a schedule for inspection and testing as required by the staff director and notify the department seven (7) calendar days prior to the anticipated completion date of underground piping and schedule a mutually acceptable inspection date. In the event that no mutually acceptable date is available, the staff director shall schedule the inspection date. The underground piping shall not be covered without visual inspection by the staff director. If defects are found, the staff director shall provide written notice of those defects;

6. Supply test results to the staff director;

7. Receive staff director approval of final test methods and procedures that will be used to prove compliance;

8. Within thirty (30) days of completion of construction, conduct and pass final leak tests and dynamic back pressure/liquid blockage tests to show compliance with department

requirements. The staff director may observe the tests; and

9. Upon completion of testing, obtain and display in a prominent location on-site the current operating permit from the director for the specific site and the specific vapor recovery system that was installed.

A. The operating permit shall be maintained according to section (11) of this rule, except subsection (11)(B) of this rule shall not apply to initial fueling systems and ancillary refueling systems at automobile assembly facilities.

B. The operating permit is renewable every five (5) years, except for operating permits covering initial fueling systems and ancillary refueling systems at automobile assembly facilities. Automobile assembly facilities shall apply for an initial Stage II Operating Permit covering both their initial fueling systems and their ancillary refueling systems that will be current until their Part 70 Operating Permit is renewed.

C. Except for the initial Stage II Operating Permit, the operating permit for automobile assembly facilities that covers their initial fueling systems and their ancillary refueling systems shall be incorporated as part of the facility applicable requirements of 10 CSR 10-6.065 Operating Permits.

(11) Operating Permits for Existing Facilities. All existing facilities subject to section (7) or (8) of this rule must apply to the director for an operating permit.

(A) Initial Operating Permits. The term of the initial permit shall be established by the staff director. In order to obtain an operating permit an existing facility shall—

1. Apply to the director for an operating permit within sixty (60) days of the date of the staff director's notice to apply and test within ninety (90) days of the notice. However, no facility subject to this requirement shall operate after January 1, 1999, without an operating permit;

2. Provide documentation that the Stage II system is certified by CARB as having a vapor recovery or removal efficiency of at least ninety-five percent (95%);

3. Conduct and pass a department-approved back pressure blockage test and a department-approved leak decay test. The owner/operator of the facility shall schedule the tests and notify the staff director of the test dates at least seven (7) days prior to the testing date. The staff director may observe the tests. The owner/operator of the facility shall provide satisfactory test results to the staff director;

4. Designate a person(s) who has attended a department-approved training course for

the Stage II equipment that is installed at that facility. A designated person shall be available for consultation to facility personnel and to the department;

5. Demonstrate that the facility maintains a system of recordkeeping that meets the staff director's requirements; and

6. Establish compliance with all rules and requirements of the Missouri Department of Natural Resources including those in Title 10 of the *Code of State Regulations*.

(B) Renewal of Operating Permits. The operating permit is renewable on the date specified in the initial operating permit and for periods of five (5) years after the initial permit term expires. In order to renew the operating permit a facility shall—

1. Apply to the director for renewal of the operating permit and test within ninety (90) days prior to the renewal date;

2. Demonstrate that the facility maintained all system components in good operating order during the preceding operating permit term including prompt efforts to establish compliance following "out-of-order" notices;

3. Schedule staff director-approved tests prior to the expiration date of the permit, notify the staff director of test dates at least fourteen (14) days prior to test dates and provide documentation that the system passed the tests;

4. Maintain records according to section (12) of this rule;

5. A facility using a system that is decertified by CARB shall establish compliance with this rule within one (1) year or by the next renewal date of the operating permit whichever is longer. Failure to establish compliance will result in nonrenewal of the operating permit; and

6. After January 1, 2001, no operating permit shall be renewed without documentation that the Stage II system in use at the facility can be demonstrated to achieve ninety-five percent (95%) efficiency as specified in paragraph (7)(A)1. of this rule. Replacement of equipment and/or components in place as part of an approved system on January 1, 1999, shall not be required as long as the equipment and/or components pass operating permit tests.

(12) Owner/Operator Compliance. The owner or operator of a vapor recovery system subject to this rule shall—

(A) Operate the vapor recovery system and the gasoline loading equipment in a manner that prevents—

1. Gauge pressure from exceeding four thousand five hundred (4,500) pascals (eighteen inches (18") of H₂O) in the delivery vessel;



2. A reading equal to or greater than one hundred percent (100%) of the lower explosive limit (LEL), measured as propane at two point five (2.5) centimeters from all points on the perimeter of a potential leak source when measured by the method referenced in 10 CSR 10-6.030(14)(E) during loading or transfer operations; and

3. Visible liquid leaks during loading or transfer operations; and

(B) Repair and retest within fifteen (15) days, a vapor recovery system that exceeds the limits in section (12) of this rule; and

(C) Maintain records of department permits, inspection reports, enforcement documents, training certifications, gasoline deliveries, routine and unscheduled maintenance and repairs and all results of tests conducted. Records shall be kept for two (2) years. Unless otherwise specified in this rule, records shall be available to the staff director within five (5) days of a request.

(13) Testing and Monitoring Procedures and Reporting.

(A) Testing and monitoring procedures to determine compliance with section (6) of this rule and confirm the continuing existence of leak-tight conditions shall be according to 10 CSR 10-6.030(14)(B)1. or by any method determined by the staff director.

(B) Testing procedures to determine compliance with paragraph (4)(B)1. shall be according to 10 CSR 10-6.030(14)(A) or by any method determined by the staff director.

(C) The staff director, at any time, may monitor a facility subject to section (7) of this rule. The staff director may require a leak test, a back pressure blockage test, an air-to-liquid test, a pressure/vacuum valve test or may require any test or monitoring procedure in order to determine compliance with this rule.

(D) The staff director, at any time, may monitor a delivery vessel, vapor recovery system or gasoline loading equipment by a method determined by the staff director to confirm continuing compliance with this rule.

(E) An annual staff director-approved back pressure blockage test and/or air-to-liquid test may be required. Additional testing may also be required by the staff director in order to determine proper functioning of vapor recovery equipment.

(14) Vapor Recovery Advisory Group. The St. Louis Vapor Recovery Advisory Group shall advise the staff director on vapor recovery issues in the St. Louis nonattainment area.

(A) Composition. The advisory group will consist of one (1) representative from each of these agencies or organizations:

1. Missouri Department of Natural Resources, Air Pollution Control Program;

2. Missouri Department of Natural Resources, Hazardous Waste Program Underground Storage Tank Unit;

3. St. Louis City Air Pollution Control Agency or St. Louis County Air Pollution Control Agency;

4. Missouri Department of Agriculture, Division of Weights and Measures;

5. An organization representing petroleum marketers;

6. An organization representing petroleum equipment contractors; and

7. An organization representing oil refiners.

(B) Purpose. The St. Louis Vapor Recovery Advisory Group shall review, study and make recommendations to the staff director on vapor recovery issues. Any member of the advisory group may bring an issue to the attention of the group. The advisory group shall—

1. Review vapor recovery system components that frequently fail;

2. Review CARB certifications and decertifications of vapor recovery system components;

3. Develop modifications to established tests such as the leak decay test and the back pressure blockage test. Modified test procedures shall prove integrity of Stage I and Stage II systems but may be designed for cost and time efficiency; and

4. Review any other vapor recovery issues deemed appropriate by the staff director.

(C) Limitations. The advisory group is subject to all applicable state and federal statutes and regulations. All advisory group meetings shall comply with the Missouri Sunshine Act. The advisory group assumes no regulatory authority.

AUTHORITY: section 643.050, RSMo Supp. 1998. Original rule filed March 14, 1967, effective March 24, 1967. Amended: Filed Jan. 31, 1972, effective Feb. 10, 1972. Amended: Filed Aug. 25, 1972, effective Sept. 4, 1972. Amended: Filed Aug. 16, 1977, effective Feb. 11, 1978. Amended: Filed March 13, 1980, effective Sept. 12, 1980. Amended: Filed Dec. 5, 1980, effective May 11, 1981. Amended: Filed Nov. 2, 1984, effective May 11, 1985. Amended: Filed Dec. 3, 1985, effective Oct. 1, 1986. Amended: Filed Oct. 4, 1988, effective March 11, 1989. Amended: Filed Nov. 27, 1989, effective May 24, 1990. Rescinded and Readopted: Filed*

Aug. 15, 1994, effective April 30, 1995. Amended: Filed May 15, 1995, effective Dec. 30, 1995. Amended: Filed Jan. 16, 1996, effective Sept. 30, 1996. Amended: Filed Dec. 28, 1998, effective Aug. 30, 1999.

**Original authority: 643.020, RSMo 1965, amended 1972, 1992, 1993, 1995.*

10 CSR 10-5.230 Circumvention
(Rescinded September 28, 1990)

AUTHORITY: section 203.050, RSMo 1986. Original rule filed March 14, 1967, effective March 24, 1967. Rescinded: Filed April 18, 1990, effective Sept. 28, 1990.

10 CSR 10-5.240 Additional Air Quality Control Measures May be Required When Sources Are Clustered in a Small Land Area

PURPOSE: This rule provides that more restrictive air quality control requirements may be prescribed for areas in which the sum of particulate and/or sulfur dioxide emissions from existing and proposed sources exceed specified limits.

(1) Areas to Which This Regulation Applies.

(A) This regulation shall apply to areas in which there are one (1) or more existing sources and/or proposed new sources of particulate matter in any circular area with a diameter of two (2) miles (including sources outside metropolitan area) from which the sum of particulate emissions allowed from these sources by regulations of general application are or would be greater than two thousand (2,000) tons per year or five hundred (500) pounds per hour.

(B) This regulation shall apply in areas in which there are one (1) or more existing sources and/or proposed new sources of sulfur dioxide in any circular area with a diameter of two (2) miles from which the sum of sulfur dioxide emissions from these sources allowed by regulations of general application are or would be greater than one thousand (1,000) tons for any consecutive three (3) months or one thousand (1,000) pounds per hour.

(2) Air Conservation Commission May Prescribe More Restrictive Air Quality Control Measures. In areas where this regulation applies, as specified in section (1), the Air Conservation Commission may prescribe air quality control requirements that are more restrictive and more extensive than provided in regulations of general application.



AUTHORITY: section 643.050, RSMo 1994. Original rule filed March 14, 1967, effective March 24, 1967.*

**Original authority: 643.050, RSMo 1965, amended 1972, 1992, 1993.*

Op. Atty. Gen. No. 331, Shell (11-15-71). The Missouri Air Conservation Commission has the authority under Chapter 203, RSMo (1969) and the Constitution of Missouri to enforce without delay the provisions of Chapter 203, RSMo (1969) and standards, regulations corresponding, through administrative procedures and injunctive relief.

10 CSR 10-5.250 Time Schedule for Compliance

PURPOSE: This rule specifies the time schedule for compliance with regulations by new and existing sources.

(1) General Provisions. Except as otherwise specified, compliance with the provisions of this regulation shall be according to the following time schedule:

(A) All new installations shall comply as of going into operation;

(B) All existing installations not in compliance as of the effective date (March 24, 1967) shall be in compliance within six (6) months of the effective date (September 24, 1967) unless the owner or person responsible for the operation of the installation shall have submitted to the director in a form and manner satisfactory to him/her a program and schedule for achieving compliance, the program and schedule to contain a date on or before which full compliance will be attained, and other information as the director may require. If approved by the director, that date will be the date on which the person shall comply. The director may require persons submitting the program to submit subsequent periodic reports on progress in achieving compliance; and

(C) All other dates notwithstanding, all existing installations in Franklin County shall be in compliance with this regulation by January 31, 1972, except for—

1. Cities having a population in the range between two thousand and ten thousand (2,000–10,000) inhabitants shall be in compliance with 10 CSR 10-5.070 by September 20, 1972;

2. Cities having a population of fewer than two thousand (2,000) inhabitants shall be in compliance with 10 CSR 10-5.070 by September 20, 1973; and

3. Sources emitting sulfur dioxide from the use of fuel shall be in compliance with 10 CSR 10-5.110 by January 31, 1973.

AUTHORITY: section 643.050, RSMo 1994. Original rule filed March 14, 1967, effective March 24, 1967. Amended: Filed Jan. 31, 1972, effective Feb. 10, 1972.*

**Original authority: 643.050, RSMo 1965, amended 1972, 1992, 1993.*

10 CSR 10-5.260 Rules for Controlling Emissions During Periods of High Air Pollution Potential

(Rescinded October 11, 1984)

AUTHORITY: section 203.050, RSMo 1978. Original rule filed Sept. 8, 1970, effective Sept. 18, 1970. Amended: Filed Jan. 31, 1972, effective Feb. 10, 1972. Rescinded: Filed May 11, 1984, effective Oct. 11, 1984.

Op. Atty. Gen. No. 331, Shell (11-15-71). The Missouri Air Conservation Commission has the authority under Chapter 203, RSMo (1969), to abate pollutant emissions on an emergency basis comparable to that available under 42 U.S.C.A., Section 1857d(k).

10 CSR 10-5.270 Public Availability of Emission Data

(Rescinded November 12, 1984)

AUTHORITY: section 203.050, RSMo 1978. Original rule filed Aug. 25, 1972, effective Sept. 4, 1972. Rescinded: Filed June 13, 1984, effective Nov. 12, 1984.

Op. Atty. Gen. No. 331, Shell (11-15-71). The Missouri Air Conservation Commission does not have any specific authority to require the installation of emission monitoring devices but does have the authority to require reports from sources of air pollution relating to rate, period of emission and composition of effluent and to make the information available to the public unless any such information is “confidential” as defined by section 203.050.4, RSMo (1969).

10 CSR 10-5.280 New Source Performance Regulation

(Rescinded April 11, 1980)

AUTHORITY: section 203.050, RSMo 1975. Original rule filed Dec. 19, 1975, effective Dec. 29, 1975. Rescinded: Filed Dec. 10, 1979, effective April 11, 1980.

Op. Atty. Gen. No. 331, Shell (11-15-71). The Missouri Air Conservation Commission has the authority under Chapter 203, RSMo (1969), to adopt emission control regulations, including limitations on the content of fuels, which will attain and maintain national air quality standards, if the state standards are the same or more stringent.

10 CSR 10-5.290 More Restrictive Emission Limitations for Particulate Matter in the South St. Louis Area

PURPOSE: This rule provides for more restrictive emission limitations for an area in South St. Louis and St. Louis County which has been characterized by ambient levels of particulate and sulfur dioxide in excess of the national ambient air quality standards. The more restrictive limitations are for particulate matter and will affect the emissions from the by-product coke ovens at 526 East Catalan Street. The more restrictive fugitive particulate rule, however, will apply to all sources in the area identified in this rule.

Editor’s Note: The secretary of state has determined that the publication of this rule in its entirety would be unduly cumbersome or expensive. The entire text of the material referenced has been filed with the secretary of state. This material may be found at the Office of the Secretary of State or at the headquarters of the agency and is available to any interested person at a cost established by state law.

(1) Applicability. Except as otherwise provided, this rule shall apply to all sources in an area bounded as follows: Beginning at St. Louis County on the west bank of the Mississippi River approximately three thousand five hundred feet (3,500') south of the confluence of the River des Peres and Mississippi River at the intersection of an extension of Rippa Street and the bank of the Mississippi River, west along Rippa Street to Broadway, north on Broadway to Vincent, west on Vincent to Gentry, northeast on Gentry to Orient, northwest on Orient to Lemay Ferry Road, northeast on Lemay Ferry Road to Bayless Avenue, northwest on Bayless Avenue to Interstate 55, northeasterly on Interstate 55 crossing the boundary between the City and County of St. Louis to Loughborough, then easterly on Loughborough to the west bank of the Mississippi River, to the point of beginning all lying within St. Louis City and St. Louis County.



(2) Restrictions Applicable to All Installations/Restriction of Emissions of Fugitive Particulate Matter.

(A) No person may cause or permit the handling, transporting or storage of any material in a manner which allows particulate matter to become airborne in quantities and concentrations that—1) it remains visible in the ambient air beyond the premises where it originates or 2) its presence may be found beyond the premises where it originates and it is larger than forty (40) microns in size. The size of the particulate matter shall be determined by microscopy or any other technique proven to be equally accurate.

(B) No person may cause or permit a building or its appurtenances, a road, a driveway, a parking lot or an open area to be constructed, used, repaired or demolished without applying all reasonable measures as may be required to prevent particulate matter from becoming airborne. The director may require a person owning, operating or otherwise in control of the building, appurtenance, road, driveway, parking lot or open area to take reasonable measures as may be necessary to prevent particulate matter from becoming airborne including, but not limited to, paving or frequent cleaning of roads, driveways and parking lots, application of dust-free surfaces, application of water and the planting and maintenance of vegetative ground cover or buffer zones.

(C) No person may emit into the ambient air from any air contaminant source fugitive emissions greater than that which would be emitted after application of all reasonably available control technologies and all reasonable maintenance of plant and equipment.

(3) Restrictions Applicable to the By-Product Coke Ovens at 526 East Catalan Street.

(A) The owner or operator shall control the visible emissions from the coke ovens so that—

1. The visible emissions from the coke side hood shall not exceed ten percent (10%) opacity, as averaged from four (4) consecutive pushes. No instantaneous visible emission from the coke side hood shall exceed forty percent (40%) opacity at any time. Compliance shall be determined in accordance with procedures specified in 10 CSR 10-6.030(9). Opacity shall be read every fifteen (15) seconds for the duration of visible emissions escaping the coke side shed from four (4) consecutive pushes;

2. No visible emissions shall occur during charging of coke ovens except for a period of one hundred (100) seconds aggregated over six (6) consecutive charges. Compliance

shall be determined in accordance with procedures specified in 10 CSR 10-6.030(15);

3. No more than two percent (2%) of the operating charging hole lids have any visible emissions;

4. No more than five percent (5%) of the operating offtakes having any visible emissions;

5. No more than ten percent (10%) of the operating pusher side coke oven door areas having any visible emissions;

6. No more than five percent (5%) of the operating coke side, coke oven door areas shall have any visible emissions at any one (1) time. Compliance shall be determined in accordance to procedures specified in 10 CSR 10-6.030(18), except that the observer shall walk under the hood outside the quench car rails; and

7. The opacity from the battery stacks not exceeding twenty percent (20%).

(B) The owner or operator shall install an air pollution control device for the emissions collected from the hoods. The particulate matter emissions from the air pollution control device shall be limited to .004 grains per standard cubic foot during the pushing operation and .002 grains per standard cubic foot when the pushing of coke is not occurring. If the requirements in paragraphs (3)(A)1.-7. of this rule are not met the control device shall be operated.

(C) The owner or operator shall control the coke pushing operation by modification of the existing hoods so they shall collect at least ninety percent (90%) of the particulate matter generated during the pushing operation.

(4) Compliance Schedule Applicable to the By-Product Coke Ovens at 526 Catalan Street.

(A) The owner or operator shall purchase and install a new larry car on the coke oven batteries which shall comply with the requirements listed in 29 CFR section 1910.1029 (1983) on the following schedule:

1. The larry car shall be delivered by January 1, 1980;

2. The larry car shall be erected by March 1, 1980; and

3. Testing and shakedown of the larry car shall be completed by June 1, 1980.

(B) The owner or operator shall purchase and install a new level bar boot which shall be designed and installed in compliance with the requirements listed in 29 CFR section 1910.1029 on the following schedule:

1. Equipment was purchased by January 11, 1978;

2. Equipment shall be delivered by December 1, 1978; and

3. Equipment shall be installed by May 1, 1979.

(C) The owner or operator shall fabricate and modify the hood on the following schedule:

1. The hood fabrication shall be completed by March 1, 1978; and

2. Hood modifications shall be completed by June 1, 1978.

(D) The control device shall be constructed, tested, operated and maintained in accordance with the following:

1. Engineering of the air pollution control device shall be completed by March 1, 1979;

2. Equipment shall be delivered by September 1, 1979;

3. Equipment shall be constructed by January 1, 1980;

4. Testing shall be completed and final compliance with this rule by April 1, 1980; and

5. Operational checks shall be performed weekly along with the necessary maintenance on the control device and related equipment necessary for operation of the control device to ensure that the control device will be fully operational when its use is required. Maintenance records of the control device and related equipment shall be kept on-site for two (2) years from date of maintenance for review by any representative of the Air Pollution Control Program.

(E) A dual row of overlapping baffles shall be installed and maintained in the quench tower by July 31, 1985. Weekly maintenance and cleaning of the baffles shall be performed to maintain one hundred percent (100%) baffle cross-sectional area at all times. Maintenance records of the quench tower shall be kept on site for two (2) years from date of maintenance for review by any representative of the Air Pollution Control Program.

AUTHORITY: section 643.050, RSMo 1994. Original rule filed Feb. 27, 1978, effective Dec. 11, 1978. Amended: Filed Nov. 10, 1981, effective May 13, 1982. Amended: Filed March 14, 1985, effective Aug. 26, 1985.*

**Original authority: 643.050, RSMo 1965, amended 1972, transferred from 203.050 in 1986, 1992, 1993.*

10 CSR 10-5.295 Control of Emissions From Aerospace Manufacture and Rework Facilities

PURPOSE: This rulemaking will reduce volatile organic compound emissions from



aerospace manufacture and/or rework facilities located in the St. Louis nonattainment area. This rulemaking is required to comply with the Clean Air Act Amendments of 1990.

PUBLISHER'S NOTE: The publication of the full text of the material that the adopting agency has incorporated by reference in this rule would be unduly cumbersome or expensive. Therefore, the full text of that material will be made available to any interested person at both the Office of the Secretary of State and the office of the adopting agency, pursuant to section 536.031.4, RSMo. Such material will be provided at the cost established by state law.

(1) Applicability.

(A) This rulemaking shall apply throughout St. Louis City and Jefferson, St. Charles, Franklin, and St. Louis Counties.

(B) The requirements of this rulemaking shall apply to all aerospace manufacture and/or rework facilities with potential emissions of volatile organic compounds exceeding twenty-five (25) tons per year.

(2) Definitions.

(A) Definitions of individual specialty coatings specified in this rule are incorporated by reference from 40 CFR 63 subpart GG, Appendix A, with the following modifications:

1. Mold release—A coating applied to a mold surface to prevent the mold piece from sticking to the mold as it is removed, or to an aerospace component for purposes of creating a form-in-place seal; and

2. Caulking and smoothing compound—A semi-solid material that is used to aerodynamically smooth exterior vehicle surfaces or fill cavities such as bolt hole accesses. A material shall not be classified as a caulking and smoothing compound if it can be classified as a sealant.

(B) Aerospace manufacture and/or rework facility—Any installation that produces, reworks, or repairs in any amount any commercial, civil, or military aerospace vehicle or component.

(C) Aerospace vehicle or component—Any fabricated part, processed part, assembly of parts, or completed unit, with the exception of electronic components, of any aircraft.

(D) Antique aerospace vehicle or component—An aircraft or component thereof that was built at least thirty (30) years ago. An antique aerospace vehicle would not routinely be in commercial or military service in the capacity for which it was designed.

(E) Aqueous cleaning solvent—A cleaning solution in which water is the primary ingre-

dient (greater than eighty percent (80%) by weight of cleaning solvent solution as applied must be water). Detergents, surfactants, and bioenzyme mixtures and nutrients may be combined with the water along with a variety of additives such as organic solvents (e.g., high boiling point alcohols), builders, saponifiers, inhibitors, emulsifiers, pH buffers, and antifoaming agents. Aqueous solutions must have a flash point greater than ninety-three degrees Celsius (93°C) (two hundred degrees Fahrenheit (200°F)) (as reported by the manufacturer) and the solution must be miscible with water.

(F) Chemical milling maskants—A coating that is applied directly to aluminum components to protect surface areas when chemical milling the component with a Type I or Type II etchant. Type I chemical milling maskants are used with a Type I etchant and Type II chemical milling maskants are used with a Type II etchant. This definition does not include bonding maskants, critical use and line sealer maskants, and seal coat maskants. Maskants that must be used with a combination of Type I or Type II etchants and any of the above types of maskants are also not included in this definition.

(G) Energized electrical systems—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.

(H) Flush cleaning—The removal of contaminants such as dirt, grease, and coatings from an aerospace vehicle or component or coating equipment by passing solvent over, into, or through the item being cleaned. The solvent may simply be poured into the item cleaned and then drained, or be 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 in this definition.

(I) General aviation—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.

(J) General aviation rework facility—Any aerospace installation with the majority of its revenues resulting from the reconstruction, repair, maintenance, repainting, conversion, or alteration of general aviation aerospace vehicles or components.

(K) High volume low pressure (HVLP) spray equipment—Spray equipment that is used to apply coating by means of spray gun that operates at ten pounds per square inch

gauge (10.0 psig) of atomizing air pressure or less at the air cap.

(L) Low vapor pressure hydrocarbon-based cleaning solvent—A cleaning solvent that is composed of a mixture of photochemically reactive hydrocarbons and oxygenated hydrocarbons and has a maximum vapor pressure of seven millimeters of mercury (7 mmHg) at twenty degrees Celsius (20°C). These cleaners must not contain hazardous air pollutants.

(M) 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.

(N) Self-priming topcoat—A topcoat that is applied directly to an uncoated aerospace vehicle or component for purposes of corrosion prevention, environmental protection, and function fluid resistance. More than one (1) layer of identical coating formulation may be applied to the vehicle or component.

(O) Semi-aqueous cleaning solvent—A solution in which water is a primary ingredient (greater than sixty percent (60%) by weight of the solvent solution as applied must be water).

(P) 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.

(Q) 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.

(R) Touch-up and repair operation—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.

(S) Type I etchant—A chemical milling etchant that contains varying amounts of dissolved sulfur and does not contain amines.

(T) Type II etchant—A chemical milling etchant that is a strong sodium hydroxide solution containing amines.



(U) Definitions of certain terms specified in this rule, other than those specified in this rule section, may be found in 10 CSR 10-6.020.

(3) General Provisions.

(A) No person shall cause, permit, or allow the emissions of volatile organic compounds (VOC) from the coating of aerospace vehicles or components to exceed—

1. 2.9 pounds per gallon (350 grams per liter) of coating, excluding water and exempt solvents, delivered to a coating applicator that applies primers. For general aviation rework facilities, the VOC limitation shall be 4.5 pounds per gallon of coating, excluding water and exempt solvents, delivered to a coating applicator that applies primers;

2. 3.5 pounds per gallon (420 grams per liter) of coating, excluding water and exempt solvents, delivered to a coating applicator that applies topcoats (including self-priming topcoats). For general aviation rework facilities, the VOC limit shall be 4.5 pounds per gallon (540 grams per liter) of coating, excluding water and exempt solvents, delivered to a coating applicator that applies topcoats (including self-priming topcoats);

3. The VOC content limits listed in Table I expressed in pounds per gallon of coating, excluding water and exempt solvents, delivered to a coating applicator that applies specialty coatings;

Table I: Specialty Coating VOC Limitations	Pounds per gallon	Grams per liter
Ablative Coating	5.0	600
Adhesion Promoter	7.4	890
Adhesive Bonding Primers:		
Cured at 250°F or below	7.1	850
Cured above 250°F	8.6	1030
Adhesives:		
Commercial Interior Adhesive	6.3	760
Cyanoacrylate Adhesive	8.5	1020
Fuel Tank Adhesive	5.2	620
Nonstructural Adhesive	3.0	360
Rocket Motor Bonding Adhesive	7.4	890
Rubber-Based Adhesive	7.1	850
Structural Autoclavable Adhesive	0.5	60
Structural Nonautoclavable Adhesive	7.1	850
Antichafe Coating	5.5	660
Bearing Coating	5.2	620
Caulking and Smoothing Compounds	7.1	850
Chemical Agent-Resistant Coating	4.6	550
Clear Coating	6.0	720
Commercial Exterior Aerodynamic Structure Primer	5.4	650
Compatible Substrate Primer	6.5	780
Corrosion Prevention Compound	5.9	710
Cryogenic Flexible Primer	5.4	645
Cryoprotective Coating	5.0	600
Dry Lubricative Material	7.3	880
Electric or Radiation-Effect Coating	6.7	800
Electrostatic Discharge and Electromagnetic Interference (EMI) Coating	6.7	800
Elevated Temperature Skydrol Resistant Commercial Primer	6.2	740
Epoxy Polyamide Topcoat	5.5	660
Fire-Resistant (interior) Coating	6.7	800
Flexible Primer	5.3	640
Flight-Test Coatings:		
Missile or Single Use Aircraft	3.5	420
All Others	7.0	840
Fuel-Tank Coating	6.0	720
High-Temperature Coating	7.1	850
Insulation Covering	6.2	740
Intermediate Release Coating	6.3	750
Lacquer	6.9	830
Maskant:		
Bonding Maskant	10.3	1230
Critical Use and Line Sealer Maskant	8.5	1020
Seal Coat Maskant	10.3	1230
Metallized Epoxy Coating	6.2	740
Mold Release	6.5	780
Optical Anti-Reflective Coating	6.3	750
Part Marking Coating	7.1	850
Pretreatment Coating	6.5	780
Rain Erosion-Resistant Coating	7.1	850
Rocket Motor Nozzle Coating	5.5	660
Scale Inhibitor	7.3	880
Screen Print Ink	7.0	840
Sealants:		
Extrudable/Rollable/Brushable Sealant	2.3	280
Sprayable Sealant	5.0	600
Silicone Insulation Material	7.1	850
Solid Film Lubricant	7.3	880
Specialized Function Coating	7.4	890
Temporary Protective Coating	2.7	320
Thermal Control Coating	6.7	800
Wet Fastener Installation Coating	5.6	675
Wing Coating	7.1	850

4. 5.2 pounds per gallon (620 grams per liter) of coating, excluding water and exempt solvents, delivered to a coating applicator that applies Type I chemical milling maskant; and

5. 1.3 pounds per gallon (150 grams per liter) of coating, excluding water and exempt solvents, delivered to a coating applicator that applies Type II chemical milling maskants.

(B) The emission limitations in paragraph (3)(A)1. of this rule shall be achieved by—

1. The application of low solvent coating technology where each and every coating meets the specified applicable limitation expressed in pounds of VOC per gallon of coating, excluding water and exempt solvents, stated in subsection (3)(A) of this rule;

2. The application of low solvent coating technology where the monthly volume-weighted average VOC content of each specified coating type meets the specified applicable limitation expressed in pounds of VOC per gallon of coating, excluding water and exempt solvents, stated in subsection (3)(A) of this rule; averaging is not allowed for specialty coatings, and averaging is not allowed between primers, topcoats (including self-priming topcoats), Type I milling maskants, and Type II milling maskants or any combination of the above coating categories; or

3. Control equipment, including but not limited to incineration, carbon adsorption and condensation, with a capture system approved by the director, provided that the owner or operator demonstrates, in accordance with subsection (5)(C), that the control system has a VOC reduction efficiency of eighty-one percent (81%) or greater.

(C) Each owner or operator of an aerospace manufacturing and/or rework operation shall apply all non-exempt primers and topcoats using one (1) or more of the application techniques specified below—

1. Flow/curtain application;
2. Dip coat application;
3. Roll coating;
4. Brush coating;
5. Cotton-tipped swab application;
6. Electrodeposition (dip) coating;
7. High volume low pressure (HVLP) spraying;
8. Electrostatic spray application; or

9. Other coating application methods that achieve emission reductions equivalent to HVLP or electrostatic spray application methods, as determined by the director.

(D) Each owner or operator of an aerospace manufacturing and/or rework operation shall ensure that all application devices used to apply primers and topcoats (including self-priming topcoats) are operated according to company procedures, local specified operating procedures, and/or the manufacturer's

specifications, whichever is most stringent, at all times. Equipment modified by the owner or operator shall maintain a transfer efficiency equivalent to HVLP or electrostatic spray application techniques.

(E) Each owner or operator of an aerospace manufacturing and/or rework operation shall comply with the following house-keeping requirements for any affected cleaning operation, unless the cleaning solvent used is an aqueous cleaning solvent, low vapor pressure hydrocarbon-based cleaning solvent, or contains less than one percent (1%) VOC by weight:

1. Solvent-laden cloth, paper, or any other absorbent applicators used for cleaning shall be placed in bags or other closed containers upon completing their use. These bags and containers must be kept closed at all times except when depositing or removing these materials from the container. The bags and containers used must be of such a design so as to contain the vapors of the cleaning solvent. Cotton-tipped swabs used for very small cleaning operations are exempt from this requirement;

2. All fresh and spent cleaning solvents, except semi-aqueous solvent cleaners, used in aerospace cleaning operations shall be stored in closed containers; and

3. The handling and transfer of cleaning solvent to or from enclosed systems, vats, waste containers, and other cleaning operation equipment that hold or store fresh spent cleaning solvents shall be conducted in such a manner that spills are minimized.

(F) Each owner or operator of an aerospace manufacturing and/or rework operation utilizing hand-wipe cleaning operations excluding the cleaning of spray gun equipment performed in accordance with subsection (3)(G) shall comply with one (1) of the following:

1. Utilize cleaning solvent solutions that are classified as an aqueous cleaning solvent and/or a low vapor pressure hydrocarbon-based cleaning solvent; or

2. Utilize cleaning solvent solutions that have a composite vapor pressure of forty-five (45) mmHg or less at twenty degrees Celsius (20°C).

(G) Each owner or operator of an aerospace manufacturing and/or rework operation shall clean all spray guns used in the application of primers, topcoats (including self-priming topcoats), and specialty coatings utilizing one or more of the following techniques:

1. Enclosed system. Spray guns shall be cleaned in an enclosed system that is closed at all times except when inserting or removing the spray gun. Cleaning shall consist of forcing cleaning solvent through the gun. If leaks in the system are found, repairs shall be made as soon as practicable, but no later than fifteen (15) days after the leak was found. If the leak is not repaired by the fifteenth day after detection, the cleaning solvent shall be removed and the enclosed cleaner shall be shut down until the leak is repaired or its use is permanently discontinued;

2. Nonatomized cleaning. Spray guns shall be cleaned by placing cleaning solvent in the pressure pot and forcing it through the gun with the atomizing cap in place. No atomizing air is to be used. The cleaning solvent from the spray gun shall be directed into a vat, drum, or other waste container that is closed when not in use;

3. Disassembled spray gun cleaning. Spray guns shall be cleaned by disassembling and cleaning the components by hand in a vat, which shall remain closed at all times except when in use. Alternatively, the components shall be soaked in a vat, which shall remain closed during the soaking period and when not inserting or removing components; and

4. Atomizing cleaning. Spray guns shall be cleaned by forcing the cleaning solvent through the gun and directing the resulting atomized spray into a waste container that is fitted with a device designed to capture the atomized cleaning solvent emissions.

(H) Each owner or operator of an aerospace manufacturing and/or rework operation that includes a flush cleaning operation shall empty the used cleaning solvents each time aerospace parts or assemblies, or components of a coating unit with the exception of spray guns are flush cleaned into an enclosed container or collection system that is kept closed when not in use or into a system with equivalent emission control approved by the director. Aqueous, semi-aqueous, and low vapor pressure hydrocarbon based solvent materials are exempt from the requirements of this subsection.

(I) The following activities are exempt from this section:

1. Research and development;
2. Quality control;
3. Laboratory testing activities;
4. Chemical milling;
5. Metal finishing;
6. Electrodeposition except for the electrodeposition of paints;

7. Composites processing except for cleaning and coating of composite parts or components that become part of an aerospace vehicle or component as well as composite tooling that comes in contact with such composite parts or components prior to cure;

8. Electronic parts and assemblies except for cleaning and topcoating of completed assemblies;

9. Manufacture of aircraft transparencies;

10. Wastewater treatment operations;

11. Manufacturing and rework of parts and assemblies not critical to the vehicle's structural integrity or flight performance;

12. Regulated activities associated with space vehicles designed to travel beyond the limit of the earth's atmosphere, including but not limited to satellites, space stations, and the space shuttle;

13. Utilization of primers, topcoats, specialty coatings, cleaning solvents, chemical milling maskants, and strippers containing VOC at concentrations less than 0.1 percent for carcinogens or 1.0 percent for noncarcinogens;

14. Utilization of touch-up, aerosol can, and Department of Defense classified coatings;

15. Maintenance and rework of antique aerospace vehicles and components; and

16. Rework of aircraft or aircraft components if the holder of the Federal Aviation Administration design approval, or the holder's licensee, is not actively manufacturing the aircraft or aircraft components.

(J) The requirements for primers, topcoats, specialty coatings, and chemical milling maskants specified in subsection (3)(A) of this rule do not apply to the use of low-volume coatings in these categories for which the rolling twelve (12)-month total of each separate formulation used at an installation does not exceed fifty (50) gallons, and the combined rolling twelve (12)-month total of all such primers, topcoats, specialty coatings, and chemical milling maskants used does not exceed two hundred (200) gallons. Coatings exempted under subsection (3)(I) of this rule are not included in the fifty (50) and two hundred (200)-gallon limits.

(K) The following situations are exempt from the requirements of subsections (3)(D) and (3)(E):

1. Any situation that normally requires the use of an airbrush or an extension on the spray gun to properly reach limited access spaces;

2. The application of any specialty coating;

3. The application of coatings that contain fillers that adversely affect atomization with HVLP spray guns and that cannot be applied by any of the application methods specified in subsection (3)(C) of this rule;

4. The application of coatings that normally have dried film thickness of less than 0.0013 centimeter (0.0005 in.) and that cannot be applied by any of the application methods specified in subsection (3)(C) of this rule;

5. The use of airbrush application methods for stenciling, lettering, and other identification markings;

6. The use of hand-held spray can application methods; and

7. Touch-up and repair operations.

(L) The following cleaning operations are exempt from the requirements of subsection (3)(F) of this rule:

1. Cleaning during the manufacture, assembly, installation, maintenance, or testing of components of breathing oxygen systems that are exposed to the breathing oxygen;

2. 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, or hydrazine);

3. Cleaning and surface activation prior to adhesive bonding;

4. Cleaning of electronic parts and assemblies containing electronic parts;

5. 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;

6. Cleaning of fuel cells, fuel tanks, and confined spaces;

7. Surface cleaning of solar cells, coating optics, and thermal control surfaces;

8. Cleaning during fabrication, assembly, installation, and maintenance of upholstery, curtains, carpet, and other textile materials used in the interior of the aircraft;

9. Cleaning of metallic and non-metallic materials used in honeycomb cores during the manufacture or maintenance of these cores, and cleaning of the completed cores used in the manufacture or maintenance of aerospace vehicles or components;

10. Cleaning of aircraft transparencies, polycarbonate, or glass substrates;

11. Cleaning and solvent usage associated with research and development, quality control, and laboratory testing;

12. Cleaning operations, using non-flammable liquids, conducted within five feet (5') of energized electrical systems; and

13. Cleaning operations identified as essential uses under the Montreal Protocol for which the U.S. Environmental Protection Agency has allocated essential use allowances or exemptions.

(4) Reporting and Record Keeping.

(A) Monitoring Requirements—Each owner or operator of an aerospace manufacturing and/or rework operation shall submit a monitoring plan to the director that specifies the applicable operating parameter value, or range of values, to ensure ongoing compliance with paragraph (3)(B)3. of this rule. Any monitoring device, required by the monitoring plan, shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's specifications.

(B) Record Keeping Requirements.

1. Each owner or operator of an aerospace manufacture and/or rework operation that applies coatings listed in subsection (3)(A) of this rule shall—

A. Maintain a current list of coatings in use with category and VOC content as applied;

B. Record each coating volume usage on a monthly basis; and

C. Maintain records of monthly volume-weighted average VOC content for each coating type included in averaging for coating operations that achieve compliance through coating averaging under paragraph (3)(B)2. of this rule.

2. Each owner or operator of an aerospace manufacture and/or rework operation that uses cleaning solvents subject to this rule shall—

A. Maintain a list of materials with corresponding water contents for aqueous and semi-aqueous hand-wipe cleaning solvents;

B. Maintain a current list of cleaning solvents in use with their respective vapor pressure or, for blended solvents, VOC composite vapor pressure for all vapor pressure compliant hand-wipe cleaning solvents. This list shall include the monthly amount of each applicable solvent used; and

C. Maintain a current list of exempt hand-wipe cleaning processes for all cleaning solvents with a vapor pressure greater than forty-five (45) mmHg used in exempt hand-wipe cleaning operations. This list shall include the monthly amount of each applicable solvent used.

(C) All records must be kept on-site for a period of five (5) years and made available to the department upon request.

(5) Test Methods.

(A) An owner or operator of an aerospace manufacture and/or rework operation shall



determine compliance for coatings which are not waterborne (water-reducible), determine the VOC content of each formulation less water and less exempt solvents as applied using 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, manufacturer's supplied data alone can be used to determine the VOC content of each formulation.

(B) An owner or operator of an aerospace manufacture and/or rework operation shall determine compliance for cleaning solvents using the following:

1. For aqueous and semi-aqueous cleaning solvents manufacturers' supplied data shall be used to determine the water content; or

2. For hand-wipe cleaning solvents required in subsection (3)(F) of this rule, 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.

(C) An owner or operator of an aerospace manufacture and/or rework operation electing to demonstrate compliance with this rule by use of control equipment meeting the requirements of paragraph (3)(B)3., shall demonstrate the required capture efficiency in accordance with EPA Methods 18, 25, and/or 25A in 40 CFR 60, Appendix A.

AUTHORITY: section 643.050, RSMo Supp. 1998. Original rule filed July 15, 1999, effective Feb. 29, 2000.*

**Original authority: 643.050, RSMo 1965, amended 1972, 1992, 1993, 1995.*

10 CSR 10-5.300 Control of Emissions From Solvent Metal Cleaning

PURPOSE: This rule specifies equipment, operating procedures and training requirements for the reduction of volatile organic compound emissions from solvent metal cleaning operations in the St. Louis metropolitan area.

(1) Applicability.

(A) This rule shall apply throughout the city of St. Louis and St. Charles, St. Louis, Jefferson and Franklin Counties.

(B) This rule shall apply to all installations that emit volatile organic compounds (VOCs)

from solvent metal cleaning or degreasing operations.

(C) This rule applies to any of the following processes that use nonaqueous solvents to clean and remove soils from metal parts:

1. Spray gun cleaners;
2. Cold cleaners with a solvent reservoir or tank;
3. Open-top or conveyORIZED vapor degreasers; or
4. Air-tight or airless cleaning systems.

(D) Exemptions.

1. The following shall be exempt from this rule:

A. Cold cleaners with liquid surface areas of one (1) square foot or less or maximum capacities of one (1) gallon or less;

B. Solvent cleaning operations that meet the emission control requirements of 10 CSR 10-5.295, 10 CSR 10-5.330, 10 CSR 10-5.340 or 10 CSR 10-5.442;

C. Solvent metal cleaning operations regulated under 40 CFR 63 subpart T, National Emission Standards for Halogenated Solvent Cleaning;

D. The cleaning of electronic components, medical devices or optical devices;

E. Hand cleaning/wiping operations; and

F. Flush cleaning operations.

2. The following shall be exempt from the solvent vapor pressure requirements of subparagraphs (3)(A)1.A. and (3)(A)1.B. of this rule:

A. Sales of cold cleaning solvents in quantities of five (5) gallons or less;

B. Cold cleaners using solvents regulated under any federal National Emission Standard for Hazardous Air Pollutants; and

C. Janitorial and institutional cleaning.

3. All wastes that are subject to hazardous waste requirements at 10 CSR Division 25, Chapters 4 through 9 shall be exempt from the requirements of subparagraphs (3)(B)1.E., (3)(B)2.J., (3)(B)3.G., (3)(B)4.B. and (3)(B)5.G., and subsection (4)(A) of this rule.

(2) Definitions.

(A) Airless cleaning system—A degreasing machine that is automatically operated and seals at a differential pressure of 25 torr (25.0 millimeters of Mercury (mmHg) (0.475 pounds per square inch (psi)) or less, prior to the introduction of solvent vapor into the cleaning chamber and maintains differential pressure under vacuum during all cleaning and drying cycles.

(B) Air-tight cleaning system—A degreasing machine that is automatically operated and seals at a differential pressure no greater than 0.5 pounds per square inch gauge (psig) during all cleaning and drying cycles.

(C) Aqueous solvent—Any solvent consisting of sixty percent (60%) or more by volume water with a flashpoint greater than ninety-three degrees Celsius (93°C) (one hundred ninety-nine point four degrees Fahrenheit (199.4°F)) and is miscible with water.

(D) Electronic components—All portions of an electronic assembly, including, but not limited to, circuit board assemblies, printed wire assemblies, printed circuit boards, soldered joints, ground wires, bus bars, and associated electronic component manufacturing equipment such as screens and filters.

(E) Flush cleaning—The removal of contaminants such as dirt, grease and coatings from a component or coating equipment by passing solvent over, into or through the item being cleaned. The solvent drained from the item may be assisted by air, compressed gas, hydraulic pressure or by pumping. Flush cleaning does not include spray gun cleaning.

(F) Freeboard area—The air space in a batch-load cold cleaner that extends from the liquid surface to the top of the tank.

(G) Freeboard height—

1. The distance from the top of the solvent to the top of the tank for batch-loaded cold cleaners;

2. The distance from the air-vapor interface to the top of the tank for open-top vapor degreasers; or

3. The distance from either the air-solvent or air-vapor interface to the top of the tank for conveyORIZED degreasers.

(H) Freeboard ratio—The freeboard height divided by the smaller of either the inside length or inside width of the degreaser.

(I) Hand cleaning/wiping operation—The removal of contaminants such as dirt, grease, oil and coatings from a surface by physically rubbing it with a material such as a rag, paper or cotton swab that has been moistened with a cleaning solvent.

(J) Institutional cleaning—Cleaning activities conducted at organizations, societies or corporations including, but not limited to schools, hospitals, sanitariums and prisons.

(K) Janitorial cleaning—The cleaning of building or facility components such as the floors, ceilings, walls, windows, doors, stairs, bathrooms, kitchens, etc.

(L) Medical device—An instrument, apparatus, implement, machine, contrivance, implant, *in vitro* reagent or other similar article, including any component or accessory that meets one (1) of the following conditions:

1. It is intended for use in the diagnosis of disease or other conditions, or in the cure, mitigation, treatment, or prevention of disease;



2. It is intended to affect the structure or any function of the body; or

3. It is defined in the *National Formulary* or the *United States Pharmacopoeia*, or any supplement to them.

(M) Nonaqueous solvent—Any solvent not classifiable as an aqueous solvent as defined in subsection (2)(C) of this rule.

(N) Optical device—An optical element used in an electro-optical device and designed to sense, detect or transmit light energy, including specific wavelengths of light energy and changes in light energy levels.

(O) Soils—Includes, but is not limited to, unwanted grease, wax, grit, ash, dirt and oil. Spray gun soils, in addition, include unwanted primers, paint, specialty coatings, adhesives, sealers, resins and deadeners.

(P) Spray gun cleaner—Equipment used to clean spray guns used to apply, but not limited to, primers, paints, specialty coatings, adhesives, sealers, resins or deadeners incorporated into a product distributed in commerce.

(Q) Definitions of certain terms specified in this rule, other than those specified in this rule section, may be found in 10 CSR 10-6.020.

(3) General Provisions.

(A) Equipment Specifications.

1. Cold cleaners.

A. No one shall use, sell or offer for sale for use within the City of St. Louis and St. Charles, St. Louis, Jefferson and Franklin Counties a cold cleaning solvent with a vapor pressure greater than 1.0 mmHg (0.019 psi) at twenty degrees Celsius (20°C) (sixty-eight degrees Fahrenheit (68°F)) unless used for carburetor cleaning.

B. No one shall use, sell or offer for sale for use within the City of St. Louis and St. Charles, St. Louis, Jefferson and Franklin Counties a cold cleaning solvent for the purpose of carburetor cleaning with a vapor pressure greater than 5.0 mmHg (0.097 psi) at twenty degrees Celsius (20°C) (sixty-eight degrees Fahrenheit (68°F)).

C. Each cold cleaner shall have a cover which prevents the escape of solvent vapors from the solvent bath while in the closed position or an enclosed reservoir which limits the escape of solvent vapors from the solvent bath whenever parts are not being processed in the cleaner.

D. An owner or operator of a cold cleaner may use an alternate method for reducing cold cleaning emissions if the owner or operator shows the level of emission control is equivalent to or greater than the requirements of subparagraphs (3)(A)1.A. and (3)(A)1.B. of this rule. This alternate method must be approved by the director and

the U.S. Environmental Protection Agency (EPA).

E. When one (1) or more of the following conditions exist, the cover shall be designed to operate easily such that minimal disturbing of the solvent vapors in the tank occurs. (For covers larger than ten (10) square feet, this shall be accomplished by either mechanical assistance such as spring loading or counter weighing or by power systems):

(I) The solvent vapor pressure is greater than 0.3 psi measured at thirty-seven point eight degrees Celsius (37.8°C) (one hundred degrees Fahrenheit (100°F));

(II) The solvent is agitated; or

(III) The solvent is heated.

F. Each cold cleaner shall have an internal drainage facility so that parts are enclosed under the cover while draining.

G. If an internal drainage facility cannot fit into the cleaning system and the solvent vapor pressure is less than 0.6 psi measured at thirty-seven point eight degrees Celsius (37.8°C) (one hundred degrees Fahrenheit (100°F)), then the cold cleaner shall have an external drainage facility which provides for the solvent to drain back into the solvent bath.

H. Solvent sprays, if used, shall be a solid fluid stream (not a fine, atomized or shower-type spray) and at a pressure which does not cause splashing above or beyond the freeboard.

I. A permanent conspicuous label summarizing the operating procedures shall be affixed to the equipment or in a location readily visible during operation of the equipment.

J. Any cold cleaner which uses a solvent that has a solvent vapor pressure greater than 0.6 psi measured at thirty-seven point eight degrees Celsius (37.8°C) (one hundred degrees Fahrenheit (100°F)) or heated above forty-eight point nine degrees Celsius (48.9°C) (one hundred twenty degrees Fahrenheit (120°F)) must use one (1) of the following control devices:

(I) A freeboard ratio of at least 0.75;

(II) Water cover (solvent must be insoluble in and heavier than water); or

(III) Other control systems with a mass balance demonstrated overall VOC emissions reduction efficiency greater than or equal to sixty-five percent (65%). These control systems must receive approval from the director and EPA prior to their use.

2. Open-top vapor degreasers.

A. Each open-top vapor degreaser shall have a cover that will prevent the escape of solvent vapors from the degreaser while in the closed position and shall be designed to open and close easily such that minimal dis-

turbing of the solvent vapors in the tank occurs. For covers larger than ten (10) square feet, easy cover use shall be accomplished by either mechanical assistance, such as spring loading or counter weighing or by power systems.

B. Each open-top vapor degreaser shall be equipped with a vapor level control device that shuts off the heating source when the vapor level rises above the cooling or condensing coil, or an equivalent safety device approved by the director and EPA.

C. Each open-top vapor degreaser with an air/vapor interface over ten and three-fourths (10 3/4) square feet shall be equipped with at least one (1) of the following control devices:

(I) A freeboard ratio of at least 0.75;

(II) A refrigerated chiller;

(III) An enclosed design (the cover or door opens only when the dry part actually is entering or exiting the degreaser);

(IV) A carbon adsorption system with ventilation of at least fifty (50) cubic feet per minute per square foot of air vapor area when the cover is open and exhausting less than twenty-five parts per million (25 ppm) of solvent by volume averaged over one (1) complete adsorption cycle as measured using the reference method specified at 10 CSR 10-6.030(14)(A); or

(V) A control system with a mass balance demonstrated overall VOC emissions reduction efficiency greater than or equal to sixty-five percent (65%) and prior approval by the director and EPA.

D. A permanent conspicuous label summarizing the operating procedures shall be affixed to the equipment or in a location readily visible during operation of the equipment.

3. Conveyorized degreasers.

A. Each conveyorized degreaser shall have a drying tunnel or rotating (tumbling) basket or other means demonstrated to have equal to or better control which shall be used to prevent cleaned parts from carrying out solvent liquid or vapor.

B. Each conveyorized degreaser shall have the following safety devices which operate if the machine malfunctions:

(I) A vapor level control device that shuts off the heating source when the vapor level rises just above the cooling or condensing coil; and

(II) A spray safety switch, which shuts off the spray pump if the vapor level in the spray chamber drops four inches (4"), for conveyorized degreasers utilizing a spray chamber; or

(III) Equivalent safety devices approved by the director and EPA.



C. Entrances and exits shall silhouette workloads so that the average clearance between parts and the edge of the degreaser opening is less than four inches (4") or less than ten percent (10%) of the width of the opening.

D. Covers shall be provided for closing off the entrance and exit during hours when the degreaser is not being used.

E. A permanent, conspicuous label summarizing the operating procedures shall be affixed to the equipment or in a location readily visible during operation of the equipment.

F. If the air/vapor interface is larger than twenty-one and one-half (21 1/2) square feet, one (1) major control device shall be required. This device shall be one (1) of the following:

(I) A refrigerated chiller;

(II) Carbon adsorption system with ventilation of at least fifty (50) cubic feet per minute per square foot of the total entrance and exit areas (when downtime covers are open) and exhausting less than twenty-five (25) ppm of solvent by volume averaged over one (1) complete adsorption cycle as measured using the reference method specified at 10 CSR 10-6.030(14)(A); or

(III) A control system with a mass balance demonstrated overall VOC emissions reduction efficiency greater than or equal to sixty-five percent (65%) and prior approval by the director and EPA.

4. Air-tight or airless cleaning systems. Air-tight or airless cleaning systems shall:

A. Have a permanent conspicuous label summarizing the operating procedures affixed to the equipment or in a location readily visible during operation of the equipment;

B. Be equipped with a differential pressure gauge to indicate the sealed chamber pressure under vacuum; and

C. Be equipped with a safety alarm to alert the operator of equipment malfunction.

(B) Operating Procedure Requirements.

1. Cold cleaners.

A. Cold cleaner covers shall be closed whenever parts are not being handled in the cleaners or the solvent must drain into an enclosed reservoir except when performing maintenance or collecting solvent samples.

B. Cleaned parts shall be drained in the freeboard area for at least fifteen (15) seconds or until dripping ceases, whichever is longer. Parts having cavities or blind holes shall be tipped or rotated while the part is draining. During the draining, tipping or rotating, the parts shall be positioned so that the solvent drains directly back to the cold cleaner.

C. Whenever a cold cleaner fails to perform within the rule operating requirements, the unit shall be shut down immedi-

ately and shall remain shut down until operation is restored to meet the rule operating requirements.

D. Solvent leaks shall be repaired immediately or the cold cleaner shall be shut down until the leaks are repaired.

E. Any waste material removed from a cold cleaner shall be disposed of by one (1) of the following methods or an equivalent method approved by the director and EPA:

(I) Reduction of the waste material to less than twenty percent (20%) VOC solvent by distillation and proper disposal of the still bottom waste; or

(II) Stored in closed containers for transfer to—

(a) A contract reclamation service; or

(b) A disposal facility approved by the director and EPA.

F. Waste solvent shall be stored in closed containers only.

2. Open-top vapor degreasers.

A. The cover shall be kept closed at all times except when processing workloads through the open-top vapor degreaser, performing maintenance or collecting solvent samples.

B. Solvent carry-out shall be minimized in the following ways:

(I) Parts shall be racked, if practical, to allow full drainage;

(II) Parts shall be moved in and out of the open-top vapor degreaser at less than eleven feet (11') per minute;

(III) Workload shall remain in the vapor zone at least thirty (30) seconds or until condensation ceases, whichever is longer;

(IV) Pools of solvent shall be removed from cleaned parts before removing parts from the open-top vapor degreaser freeboard area; and

(V) Cleaned parts shall be allowed to dry within the open-top vapor degreaser freeboard area for at least fifteen (15) seconds or until visually dry, whichever is longer.

C. Porous or absorbent materials such as cloth, leather, wood or rope shall not be degreased.

D. If workloads occupy more than half of the open-top vapor degreaser's open-top area, rate of entry and removal shall not exceed five feet (5') per minute.

E. Spray shall never extend above vapor level.

F. Whenever an open-top vapor degreaser fails to perform within the rule operating requirements, the unit shall be shut down until operation is restored to meet the rule operating requirements.

G. Solvent leaks shall be repaired immediately or the open-top vapor degreaser

shall be shut down until the leaks are repaired.

H. Ventilation exhaust from the open-top vapor degreaser shall not exceed sixty-five (65) cubic feet per minute per square foot of the open-top vapor degreaser open area unless proof is submitted that it is necessary to meet Occupational Safety and Health Administration (OSHA) requirements. Fans shall not be used near the open-top vapor degreaser opening.

I. Water shall not be visually detectable in solvent exiting the water separator, except for automatic water separators that by configuration do not allow visual inspection.

J. Any waste material removed from an open-top vapor degreaser shall be disposed of by one (1) of the following methods or an equivalent method approved by the director and EPA:

(I) Reduction of the waste material to less than twenty percent (20%) VOC solvent by distillation and proper disposal of the still bottom waste; or

(II) Stored in closed containers for transfer to—

(a) A contract reclamation service; or

(b) A disposal facility approved by the director and EPA.

K. Waste solvent shall be stored in closed containers only.

3. Conveyorized degreasers.

A. Ventilation exhaust from the conveyorized degreaser shall not exceed sixty-five (65) cubic feet per minute per square foot of conveyorized degreaser opening unless proof is submitted that it is necessary to meet OSHA requirements. Fans shall not be used near the conveyorized degreaser opening.

B. Solvent carry-out shall be minimized in the following ways:

(I) Parts shall be racked, if practical, to allow full drainage; and

(II) Vertical conveyor speed shall be maintained at less than eleven feet (11') per minute.

C. Whenever a conveyorized degreaser fails to perform within the rule operating requirements, the unit shall be shut down immediately and shall remain shut down until operation is restored to meet the rule operating requirements.

D. Solvent leaks shall be repaired immediately or the conveyorized degreaser shall be shut down until the leaks are repaired.

E. Water shall not be visually detectable in solvent exiting the water separator.



F. Covers shall be placed over entrances and exits immediately after conveyor and exhaust are shut down and removed just before they are started up.

G. Any waste material removed from a conveyorized degreaser shall be disposed of by one (1) of the following methods or an equivalent method approved by the director and EPA:

(I) Reduction of the waste material to less than twenty percent (20%) VOC solvent by distillation and proper disposal of the still bottom waste; or

(II) Stored in closed containers for transfer to—

(a) A contract reclamation service; or

(b) A disposal facility approved by the director and EPA.

H. Waste solvent shall be stored in closed containers only.

4. Spray gun cleaners.

A. Cleaning of spray guns shall be accomplished by use of one (1) or more of the following methods:

(I) Enclosed spray gun cleaning. Enclosed system spray gun cleaning shall consist of forcing solvent through the spray gun and/or spray gun parts. Spray guns and/or spray gun parts shall only be cleaned in remote closed top spray gun cleaning machines under the following conditions:

(a) The spray gun cleaning machine is operated within the manufacturer's specifications and with the lid kept tightly closed at all times except when being accessed or maintained; and

(b) Removable containers (which shall not exceed thirty (30) gallons in size) for clean, used and waste solvent, are kept tightly closed except when being accessed or maintained;

(II) Nonatomized spray gun cleaning. Nonatomized spray gun cleaning shall consist of placing solvent in the pressure pot and forcing it through the spray gun with the atomizing cap in place. Spray guns shall only be cleaned through nonatomized spray gun cleaning under the following conditions:

(a) No atomizing air shall be used; and

(b) The cleaning solvent from the spray gun shall be directed into a pail, bucket, drum or other waste container that is closed when not in use;

(III) Disassembled spray gun cleaning. Disassembled spray gun cleaning shall be accomplished by disassembling the spray gun to be cleaned and cleaning the components by one (1) of the following methods:

(a) By hand in a spray gun cleaner, which shall remain closed except when in use; or

(b) By soaking in a spray gun

cleaner, which shall remain closed during the soaking period and when not inserting or removing components; or

(IV) Atomized spray gun cleaning. Atomized spray gun cleaning shall consist of forcing the cleaning solvent through the gun and directing the resulting atomized spray into a waste container that is fitted with a device designed to capture the atomized cleaning solvent emissions. Cleaning of the nozzle tips of an automated spray equipment system is exempt from the requirements of paragraph (3)(B)4. of this rule, unless the system is a robotic system that is programmed to spray into a closed container.

B. Any waste material removed from a spray gun cleaning system shall be disposed of by one (1) of the following methods or an equivalent method approved by the director and EPA:

(I) Reduction of the waste material to less than twenty percent (20%) VOC solvent by distillation and proper disposal of the still bottom waste; or

(II) Stored in closed containers for transfer to—

(a) A contract reclamation service; or

(b) A disposal facility approved by the director and EPA.

C. Waste solvent shall be stored in closed containers only.

5. Air-tight and airless cleaning systems.

A. Operate the air-tight and airless cleaning systems with a door or other pressure sealing apparatus in place during all cleaning and drying cycles.

B. All associated pressure relief devices shall not allow liquid solvent to drain out of the equipment.

C. Solvent leaks shall be repaired immediately or the air-tight or airless cleaning system shall be shut down until the leaks are repaired.

D. The air-tight and airless cleaning systems shall be operated within the manufacturer's specifications.

E. Parts shall be positioned, if practical, to allow full drainage and pools of solvent shall be removed from cleaned parts before removing parts from the air-tight or airless cleaning system.

F. Wipe up solvent leaks and spills immediately and store the used rags in closed containers.

G. Any waste material removed from an air-tight and airless cleaning system shall be disposed of by one (1) of the following methods or an equivalent method approved by the director and EPA:

(I) Reduction of the waste material to less than twenty percent (20%) VOC solvent by distillation and proper disposal of the still bottom waste; or

(II) Stored in closed containers for transfer to—

(a) A contract reclamation service; or

(b) A disposal facility approved by the director and EPA.

H. Waste solvent shall be stored in closed containers only.

(C) Operator and Supervisor Training.

1. Only persons trained in at least the operational and equipment requirements specified in this rule for their particular solvent metal cleaning process shall be permitted to operate the equipment.

2. The person who supervises any person who operates solvent cleaning equipment regulated by this rule shall receive equal or greater operational training than the operator.

3. A procedural review shall be given to all solvent metal cleaning equipment operators at least once each twelve (12) months.

4. Training records shall be maintained per subsections (4)(D) and (4)(E) of this rule.

(4) Reporting and Record Keeping.

(A) The owner or operator of a solvent metal cleaning or degreasing operation shall keep records of all types and amounts of solvents containing waste material from cleaning or degreasing operations transferred either to a contract reclamation service or to a disposal facility and all amounts distilled on the premises. The records also shall include maintenance and repair logs for both the degreaser and any associated control equipment. These records shall be kept current and made available for review on a monthly basis. The director may require additional record keeping if necessary to adequately demonstrate compliance with this rule.

(B) All persons that use any solvent subject to the requirements of subparagraph (3)(A)1.A. or (3)(A)1.B. of this rule shall maintain records which include for each purchase of cold cleaning solvent:

1. The name and address of the solvent supplier;

2. The date of purchase;

3. The type of solvent; and

4. The vapor pressure of the solvent in mmHg at twenty degrees Celsius (20°C) (sixty-eight degrees Fahrenheit (68°F)).

(C) All persons that sell or offer for sale any solvent subject to the requirements of subparagraph (3)(A)1.A. or (3)(A)1.B. of this rule shall maintain records which include for each sale of cold cleaning solvent:

1. The name and address of the solvent purchaser;

2. The date of sale;

3. The type of solvent;

4. The unit volume of solvent;

5. The total volume of solvent; and

6. The vapor pressure of the solvent measured in mmHg at twenty degrees Celsius (20°C) (sixty-eight degrees Fahrenheit (68°F)).

(D) A record shall be kept of solvent metal cleaning training required by subsection (3)(C) of this rule.

(E) All records required under subsections (4)(A), (4)(B), (4)(C) and (4)(D) of this rule shall be retained for five (5) years and shall be made available to the director upon request.

(5) Test Methods. *(Not applicable)*

AUTHORITY: section 643.050, RSMo 2000. Original rule filed Nov. 14, 1978, effective June 11, 1979. Amended: Filed Oct. 4, 1988, effective March 11, 1989. Emergency amendment filed Sept. 2, 1997, effective Jan. 1, 1998, expired June 30, 1998. Amended: Filed Sept. 22, 1997, effective May 30, 1998. Amended: Filed Sept. 13, 2001, effective May 30, 2002. Amended: Filed April 3, 2006, effective Nov. 30, 2006.*

**Original authority: 643.050, RSMo 1965, amended 1972, 1992, 1993, 1995.*

10 CSR 10-5.310 Liquefied Cutback Asphalt Paving Restricted

PURPOSE: This rule restricts volatile organic compounds, emissions from cutback asphalt paving operations.

(1) Application.

(A) This rule shall apply throughout St. Louis City and Jefferson, St. Charles, Franklin and St. Louis Counties.

(B) This rule applies to producers and suppliers which use or apply liquefied cutback asphalt in paving and maintenance operations on highways, roads, parking lots and driveways.

(2) Definitions of certain terms specified in this rule may be found in 10 CSR 10-6.020.

(3) General. After December 31, 1982, no person may cause or permit the use or application of liquefied cutback asphalt on highways, roads, parking lots and driveways during the months of April, May, June, July, August, September and October except as permitted in section (4). This section refers to liquefied cutback asphalt which is directly applied for use in a plant-mix or road-mix.

(4) Exceptions. The use or application of liquefied cutback asphalt is permitted if the liquefied cutback asphalt is—

(A) Used in a plant-mix or road-mix which is used solely for filling potholes or for emergency repairs;

(B) Used to produce a plant-mix manufactured for resale or for use outside the St. Louis metropolitan area; or

(C) To be used solely as an asphalt prime coat or an asphalt seal coat on absorbent surfaces.

(5) Recordkeeping.

(A) Records shall be kept on all application uses and all production quantities sufficient to determine daily volatile organic compound emissions for the months of April, May, June, July, August, September and October.

(B) Liquefied cutback asphalt plants shall keep records of the quantities of liquefied cutback asphalt sold and who the purchasers are. The owner, operator or user shall record all information derived for a period of not less than two (2) years and all these records shall be made available to the director upon his/her request.

AUTHORITY: section 643.050, RSMo 1994. Original rule filed Nov. 14, 1978, effective July 12, 1979. Amended: Filed Oct. 4, 1988, effective March 11, 1989.*

**Original authority: 643.050, RSMo 1965, amended 1972, 1992, 1993.*

10 CSR 10-5.320 Control of Emissions From Perchloroethylene Dry Cleaning Installations

(Rescinded January 30, 2003)

AUTHORITY: section 643.050, RSMo 1994. Original rule filed March 13, 1980, effective Sept. 12, 1980. Amended: Filed Nov. 10, 1981, effective May 13, 1982. Amended: Filed Oct. 4, 1988, effective March 11, 1989. Rescinded: Filed May 21, 2002, effective Jan. 30, 2003.

10 CSR 10-5.330 Control of Emissions From Industrial Surface Coating Operations

PURPOSE: This rule restricts volatile organic compounds from industrial surface coating operations.

(1) Applicability.

(A) This rule shall apply throughout St. Louis City and Jefferson, St. Charles, Franklin and St. Louis Counties.

(B) This rule shall apply to any installation with actual emissions of greater than two and one-half (2 1/2) tons in any calendar year after December 1, 1989, of volatile organic

compounds (VOCs) from surface coating operations covered under this rule. This includes any installation which does not have an allowable VOC emission limit established under 10 CSR 10-6.060 or legally enforceable state implementation plan revision, which has actual VOC emissions of greater than two and one-half (2 1/2) tons in any calendar year after December 1, 1989. Once a source is determined to exceed the applicability level of this rule, it shall remain subject to this rule even if its actual emissions drop below the applicability level.

(C) This rule is not applicable to the surface coating of the following metal parts and products:

1. Automobile refinishing;
2. Customizing top coating of automobiles and trucks, if production is less than thirty-five (35) vehicles per day; and
3. Exterior of marine vessels.

(2) Definitions of certain terms specified in this rule may be found in 10 CSR 10-6.020.

(3) General Provisions. No person shall emit to the atmosphere any VOC from any surface coating operation in excess of the amount allowed in section (4). A surface coating operation includes an application area(s), flashoff area(s), oven(s) and any other functional area needed to complete a coating.

(4) Tables of Emission Limitations and Dates of Compliance.

(A) Table A: VOC Emission Limits Based on Solids Applied.

Operations	Emission Limit lbs. VOC/gal. Solids Applied	Dates of Compliance
Auto/light duty truck		
Topcoat	15.1	12/1/89
Spray Prime or Primer Surfacer	15.1	12/1/89

(B) Table B: VOC Emission Limits Based on Weight of VOC per Gallon of Coating (minus water and non-VOC organic compounds).

Surface Coatings Operations	Emission Limit lbs. VOC/gal. Coating (less water & non-VOC organic compounds)	Dates of Compliance (See Note)
Large Appliance		
Topcoat	2.8	12/31/81
Final Repair	6.5	12/31/81
Magnet Wire	1.7	12/31/81
Metal Furniture	3.0	12/31/81
Auto/Light Duty Truck		
Chrysler Motor Co. (Car) Prime-Electrocoat	1.2	12/31/85



Spray Prime	4.2	12/31/79
	3.4	12/31/83
	2.8	12/31/85
Topcoat	3.9	12/31/79
	3.0	12/31/84
	2.5	12/31/85
Final Repair	4.8	12/31/81
Miscellaneous Metal Parts		
Extreme Performance		
and Air Dried		
Coatings	3.5	12/31/82
All Other Coatings	3.0	12/31/82
Chrysler Motor Co.		
(Truck)		
Prime-Electrocoat	1.2	12/31/84
Spray Prime	4.4	12/31/79
	3.4	12/31/82
	2.8	12/31/84
Topcoat	3.9	12/31/79
	2.5	12/31/84
Final Repair	4.8	12/31/84
Miscellaneous Metal Parts		
Extreme Performance		
and Air Dried		
Coatings	3.5	12/31/82
All Other Coatings	3.0	12/31/82
Ford Motor Company		
Prime-Electrocoat	1.2	12/31/82
Spray Prime	3.2	12/31/83
Topcoat	3.6	12/31/84
Final Repair	4.8	12/31/84
Miscellaneous Metal Parts		
Extreme Performance		
and Air Dried		
Coatings	3.5	12/31/82
All Other Coatings	3.0	12/31/82
General Motors Company		
Cathodic Electrocoat	1.2	12/31/82
Primer Surfacer	3.0	12/31/82
	2.8	12/31/84
Topcoat	5.8	12/31/79
	5.0	12/31/81
	2.8	12/31/84
Final Repair	6.5	7/1/79
	4.8	12/31/84
Miscellaneous Metal Parts		
Extreme Performance		
and Air Dried		
Coatings	3.5	12/31/82
All Other Coatings	3.0	12/31/82
Paper	2.9	12/31/81
Vinyl	3.8	12/31/81
Fabric	2.9	12/31/81
Coil	2.6	12/31/81
Can		
2 Piece Exterior Sheet	4.0	12/31/82
Basecoat	2.8	12/31/85
2 and 3 Piece Interior		
Body Spray	4.2	12/31/82
2 Piece End Exterior	4.2	12/31/82
3 Piece Side Seam	5.5	12/31/82
End Seal Compound	4.2	12/31/82
	3.7	12/31/85
Railroad Cars, Farm		
Implements and Machinery,		
and Heavy Duty		
Trucks	3.5	12/31/82
Other Metal Parts		
Clear Coat	4.3	12/31/82
Extreme Performance and		
Air Dried Coatings	3.5	12/31/82
All Other Coatings	3.0	12/31/82
Plastic Parts	3.5	4/11/84
Mail Boxes		
and Shutters	3.5	4/11/85

Note: The emission limit associated with the latest compliance date for each surface coating process supersedes interim emission limits associated with earlier compliance dates. No coating operation shall have emission limits from Tables A and B that apply at the same time.

(5) Determination of Compliance. Compliance with section (4) of this rule shall be determined by one (1) of the following methods specified in subsections (5)(A) and (B) as applicable and appropriate:

(A) For subsection (4)(A), Table A, the calculation of daily volume-weighted emission performance for automobile and light duty truck primer surfacer and topcoat operations shall be made according to procedures detailed in the United States Environmental Protection Agency (EPA) document entitled "Protocol for Determining the Daily Volatile Organic Compound Emission Rate of Automobile and Light Duty Truck Topcoat Operations" (U.S. EPA-450/3-88-018) dated December, 1988; and

(B) For subsection (4)(B), Table B—

1. Compliance with the emission limits may be determined using the method referenced in 10 CSR 10-6.030(14)(C) using the one (1)-hour bake. Emission performance shall be on the basis of a daily volume-weighted average of all coatings used in each surface coating operation as delivered to the coating applicator(s) on a coating line. The daily volume-weighted average (DAVG_{vw}) shall be calculated by the following formula:

$$DAVG_{vw} = \frac{\sum_{i=1}^n (A_i \times B_i)}{C}$$

Where:

A = daily gal. each coating used (minus water and exempt solvents) in a surface coating operation;

B = lbs. VOC/gal. coating (minus water and exempt solvents);

C = total daily gal. coatings used (minus water and exempt solvents) in a surface coating operation; and

N = number of coatings used in a surface coating operation;

2. Compliance with the emission limits in subsection (4)(B), Table B may be determined on a pounds of VOC per gallon of coating solids basis. The determination is made by first converting the emission limit in subsection (4)(B), Table B to pounds of VOC per gallon of coating solids as shown in the following three (3) steps:

$$1) \frac{\text{lbs. VOC per gallon of coating (emission limit)} - \text{Volume fraction of VOC} \times 7.36 \text{ lbs. per gallon (average density of solvents used to originally establish the emission limit)}}{\text{from (4)(B)}} = \text{fraction of VOC}$$

$$2) 1 - \text{Volume fraction of VOC} = \text{Volume fraction of solids}$$

$$3) \frac{\text{lbs. VOC per gallon of coating (emission limit)} - \text{Volume fraction of solids} \times 7.36 \text{ lbs. per gallon (average density of solvents used to originally establish the emission limit)}}{\text{from (4)(B)}} = \text{lbs. VOC per gallon of coating solids}$$

This value from step 3) is the new emission limit. It is equivalent to the emission limit in subsection (4)(B) on a coating solids basis. The VOC per gallon of coating solids for each coating solids used is then determined using the method referenced in 10 CSR 10-6.030(14)(C) using the one (1)-hour bake. The composite daily weighted average of pounds of VOC per gallon of coating solids as tested for in the actual coatings used is compared to the new emission limit. Source operations on a coating line using coatings with a composite actual daily weighted average value less than or equal to the new emission limit, are in compliance with this rule; or

3. Compliance with the emission limits in subsection (4)(B), Table B may be determined on a pounds of VOC per gallon of coating solids applied basis. An owner or operator may request his/her emission limit be modified to be equivalent to the emission limit in subsection (4)(B), but in emission units of pounds of VOC emitted per gallon of coating solids applied. This new emission limit is derived by dividing the emission limit from paragraph (5)(B)2. by an appropriate value for transfer efficiency (TE) as determined by the director. Prior to this determination, the owner or operator shall demonstrate to the satisfaction of the director that an adequate, fully replicable TE test method exists for the source operation. Upon approval of the TE demonstration, the director will develop an emission limit equivalent to the applicable emission limit in subsection (4)(B).

(6) Record Keeping.

(A) The owner or operator of a coating line shall keep records detailing specific VOC sources as necessary for the director to determine daily compliance. These may include:

1. Daily records of the type and the quantity of coatings used daily;

2. The coating manufacturer's formulation data for each coating on forms provided or approved by the director;



3. Daily records of the type and quantity of solvents for coating, thinning, purging and equipment cleaning used;

4. All test results to determine capture and control efficiencies, TEs and coating makeup;

5. Daily records of the type and quantity of waste solvents reclaimed or discarded daily;

6. Daily records of the quantity of pieces or materials coated daily; and

7. Any additional information pertinent to determining compliance.

(B) Records such as daily production rates may be substituted for actual daily coating use measurements provided the owner submits a demonstration approved by the director that these records are adequate for the purposes of this rule.

(C) Records required under subsections (6)(A) and (B) shall be retained by the owner or operator for a minimum of two (2) years. These records shall be made available to the director upon request.

(7) Compliance Schedules.

(A) Owners or operators who were subject to this rule prior to December 1, 1989 shall be subject to the compliance dates set forth in section (4). Record keeping systems required of these owners or operators under section (6) shall be in place and functioning not later than April 1, 1990. All other subject owners or operators shall be in compliance and have all record keeping systems in place by December 1, 1990.

(B) Owners or operators subject to this rule, but operating under alternate compliance plans as allowed prior to December 1, 1989, shall submit documentation by March 1, 1990 that their controls represent compliance with this rule. If the director determines that the documentation represents compliance, the director shall propose to the Missouri Air Conservation Commission subsequent rules' amendments to make those control measures enforceable. If documentation is not submitted or if the director determines the documentation does not represent compliance, the owner or operator shall comply with section (4) of this rule. All owners or operators subject to this subsection shall demonstrate compliance by December 1, 1990.

AUTHORITY: section 643.050, RSMo Supp. 1999. Original rule filed Dec. 15, 1978, effective July 12, 1979. Amended: Filed March 13, 1980, effective Sept. 12, 1980. Amended: Filed Aug. 15, 1983, effective Jan. 13, 1984. Amended: Filed Dec. 13, 1983,*

effective Jan. 13, 1984. Rescinded and re-adapted: Filed June 30, 1989, effective Nov. 26, 1989. Amended: Filed May 19, 2000, effective Jan. 30, 2001.

**Original authority: 643.050, RSMo 1965, amended 1972, 1992, 1993, 1995.*

10 CSR 10-5.340 Control of Emissions From Rotogravure and Flexographic Printing Facilities

PURPOSE: This rule restricts volatile organic compound emissions from rotogravure and flexographic printing facilities.

(1) Application.

(A) This rule shall apply throughout St. Louis City and Jefferson, St. Charles, Franklin and St. Louis Counties.

(B) This rule applies to installations with uncontrolled potential emissions equal to or greater than two hundred fifty kilograms (250 kg) per day or one hundred (100) tons per year of volatile organic compounds (VOC) from the combination of rotogravure flexographic printing presses. The uncontrolled potential emissions are the potential emissions (as defined) plus the amount by weight of VOCs whose emission into the atmosphere is prevented by the use of air pollution control devices.

(2) Definitions.

(A) Definitions of certain terms specified in this rule may be found in 10 CSR 10-6.020.

(B) The definition of a term specific to this rule is as follows: ink formulation as applied, includes the base ink and any additives such as thinning solvents to make up the ink material that is applied to a substrate.

(3) Emission Limits.

(A) No owner or operator shall use or permit the use of any of the following printing presses unless they are equipped with a control device. The control device shall remove, destroy or prevent the emission of VOCs into the ambient air by at least the percentage indicated by weight of the uncontrolled VOC emissions on a daily weighted basis.

Printing

Press	Percentage
Flexographic	60
Publication Rotogravure	75
Other Rotogravure	65

(B) Low solvent technology may be used to achieve VOC emission reductions instead of the methods required in subsection (3)(A). If

low solvent technology is used, the following limits must be met for each press:

1. For waterborne inks, the volatile portion of the ink as applied to the substrate must contain no more than twenty-five percent (25%) by volume of VOC; and

2. For water-based or high solids inks, the ink as applied to the substrate must be at least sixty percent (60%) by volume non-VOC material.

(C) No owner or operator shall use or permit the use of any flexographic or rotogravure printing press that uses cleanup solvents containing VOCs unless—

1. The cleanup solvents are kept in tightly covered tanks or containers during transport and storage;

2. The cleaning cloths used with the cleanup solvents are placed in tightly closed containers when not in use and while awaiting off-site transportation. The cleaning cloths should be properly cleaned and disposed of. The cloths, when properly cleaned or disposed of, are processed in a way that as much of the solvent as practicable is recovered for some further use or destroyed. Cleaning and disposal methods shall be approved by the director; and

3. An owner or operator may use an alternate method for reducing cleanup solvent VOC emissions, including the use of low VOC cleanup solvents, if the owner or operator shows the emission reduction is equal to or greater than paragraphs (3)(C)1. and 2. This alternate method must be approved by the director.

(4) Recordkeeping.

(A) For owners or operators using an add-on control device(s) to meet the requirements of subsection (3)(A), the following parameters shall be monitored and recorded to determine compliance with subsection (3)(A):

1. Exhaust gas temperature of all incinerators or temperature rise across a catalytic incinerator bed on a continuous basis;

2. VOC breakthrough on a carbon adsorption unit on a continuous basis;

3. Results of emissions testing as required in section (5) of this rule when performed;

4. Maintenance, repairs and malfunction of any air pollution control equipment when performed; and

5. Any other monitoring parameter required by the director to determine compliance with subsection (3)(A).

(B) For owners or operators meeting the requirements of subsection (3)(B) for each ink formulation used, the following shall be

recorded for each press to determine continuous compliance with subsection (3)(B):

1. Volume-weighted ink VOC content in percent by volume for each ink formulation as applied on a monthly basis;

2. Results of ink testing as required in section (5) of this rule when performed; and

3. Any other information required by the director to determine compliance with subsection (3)(B).

(C) For owners and operators order using low solvent technology without the use of control equipment to meet the requirements of subsection (3)(B), and for whom subsection (4)(B) does not apply, the following shall be recorded to determine daily compliance with subsection (3)(B):

1. Volume-weighted ink VOC content in percent by volume for each ink formulation as applied on a monthly basis;

2. Ink usage in gallons for each ink formulation as applied on a daily basis for each press;

3. Volume-weighted density of VOCs in ink in pounds per gallon for each ink formulation as applied on a daily basis;

4. Volume-weighted average of the VOC content of each ink formulation as applied in percent by volume for each press on a daily basis;

5. Ink water content in percent by volume for each ink formulation as applied on a daily basis for each press;

6. Ink exempt solvent content in percent by volume for each ink formulation as applied on a daily basis for each press;

7. Results of ink testing as required in section (5) of this rule when performed; and

8. Any other information required by the director to determine compliance with subsection (3)(B).

(D) Records of all information required in subsections (4)(A)–(C) shall be kept for at least two (2) years. These records shall be available immediately upon request for review by Department of Natural Resources personnel and other air pollution control agencies with proper authority.

(5) Determination of Compliance.

(A) Testing and compliance demonstrations for the emission limits of subsection (3)(A) shall follow the procedures contained in 10 CSR 10-6.030(14)(A) and 10 CSR 10-6.030(20). The averaging time for these tests shall be three (3) one (1)-hour tests. These procedures will determine control device capture efficiency and destruction efficiency. Control device testing will be required as the director determines necessary to verify the capture and destruction efficiencies. At a minimum, control device testing must be

completed and submitted once to the appropriate air pollution control agency within one hundred eighty (180) days after this provision of the rule is effective (Aug. 5, 1992), unless the director determines that a valid test is already on file. Inlet and outlet gas temperature rise across a catalytic incinerator shall be used to determine daily compliance. These temperatures shall be monitored with an accuracy of the greater of plus or minus three-fourths percent (0.75%) of the temperature being measured expressed in degrees Celsius or two and one-half degrees Celsius (2.5°C).

(B) Testing and compliance demonstrations for the emission limits of subsection (3)(B) shall follow the procedures contained in 10 CSR 10-6.030(14)(C). This procedure will determine the VOC content of inks. Ink testing will be required as the director determines necessary to verify the manufacturers' formula specifications. At a minimum, ink testing will be required once after February 6, 1992. Ink manufacturer's formula specifications shall be used to determine daily compliance.

(6) Compliance Dates.

(A) The owner or operator of a rotogravure or flexographic printing installation subject to this rule must submit a final control plan to the director by December 31, 1980, for his/her approval. This plan must include the following:

1. A detailed plan of process modifications; and

2. A time schedule for compliance containing increments of progress and a final compliance date.

(B) Compliance with this rule shall be accomplished by any installation as expeditiously as practicable, but in no case shall final compliance extend beyond December 31, 1982.

*AUTHORITY: section 643.050, RSMo 1994. * Original rule filed March 13, 1980, effective Sept. 12, 1980. Amended: Filed Nov. 10, 1981, effective May 13, 1982. Amended: Filed Oct. 4, 1988, effective March 11, 1989. Amended: Filed July 15, 1991, effective Feb. 6, 1992.*

**Original authority: 643.050, RSMo 1965, amended 1972, 1992, 1993.*

10 CSR 10-5.350 Control of Emissions From Manufacture of Synthesized Pharmaceutical Products

PURPOSE: This rule restricts volatile organic compound emissions from the manufacture of synthesized pharmaceutical products.

(1) Application.

(A) This rule shall apply throughout St. Louis City and Jefferson, St. Charles, Franklin and St. Louis Counties.

(B) This rule applies to all synthesized pharmaceutical manufacturing installations.

(C) This rule applies only to operations including reactors, distillation units, dryers, storage of volatile organic compounds (VOCs), transfer of VOC, extraction equipment, filters, crystallizers and centrifuges that individually and uncontrolled would emit fifteen pounds (15 lbs.) per day or more of VOC.

(D) This rule does not apply to operations used exclusively for chemical or physical analysis or determination of product quality and commercial acceptance (such as research facilities, pilot plant operations and laboratories) unless—

1. The operation is an integral part of the production process; or

2. The emissions from the operation exceed three hundred sixty-three kilograms (363 kg) (eight hundred 800 lbs.) in any calendar month.

(2) Definitions of certain terms specified in this rule may be found in 10 CSR 10-6.020.

(3) Operating Equipment and Operating Procedure Requirements.

(A) The owner or operator of a synthesized pharmaceutical manufacturing facility subject to this rule shall control the VOC emissions from all reactors, distillation operations, crystallizers, centrifuges and vacuum dryers by the use of surface condensers or equivalent controls.

1. If surface condensers are used, with vapor pressures as measured at twenty degrees Celsius (20°C), the condenser outlet gas temperature must not exceed—

A. Minus twenty-five degrees Celsius (-25°C), when condensing VOC of vapor pressure greater than 40.0 kilopascals (kPa) (5.8 psi);

B. Minus fifteen degrees Celsius (-15°C), when condensing VOC of vapor pressure greater than 20.0 kPa (2.9 psi);

C. Zero degrees Celsius (0°C), when condensing VOC of vapor pressure greater than 10.0 kPa (1.5 psi);

D. Ten degrees Celsius (10°C), when condensing VOC of vapor pressure greater than 7.0 kPa (1.0 psi); or

E. Twenty-five degrees Celsius (25°C), when condensing VOC of vapor pressure greater than 3.50 kPa (0.5 psi).

2. If equivalent controls are used, the VOC emissions must be reduced by an amount equivalent to the reductions achieved

in paragraph (3)(A)1. Equivalent controls may not be used unless approved by the director.

(B) The owner or operator of a synthesized pharmaceutical manufacturing installation subject to this rule shall reduce the VOC emissions from all air dryers and production equipment exhaust systems—

1. By at least ninety percent (90%) if emissions are one hundred fifty (150) kg/day, three hundred thirty (330) lbs./day or more of VOC; or

2. To fifteen (15) kg/day thirty-three (33) lbs./day or less if emissions are less than one hundred fifty (150) kg/day, three hundred thirty (330) lbs./day of VOC.

(C) The owner or operator of a synthesized pharmaceutical manufacturing installation subject to this rule shall—

1. Provide a vapor recovery system or equivalent control that is ninety percent (90%) or more effective in reducing daily average emissions from truck or railcar deliveries to storage tanks with capacities greater than seven thousand five hundred (7,500) liters (two thousand (2,000) gallons) that store VOC with vapor pressures greater than 28.0 kPa (4.1 psi) at twenty degrees Celsius (20°C); and

2. Install pressure/vacuum conservation vents set at ± 0.2 kPa on all storage tanks that store VOC with vapor pressures greater than 10.0 kPa (1.5 psi) at twenty degrees Celsius (20°C), unless a more effective control system is used.

(D) The owner or operator of a synthesized pharmaceutical manufacturing installation subject to this rule shall enclose all centrifuges, rotary vacuum filters and other filters having an exposed liquid surface, where the liquid contains VOC and exerts a total VOC vapor pressure of 3.50 kPa (0.5 psi) or more at twenty degrees Celsius (20°C).

(E) The owner or operator of a synthesized pharmaceutical manufacturing installation subject to this rule shall install covers on all in-process tanks containing a VOC at any time. These covers must remain closed, unless production, sampling, maintenance or inspection procedures require operator access.

(F) The owner or operator of a synthesized pharmaceutical manufacturing installation subject to this rule shall repair all leaks from which a liquid containing VOC can be observed running or dripping. The repair shall be completed the first time the equipment is off-line for a period of time long enough to complete the repair.

(4) Compliance Determination and Recordkeeping.

(A) Compliance with this rule in subsections (3)(A) and (B) and paragraph (3)(C)1. shall be determined by the testing methods referenced in 10 CSR 10-6.030(14)(A).

(B) Owners or operators utilizing add-on control technology shall monitor and record the following parameters continuously while the affected equipment is in operation:

1. Exhaust gas temperature of all incinerators;

2. Temperature rise across a catalytic incinerator bed;

3. VOC breakthrough on a carbon adsorption unit;

4. Exit stream temperature on all condensers; and

5. Any other monitoring device requested by the director.

(C) Records shall be kept on production rates sufficient to determine daily VOC emissions and any equipment test results performed in conjunction with this rule.

(D) Records of all information requested in subsection (4)(B) shall be kept for a period of not less than two (2) years and all these records shall be made available to the director upon his/her request.

(5) Compliance Dates.

(A) The owner or operator of a synthesized pharmaceutical manufacturing installation subject to this rule must submit a final control plan to the director by December 31, 1980, for his/her approval. This plan must include the following:

1. A detailed plan of process modifications; and

2. A time schedule for compliance containing increments of progress and a final compliance date.

(B) Compliance with this rule shall be accomplished by any installation as expeditiously as practicable, but in no case shall final compliance extend beyond December 31, 1982.

*AUTHORITY: section 643.050, RSMo 1994. * Original rule filed March 13, 1980, effective Sept. 12, 1980. Amended: Filed Oct. 4, 1988, effective March 11, 1989.*

**Original authority: 643.050, RSMo 1965, amended 1972, 1992, 1993.*

10 CSR 10-5.360 Control of Emissions From Polyethylene Bag Sealing Operations

PURPOSE: This rule reduces volatile organic compound emissions in the St. Louis metropolitan area as part of the Missouri State Implementation Plan for Ozone.

(1) Application.

(A) This rule shall apply throughout St. Louis City and Jefferson, St. Charles, Franklin and St. Louis Counties.

(B) This rule applies to all installations which have the uncontrolled potential to emit more than one hundred (100) tons per year or two hundred fifty kilograms (250 kg) per day of volatile organic compounds (VOCs) from any polyethylene bag sealing operation. This rule also shall apply to any installation which does not have an allowable VOCs emission limit established under 10 CSR 10-6.060 or legally enforceable state implementation plan revision and which has uncontrolled potential emissions greater than or equal to two hundred fifty kilograms (250 kg) per day or one hundred (100) tons per year. The uncontrolled potential to emit is the potential emissions (as defined) plus the emissions removed by control devices.

(2) Definitions of certain terms specified in this rule may be found in 10 CSR 10-6.020.

(3) Emission Limits. No owner or operator shall use or permit the use of any polyethylene bag sealing operations unless the operations are equipped with a control method that will remove, destroy or prevent discharge into the ambient air a daily average of no less than sixty-five percent (65%) by weight of uncontrolled VOC emissions.

(4) Reporting and Recordkeeping.

(A) The owner or operator of a polyethylene bag sealing operation covered by this rule must maintain records consisting of the compositions and amount of sealant used, the amount and type of solvent used, the amount and type of clean-up solvent used and discarded, maintenance and repairs of air pollution control equipment, results of any emissions testing and all other information necessary to determine daily compliance with this rule. The information shall be made available to the director upon request.

(B) For owners or operators utilizing add-on control technology, the following parameters will be monitored:

1. Exhaust gas temperature of all incinerators;

2. Temperature rise across a catalytic incinerator bed;

3. VOC breakthrough on a carbon adsorption unit; and

4. Any other parameter requested by the director.

(C) Inventory records of all information required in subsections (4)(A) and (B) shall be kept for a period of not less than two (2)



years and all those records shall be made available to the director upon his/her request.

(D) For add-on control technology, compliance with this rule shall be determined by the testing methods referenced in 10 CSR 10-6.030(14)(A).

(5) Compliance Schedules.

(A) The owner or operator of a polyethylene bag sealing operation achieving compliance with section (3) of this rule through the use of add-on control equipment must meet the applicable increments of progress in the following schedule:

1. Award contracts, issue purchase orders or otherwise order the emission control system and process equipment before April 1, 1983;
2. Complete installation of the emission control equipment before March 1, 1984; and
3. Achieve final compliance, determined in accordance with subsection (4)(D) before April 1, 1984.

(B) The owner or operator of a polyethylene bag sealing operation achieving compliance with section (3) of this rule through the use of exempted solvents must achieve—

1. A five percent (5%) reduction in emissions by March 31, 1983;
2. A thirty-five percent (35%) reduction in emissions by March 31, 1984; and
3. A final compliance by March 31, 1985.

(C) In the event that an installation utilizing exempted solvents cannot achieve the emissions reduction required in section (3) of this rule, final compliance through the use of add-on control equipment shall be no later than March 31, 1985.

(6) Seasonal Afterburner Exemption.

(A) The owner or operator of an installation who achieves compliance with this rule through the use of a natural gas-fired afterburner may discontinue operation of the afterburner for a period not longer than six (6) consecutive months beginning October 15 and ending April 15 if—

1. The afterburner is not used to control odors; and
2. The discontinuance of operation will not violate local ordinances.

(B) If, in the opinion of the director, the discontinued operation of an afterburner causes a nuisance, the afterburner shall be operated in a manner prescribed by the director.

*AUTHORITY: section 643.050, RSMo 1994. * Original rule filed June 14, 1982, effective Nov. 11, 1982. Amended: Filed Oct. 4, 1988, effective March 11, 1989.*

**Original authority: 643.050, RSMo 1965, amended 1972, 1992, 1993.*

10 CSR 10-5.370 Control of Emissions From the Application of Deadeners and Adhesives

PURPOSE: This rule restricts emissions of volatile organic compounds from the application of deadeners and adhesives.

(1) Applicability.

(A) This rule shall apply throughout St. Louis City and Jefferson, St. Charles, Franklin and St. Louis Counties.

(B) This rule applies to all installations which have the uncontrolled potential to emit more than one hundred (100) tons per year or two hundred fifty kilograms (250 kg) per day of volatile organic compounds (VOCs) from the application of automotive underbody deadeners and adhesives. This rule shall also apply to any installation which does not have an allowable VOC emission limit established under 10 CSR 10-6.060 or legally enforceable state implementation plan revision and which has uncontrolled potential emissions greater than or equal to two hundred fifty kilograms per day (250 kg/day) or one hundred (100) tons per year. The uncontrolled potential to emit is the potential emissions (as defined) plus the emissions removed by control devices.

(2) Definitions of certain terms specified in this rule may be found in 10 CSR 10-6.020.

(3) General Provisions.

(A) No person shall emit to the atmosphere any VOC from the application of automotive underbody deadeners and adhesives in excess of the emission limit in section (4).

(B) The emission limit contained in section (4) shall be based on a daily weighted average of all deadeners and/or adhesives delivered to the coating applicator.

(4) Emission Limitations and Dates of Compliance.

Application Process	Emission Limit lb./gal. Coating (minus water) and non-VOC	Dates of Compliance
	Organic Compounds	
Chrysler Corp. Car— Deadeners	2.22	7/31/85
Vinyl Top Adhesives	5.33	7/31/85

(5) Recordkeeping.

(A) The owner or operator of a deadener and/or adhesive application covered by this

rule shall keep records detailing specific VOC sources as necessary to demonstrate daily compliance. These may include daily records of the amount of deadener and/or adhesive used, the composition of deadener and/or adhesive, solvent used, solvent discarded and production levels.

(B) Records, such as daily production rates, may be substituted for actual daily used measurements provided the owner submits a demonstration approvable by the director that these records are adequate for the purpose of this rule.

(C) Records of all information required under subsections (5)(A) and (B) shall be kept for a period of not less than two (2) years and all the records shall be made available to the staff director upon request.

(6) Compliance Method. Compliance with this rule shall be demonstrated using the test method referenced at 10 CSR 10-6.030(14)(C) to determine deadener composition. The deadener manufacturer's formulation data may be used to demonstrate compliance, but only after confirmation by the test method previously referenced.

*AUTHORITY: section 643.050, RSMo 1994. * Original rule filed Aug. 15, 1983, effective Jan. 13, 1984. Amended: Filed June 4, 1985, effective Oct. 26, 1985. Amended: Filed Oct. 4, 1988, effective March 11, 1989.*

**Original authority: 643.050, RSMo 1965, amended 1972, 1992, 1993.*

10 CSR 10-5.375 Motor Vehicle Emission Inspection Waiver

PURPOSE: This rule complies with section 307.366.4, RSMo. It specifies the procedures and limits for receiving a waiver after failing a motor vehicle emission reinspection in the basic inspection and maintenance program as established under 11 CSR 50-2.400.

(1) Applicability. This rule shall apply to all motor vehicles powered exclusively or in part by gasoline which are registered after January 1, 1997, in Franklin County and that have failed an emission reinspection.

(2) Definitions.

(A) Initial emission inspection—An inspection consisting of the test series that occurs the first time a vehicle is inspected in an inspection cycle at a Franklin County emission inspection station. The required test fee is collected upon an initial emission inspection.

(B) Qualifying repair—Any repair or adjustment performed on a vehicle's emission control system after failing an initial emission inspection that is appropriate to the test failure.

(C) Qualified repair technician—any person who—

1. Is professionally engaged in vehicle repair or employed by an ongoing business whose purpose is vehicle repair; and

2. Has valid certifications in National Institute for Automotive Service Excellence (ASE) Electrical Systems (A6) and Engine Performance (A8).

(D) Qualified labor costs—The labor costs that a qualified repair technician charges for services rendered to a vehicle that fails its emission inspection.

(E) Definitions of certain terms specified in this rule, other than those specified in this rule section, may be found in 10 CSR 10-6.020.

(3) General Provisions.

(A) A vehicle which has failed an emission reinspection will be issued a waiver under the following conditions:

1. The subject vehicle has failed the initial emission inspection, has had qualifying repairs, and has failed an emission reinspection;

2. The vehicle operator has taken the vehicle to an emission inspection station in Franklin County or a state quality assurance/waiver facility and presented to the station manager, the assistant station manager, or the department representative the emission analyzer computer generated State of Missouri Vehicle Inspection Certificate, stating that the vehicle presented has failed the initial emission inspection and all subsequent emission reinspections;

3. The vehicle operator has presented to the station manager, the assistant station manager, or the department representative all itemized receipts of qualifying repairs; and

4. The station manager, the assistant station manager, or the department representative has, to the extent practical, visually verified that repairs were made and parts were repaired/replaced as claimed.

(B) The amount spent on qualifying repairs shall—

1. Not be less than seventy-five dollars (\$75) for pre-1981 model year vehicles;

2. Not be less than two hundred dollars (\$200) for 1981 and all subsequent model year vehicles;

3. Be inclusive of parts and/or labor costs paid for repair services, where applicable. Qualified labor costs shall be applied

toward a waiver. For qualifying repairs performed by someone other than a qualified repair technician, parts costs, but not labor costs, shall be applied toward a waiver;

4. Not include the fee for an emission inspection;

5. Not include charges for obtaining a written estimate of needed repairs;

6. Not include charges for checking for the presence of emission control devices;

7. Not include costs for repairs performed on the vehicle before the initial emission inspection failure;

8. Not include expenses which are incurred for the repair of emission control devices which have been found to be tampered with, rendered inoperative, or removed; and

9. Not include costs for emissions repairs or adjustments covered by an automobile manufacturer's warranty, insurance policy, or contractual maintenance agreement. The emissions repair costs covered by warranty, insurance, or maintenance agreements shall be separated from other emissions repair costs and shall not be applied toward the waiver cost limitations. The operator of a vehicle within the statutory age and mileage coverage under subsection 207(b) of the federal Clean Air Act shall present from the manufacturer or authorized dealer a written denial of warranty coverage, with a complete explanation, in order for this provision to be waived.

(C) The vehicle operator shall present the original of all itemized repair receipts at an emission inspection station in Franklin County or a state quality assurance/waiver facility to demonstrate compliance with the qualifying dollar amount. The itemized repair receipts shall—

1. Include the name, address, and phone number of the repair facility;

2. Describe the repairs that were performed;

3. State the labor costs (where applicable) and parts costs for each repair; and

4. Include the name (printed or typed), signature and if applicable the qualified repair technician ID number of the repair technician that performed the repair work.

(D) A waiver affidavit/authorization will be issued by the station manager, the assistant station manager, or the department representative upon determination that the sum of all repair costs as determined from itemized receipts for parts repaired/replaced and/or for qualified labor costs meet the established limits according to subsection (3)(B) of this rule.

(E) If the conditions of subsections (3)(A)–(3)(D) of this rule have been met, the station manager, the assistant station manager,

or the department representative shall affix the emission sticker to the vehicle.

(4) Reporting and Record Keeping. (*Not Applicable*)

(5) Test Methods. (*Not Applicable*)

AUTHORITY: section 307.366.4, RSMo Supp. 1999. Original rule filed Jan. 14, 1997, effective Aug. 30, 1997. Amended: Filed Aug. 4, 2000, effective March 30, 2001.*

**Original authority: 307.366 RSMo 1983, amended 1984, 1988, 1992, 1994, 1996, 1999, 2000.*

10 CSR 10-5.380 Motor Vehicle Emissions Inspection

PURPOSE: This rule enacts the provisions of sections 643.300–643.355, RSMo and meets the 1990 Clean Air Act requirement that the ozone state implementation plan contains necessary enforceable measures to upgrade the mandatory inspection and maintenance program in order to reduce vehicle emissions in the St. Louis nonattainment area.

PUBLISHER'S NOTE: The secretary of state has determined that the publication of the entire text of the material which is incorporated by reference as a portion of this rule would be unduly cumbersome or expensive. Therefore, the material which is so incorporated is on file with the agency who filed this rule, and with the Office of the Secretary of State. Any interested person may view this material at either agency's headquarters or the same will be made available at the Office of the Secretary of State at a cost not to exceed actual cost of copy reproduction. The entire text of the rule is printed here. This note refers only to the incorporated by reference material.

(1) Applicability.

(A) Except as provided in subsection (1)(B) of this rule, subject vehicles include all vehicles operated on public roadways in the geographical area containing the City of St. Louis and the counties of St. Louis, St. Charles, and Jefferson and which are—

1. Registered in the area with the state of Missouri Department of Revenue;

2. Leased, rented, or privately owned and are not registered in the geographical area but are primarily operated in the area. A vehicle is primarily operated in the area if at least fifty-one percent (51%) of the vehicle's annual miles are in the area;

3. Owned or leased by federal, state, or local government agencies, and are primarily

operated in the geographical area, but are not required to be registered by the state of Missouri; or

4. Owned, leased, or operated by civilian and military personnel on federal installations located within the geographical area, regardless of where the vehicles are registered.

(B) The following vehicles are exempt from this rule:

1. Model year vehicles prior to 1971;
 2. Motor vehicles with a manufacturer's gross vehicle weight rating (GVWR) in excess of eight thousand five hundred (8,500) pounds;

3. Diesel powered vehicles;
 4. Hydrogen powered vehicles;
 5. Vehicles powered solely by electric motors;

6. Vehicles powered solely by alternative fuels without test procedures established by federal regulation;

7. Motorcycles and motortricycles;
 8. New and unused motor vehicles, of model years of the current calendar year and of any calendar year within two (2) years of such calendar year, which have an odometer reading of less than six thousand (6,000) miles at the time of original sale by a motor vehicle manufacturer or licensed motor vehicle dealer to the first user;

9. Motor vehicles registered in the applicable area covered by this section of the rule which are domiciled and operated exclusively in an area of the state not subject to the provisions of this section of the rule for a duration covering the next twenty-four (24) months. The owner of the vehicle shall present the director a sworn affidavit that the vehicle will be based and operated outside the covered area;

10. Tactical military vehicles; and
 11. Visitor, employee, or military personnel vehicles on federal installations provided appointments do not exceed sixty (60) calendar days per calendar year.

(C) Starting July 1, 2000, owners of motor vehicles registered in Franklin County who choose to have their vehicles biennially emission inspected shall have their vehicles inspected at emission stations in the City of St. Louis or the counties of St. Louis, St. Charles, or Jefferson pursuant to this rule.

(2) Definitions.

(A) Compliance cycle—The two (2)-year duration during which a subject vehicle in the enhanced emission inspection program area is required to comply with sections 643.300–643.355, RSMo.

1. For private entity vehicles, the compliance cycle begins sixty (60) days prior to the subject vehicle's registration expiration.

2. For public entity vehicles, the compliance cycle begins on January 1 of each even-numbered calendar year.

(B) Contractor—The state contracted company who shall implement and operate the centralized, enhanced motor vehicle emission inspection program as specified in sections 643.300–643.355, RSMo.

(C) Control chart—The graphical presentation of the results of statistical process control methods applied to emission inspection test equipment and personnel for the purposes of assuring the quality control of each emission inspection performed. Such charts identify situations that are "out of control" and enable trend analysis useful to pinpointing the need for improvements in quality control. The U.S. Environmental Protection Agency (EPA)-defined control charts are listed in April 2000 *IM240 & Evap Technical Guidance*, 40 CFR part 85, subpart W, section 2234, subsection (g), which is incorporated by reference.

(D) Department—The Missouri Department of Natural Resources.

(E) Diagnostic Trouble Code (DTC)—An alphanumeric code consisting of five (5) characters which is stored by a vehicle's On-Board Diagnostics system if a vehicle malfunctions or deteriorates in such a way as to potentially raise the vehicle's tailpipe or evaporative emissions more than 1.5 times the federal test procedure certification limits.

(F) Emission inspection—A series of tests performed on a vehicle in order to evaluate whether the mass or concentration of pollution that the vehicle emits exceeds a given standard or used to evaluate whether the vehicle's emission control components are present and properly functioning.

(G) Gross Vehicle Weight Rating (GVWR)—The value specified by the manufacturer as the maximum design loaded weight of a single vehicle.

(H) Hybrid Electric Vehicle (HEV)—Any vehicle that is designed with two (2) means of propulsion, one being a gasoline-powered internal combustion engine, the other being an electric motor powered by batteries.

(I) Idle test—An engine exhaust emissions test in which the engine of a vehicle remains at a relatively uniform number of revolutions per minute.

(J) Initial emission inspection—An emission inspection consisting of the test series that occurs the first time a vehicle is inspected in a compliance cycle.

(K) Light Duty Truck (LDT)—Any motor vehicle rated at eight thousand five hundred (8,500) pounds GVWR or less which has a vehicle curb weight of six thousand (6,000) pounds or less and which has a basic vehicle

frontal area of forty-five (45) square feet or less, which is:

1. Designed primarily for purposes of transportation of property or is a derivation of such a vehicle;

2. Designed primarily for transportation of persons and has a capacity of more than twelve (12) persons; or

3. Available with special features enabling off-street or off-highway operation and use.

(L) Light Duty Vehicle (LDV)—A passenger car or passenger car derivative capable of seating twelve (12) passengers or less that is rated at six thousand (6,000) pounds GVWR or less.

(M) Malfunction Indicator Lamp (MIL)—A warning light located on the dashboard of vehicles equipped with On-Board Diagnostics systems indicating to the vehicle operator that the vehicle either has a malfunction or has deteriorated enough to cause at least one (1) DTC to be stored.

(N) On-Board Diagnostics (OBD)—A vehicle emissions early-warning system required by federal law to be installed on all light-duty 1996 and newer model year vehicles for sale in the United States. The OBD system monitors sensors attached to all emission-control related components on a vehicle to ensure that the emission control system operates properly throughout a vehicle's lifetime.

(O) On-Board Diagnostics (OBD) test—A test in which a vehicle's OBD system is connected to a hand-held tool or computer capable of determining:

1. If the OBD system's readiness flags have been set;

2. If the MIL is functioning correctly; and

3. If the OBD system has stored any DTCs that are commanding the MIL to be illuminated.

(P) Qualifying repair—Any repair or adjustment performed on a vehicle's emission control system after failing an initial emission inspection, that is reasonable to the test method failure. The qualifying repair must be performed within ninety (90) days of the date of initial emission inspection. The qualifying repair may consist of either—

1. The parts costs, spent by a vehicle owner or charged to a vehicle owner by a repair technician, that are appropriate for the type of emission inspection failure; or

2. The parts and recognized labor costs, charged to a vehicle owner by a Recognized Repair Technician, that are appropriate for the type of emission inspection failure.

(Q) Readiness flag—A design feature of On-Board Diagnostics systems. If a readiness flag has been set, then the OBD system has

completed a diagnostic check on that component. If a readiness flag has not been set, then the OBD system has not completed a diagnostic check on that component.

(R) Recognized labor costs—The labor costs that a Recognized Repair Technician charges for emission repair services rendered to a vehicle that fails its emission inspection;

(S) Recognized Repair Technician—Any person who—

1. Is professionally engaged full-time in vehicle repair or employed by an ongoing business whose purpose is vehicle repair. A Recognized Repair Technician may only be recognized by the department at one place of employment;

2. Has valid certifications from the National Institute for Automotive Service Excellence (ASE) in Electrical Systems (A6), Engine Performance (A8), and Advanced Engine Performance Specialist (L1) that have not expired;

3. Has satisfactorily completed an independent or vehicle manufacturer's training course, approved by the department, or has passed a nationally-recognized test, approved by the department, which course or test covers the emissions test methods used, diagnosis of the causes for failures, and repair work most frequently done for vehicles failing the transient emission test. Recognized Repair Technicians whose recognition expires or is revoked by the department must comply with paragraph (2)(S)3. of this rule again before being re-recognized by the department;

4. Has satisfactorily completed at least one (1) four (4)-hour continuing education course per calendar year offered by the department; and

5. Has not been reported by the department to the Attorney General for unlawful merchandising practices according to subsection 643.330.5, RSMo.

(T) Transient emission test—An engine exhaust emissions test in which the engine of a vehicle is put under changing load requirements intended to simulate actual driving conditions.

(U) Unsafe condition—The mechanical and physical condition of a motor vehicle which an emission inspector believes has the potential to cause harm to persons, vehicles, or property during the course of an emission inspection.

(V) Definitions of certain terms in this rule, other than those specified in this rule section, may be found in 10 CSR 10-6.020.

(3) General Provisions.

(A) Subject Vehicle Compliance.

1. Private entity vehicle compliance with emission standards.

A. Motor vehicles subject to this rule shall demonstrate compliance with emission standards in this rule. Such demonstration shall be made through the test methods specified in section (5) of this rule and be completed according to the compliance cycle specified in paragraph (2)(A)1., the inspection intervals specified in subsection (3)(B), and the inspection periods specified in subsection (3)(C) of this rule.

B. Completion of the emission inspection requirements is necessary for vehicle initial registration, registration renewal, or registration transfer.

C. Failure to complete a vehicle emission inspection during the compliance cycle or before vehicle registration shall be a violation of this rule. These violations are subject to penalties specified in subsection 643.355.5, RSMo.

2. Public entity vehicle compliance with emission standards.

A. All subject vehicles owned by federal, state and local governments shall be emission inspected within the first twenty-four (24) months of the effective date of the enhanced emission inspection program.

B. After the first compliance cycle, all subject vehicles owned by federal, state and local governments shall be emission inspected according to the compliance cycle specified in paragraph (2)(A)2. and the inspection intervals specified in subsection (3)(B) of this rule.

C. All federal agencies shall ensure employee and military personnel vehicles meet the requirements of this subsection according to the December 1999 *Interim Guidance for Federal Facility Compliance With Clean Air Act Sections 118(c) and 118(d) and Applicable Provisions of State Vehicle Inspection and Maintenance Programs*, which is incorporated by reference.

D. All public entities shall provide department personnel access to vehicle parking lots, garages, and areas otherwise used to store vehicles in order to examine vehicles for the presence of windshield stickers.

E. Failure to complete a vehicle emission inspection within the compliance cycle specified in paragraph (2)(A)2. of this rule shall be a violation of this rule. These violations are subject to penalties specified in subsection 643.355.5, RSMo.

3. Vehicle fleets of five hundred (500) vehicles or more.

A. Vehicle fleets of five hundred (500) vehicles or more may be officially emission inspected outside of the centralized emission inspection stations designated for the general public, if the fleet inspection

facilities are approved by the department. Owners or operators of such vehicle fleets shall use the state contractor to conduct the emission inspections.

B. Vehicle fleets using such inspection facilities shall be subject to the same inspection requirements as nonfleet vehicles.

C. Fleet inspection facilities shall be subject to quality assurance evaluations at least as stringent as those performed at public inspection stations.

D. Owners or operators may make repairs to fleet vehicles on-site.

4. Vehicle fleets of fewer than five hundred (500) vehicles. The department shall require operators of emission inspection facilities to accommodate fleets of ten (10) vehicles or greater with special hours, scheduling appointments during hours not open to the public, and providing a voucher payment system.

(B) Emission Inspection Intervals.

1. Vehicles subject to this rule, manufactured as an odd-numbered model year vehicle are required to be inspected by the enhanced emission inspection program in each odd-numbered calendar year. Subject vehicles manufactured as an even-numbered model year vehicle are required to be inspected by the enhanced emission inspection program in each even-numbered calendar year.

2. At the time of registration transfer, subject vehicles are required by section 643.315.1, RSMo to be inspected by the enhanced emission inspection program, regardless of the vehicle model year. At the time of registration transfer, prior to the sale of a vehicle, sellers of vehicles are required to provide the purchaser with an emission inspection compliance certificate or compliance waiver that is valid for registering the vehicle according to inspection period requirements of subsection (3)(C) of this rule.

(C) Emission Inspection Periods.

1. An emission inspection performed at an inspection station on a subject vehicle via the vehicle inspection process described in subsections (3)(F)–(I) of this rule is valid, for the purposes of obtaining registration or registration renewal, for a duration of sixty (60) days from the date of passing inspection or waiver issuance.

2. Reinspections occurring fewer than ninety (90) days after the initial emission inspection are subject to subsections (3)(H) and (I) of this rule.

3. Reinspections occurring more than ninety (90) days after the initial emission inspection shall be considered to be an initial emission inspection as defined in subsection (2)(J) and are subject to subsections (3)(F) and (G) of this rule.

4. An emission inspection performed on a subject vehicle via the clean screening inspection process described in paragraph (3)(J)1. of this rule and subsection (3)(K) of this rule are valid, for the purposes of obtaining registration or registration renewal, for a duration of sixty (60) days from the date the clean screening inspection payment is processed.

(D) Emission Inspection Fee.

1. At the time of an initial emission inspection, the vehicle owner or driver shall pay twenty-four dollars (\$24) to the emission inspection station, payable by cash, check or credit card.

2. This emission inspection fee shall include free reinspections, provided the vehicle owner or driver complies with all reinspection requirements as required in subsection (3)(H) of this rule, and the reinspections are conducted within thirty (30) days of the initial emission inspection.

3. If an emission inspection fee is required, the emission inspection fee shall be reduced on days of operation, other than the last three (3) days of operation in each calendar month, by an amount that corresponds with the time that the vehicle owner or driver is required to wait before the inspection begins. The emission inspection fee shall be reduced as follows:

A. If the wait time is greater than thirty (30) minutes, the fee shall be reduced by ten dollars (\$10); or

B. If the wait time is greater than one (1) hour, the fee shall be reduced by twenty dollars (\$20).

4. The fee for a clean screening inspection compliance certificate and windshield sticker shall be twenty-four dollars (\$24), payable by check, credit card or money order.

5. The fee reimbursed to the state by the contractor shall be two dollars and fifty cents (\$2.50) for each individual emission inspection fee paid by a vehicle owner or driver at an inspection station or for a clean screening compliance certificate. The fee shall be remitted to the Director of Revenue on a weekly basis. The Director of Revenue shall deposit the fee into the "Missouri Air Emission Reduction Fund" as established by section 643.350, RSMo.

(E) Emission Test Equipment.

1. Performance features of emission test equipment. Computerized test systems are required for performing any measurement on subject vehicles. The test equipment shall be certified to meet EPA requirements. Newly acquired emission test systems shall be subjected to department acceptance test procedures to ensure compliance with enhanced emission inspection program specifications.

A. Emission test equipment shall be capable of testing all subject vehicles and will be updated as needed to accommodate new technology vehicles as well as changes to the program.

B. At a minimum, emission test equipment shall be:

(I) Automated to the highest degree commercially available to minimize the potential for intentional fraud and/or human error;

(II) Secure from tampering and/or abuse;

(III) Based upon written specifications; and

(IV) Capable of simultaneously sampling dual exhaust vehicles.

2. Functional characteristics of computerized test systems. The test system is composed of emission measurement devices and other motor vehicle test equipment controlled by a computer.

A. The test system shall automatically:

(I) Make pass/fail decisions for all measurements;

(II) Record test data to an electronic medium;

(III) Conduct regular self-testing of recording accuracy;

(IV) Perform electrical calibration and system integrity checks before each test, as applicable; and

(V) Initiate system lockouts for—

(a) Tampering with security aspects of the test system;

(b) Failing to conduct or pass periodic calibration or leak checks;

(c) Failing to conduct or pass the constant volume sampler flow rate check;

(d) Failing to conduct or pass any of the dynamometer checks, including coast-down, roll speed and roll distance, power absorption capability, and inertia weight selection checks;

(e) Failing to conduct or pass the pressure monitoring device check; and

(f) A full data recording medium or one that does not pass a cyclical redundancy check.

B. Test systems shall include a data link to the department computer as specified in the contract between the department and the contractor(s).

C. The test system shall ensure accurate data collection by limiting, cross-checking, and/or confirming manual data entry.

3. Evaporative system pressure test equipment. Evaporative system pressure test equipment shall be as specified by EPA in April 2000 *IM240 & Evap Technical Guidance*, 40 CFR part 85, subpart W, sec-

tion 2227, which is incorporated by reference.

4. Single-speed and two (2)-speed idle test equipment. Idle test equipment requirements shall be as specified by EPA in 40 CFR part 51, subpart S, Appendix A, section (I) and Appendix D, section (I), which are incorporated by reference.

5. Transient emission test equipment. Transient emission test equipment shall meet standards specified by EPA in April 2000 *IM240 & Evap Technical Guidance*, 40 CFR part 85, subpart W, section 2226, which is incorporated by reference.

6. On-Board Diagnostics (OBD) test equipment. OBD test equipment shall meet the standards specified by EPA in 40 CFR part 85, subpart W, section 2231, which is incorporated by reference.

(F) Emission Inspection Procedures. The emission inspection shall meet the following requirements:

1. Prior to entering the inspection station queuing area, the vehicle owner or driver shall be presented a time card for the verification of arrival time. Wait time shall be determined by the difference in time between the time of arrival and the time that emission inspection begins;

2 If a subject vehicle is targeted for a voluntary or mandatory manufacturer's emission recall notice issued after July 1, 1995, the vehicle owner or operator shall present to the emission inspection station proof of compliance with the recall notice;

3. A vehicle shall not be inspected if all or part of the vehicle manufacturer's original exhaust system configuration is missing, leaking, or if the vehicle is in an unsafe condition as defined in subsection (2)(U) of this rule and determined by either the inspector or the department representative. If a motor vehicle is refused for inspection, then the station manager, assistant station manager, or department representative shall give the motorist a form that identifies the reasons for inspection refusal. The reasons for inspection refusal include, but are not limited to, the safety, driveability, and test procedure concerns as determined by the station manager, assistant station manager, or department representative. No fee shall be charged for this inspection;

4. The vehicle owner or driver shall have access to an area in the inspection station that permits observation of the entire official inspection procedure of the vehicle being inspected. This access may be limited, but it shall not prevent observation;

5. Vehicles shall be inspected in as-received condition. An official inspection, once initiated, shall be performed in its



entirety regardless of immediate outcome, except in the case of an invalid test condition, unsafe conditions, or test completion via fast pass algorithms;

6. The initial emission inspection shall be performed according to the test methods described in subsection (5)(A)–(G) of this rule without repair or adjustment at the emission inspection station prior to commencement of any tests, except as provided for in the evaporative system pressure test. Emission inspections performed within ninety (90) days of the initial emission inspection shall be considered a reinspection and are subject to provisions of subsection (3)(H) of this rule;

7. If a subject vehicle passes all emission inspection requirements within the compliance cycle described in subsection (2)(A) of this rule and the inspection period described in paragraph (3)(C)1. of this rule according to the standards described in subsection (3)(G) of this rule, the emission inspection station shall issue the vehicle owner or driver a compliance certificate certifying that the vehicle has passed the emission inspection, and place a windshield sticker on the windshield of the subject vehicle according to subsection (4)(A) of this rule. The positioning of the windshield sticker on the windshield of the vehicle shall take place on the premises of the emission inspection station;

8. If a subject vehicle fails any of the test methods described in subsection (5)(A)–(G) of this rule, the emission inspection station shall provide the vehicle owner or driver with a vehicle test report indicating which test method(s) of the emission inspection that the vehicle failed, a repair facility performance report, a repair data sheet, and a copy of the customer complaint procedure according to subsection (4)(B) of this rule; and

9. If a subject vehicle fails any of the test methods described in subsections (5)(A)–(G) of this rule, the vehicle owner must have the vehicle repaired and complete a repair data sheet before submitting the vehicle for reinspection. The vehicle shall be reinspected according to the appropriate inspection period as determined by paragraphs (3)(C)2. and 3. of this rule and the reinspection procedures described in subsection (3)(H) of this rule.

(G) Initial Emission Inspection Standards. Subject vehicles shall fail the emission inspection if the tailpipe emissions exceed the following measured values or if the vehicle does not meet the OBD test standards:

1. Single-speed idle test standards for Light Duty Vehicles and Trucks.

Model Year	HC (PPM)	CO (%)
1971–1974	700	7.0
1975–1979	600	6.0
1980	300	3.0

2. Maximum exhaust dilution shall be measured as no less than six percent (6%) carbon monoxide (CO) plus carbon dioxide (CO₂) by volume on vehicles subject to a single-speed idle test as described in 40 CFR part 51, subchapter S, Appendix B, paragraph (I)(a)(3), which is incorporated by reference;

3. Phase-in transient emission test standards. For transient emission tests performed through the first twenty-four (24) months after the effective date of the enhanced emission inspection program, the following test standards, measured in grams per mile (gpm), apply to all subject vehicles:

A. Light Duty Vehicles.

Model Year	HC (GPM)	CO (GPM)	NO _x (GPM)
1981–1982	2.0	60	3.0
1983–1990	2.0	30	3.0
1991–1995	1.2	20	2.5
1996 and newer	0.8	15	2.0

B. Light Duty Trucks less than or equal to six thousand (6,000) pounds GVWR.

Model Year	HC (GPM)	CO (GPM)	NO _x (GPM)
1981–1983	7.5	100	7.0
1984–1987	3.2	80	7.0
1988–1990	3.2	80	3.5
1991–1995	2.4	60	3.0
1996 and newer	1.0	20	2.5

C. Light Duty Trucks greater than six thousand (6,000) pounds GVWR but less than or equal to eight thousand five hundred (8,500) pounds GVWR.

Model Year	HC (GPM)	CO (GPM)	NO _x (GPM)
1981–1983	7.5	100	7.0
1984–1987	3.2	80	7.0
1988–1990	3.2	80	5.0
1991–1995	2.4	60	4.5
1996 and newer	2.4	60	4.0

4. Final transient emission test standards. For transient emission tests performed after the first twenty-four (24) months of implementation of the enhanced emission inspection program, the following test standards, measured in grams per mile (gpm), apply to all subject vehicles:

A. Light Duty Vehicles.

Model Year	HC (GPM)	CO (GPM)	NO _x (GPM)
1981–1982	0.8	30	2.0
1983–1995	0.8	15	2.0
1996 and newer	0.6	10	1.5

B. Light Duty Trucks less than or equal to six thousand (6,000) pounds GVWR.

Model Year	HC (GPM)	CO (GPM)	NO _x (GPM)
1981–1983	3.4	70	4.5
1984–1987	1.6	40	4.5
1988–1995	1.6	40	2.5
1996 and newer	0.8	13	1.8

C. Light Duty Trucks greater than six thousand (6,000) pounds GVWR but less than or equal to eight thousand five hundred (8,500) pounds GVWR.

Model Year	HC (GPM)	CO (GPM)	NO _x (GPM)
1981–1983	3.4	70	4.5
1984–1987	1.6	40	4.5
1988–1995	1.6	40	3.5
1996 and newer	0.8	15	2.0

5. Two (2)-speed idle test standards for Light Duty Vehicles and Trucks that cannot be tested with the transient emission test equipment.

Model Year	HC (PPM)	CO %
1981 and newer	220	1.2

6. Single-speed idle test standards for vehicles registered by the Department of Revenue as specially constructed vehicles.

Model Year	HC (PPM)	CO %
1971 and newer	500	5.0

7. On-Board Diagnostics (OBD) test standards for 1996 and newer model year Light Duty Vehicles and Trucks. 1996 and newer model year Light Duty Vehicles and Trucks shall fail the emission inspection if they do not meet the OBD test standards specified by EPA in 40 CFR part 85, section 2207, which is incorporated by reference.

(H) Emission Reinspection Procedures.

1. Emission reinspection fee.

A. To qualify for free reinspections, the vehicle owner or driver shall present the previous vehicle test report and the completed repair data sheet to the emission inspection station within thirty (30) calendar days of the initial emission inspection.

B. Reinspections occurring more than thirty (30) calendar days after the initial emission inspection shall only be performed upon payment of the emission inspection fee to the emission inspection station.

2. Repair data sheet. For a reinspection, the vehicle owner or driver shall present the previous vehicle test report and the completed repair data sheet to the inspection station. Whether repairs were performed by the owner, a Recognized Repair Technician, or someone other than a Recognized Repair Technician, the repair data sheet must be

completed and presented to the inspector at the emission inspection station prior to the start of the emission reinspection.

3. Reinspection procedure for 1971–1995 model year subject vehicles and, before January 1, 2003, for 1996 and newer model year subject vehicles.

A. Vehicles that initially fail any of the test methods described in subsections (5)(A)–(G) of this rule shall be reinspected after repairs, using the test methods described in subsections (5)(A)–(F) of this rule to determine if the repairs were effective for correcting failures on the previous inspection, thereby reducing or preventing an increase in tailpipe or evaporative emissions.

B. The reinspection shall be performed without repair or adjustment at the emission inspection station prior to tests, except as provided for in the evaporative system pressure test.

4. Reinspection procedure for 1996 and newer model year vehicles between January 1, 2003, and December 31, 2004.

A. Vehicles that fail the OBD test described in subsection (5)(E) of this rule and the transient emission test described in subsection (5)(C) of this rule shall be reinspected according to subsections (5)(A) and (5)(C)–(F) of this rule, to determine if the repairs were effective for correcting failures on the previous inspection, thereby reducing or preventing an increase in tailpipe or evaporative emissions.

B. The reinspection shall be performed without repair or adjustment at the emission inspection station prior to tests, except as provided for in the evaporative system pressure test.

5. Reinspection procedure for 1996 and newer model year vehicles after December 31, 2004.

A. Vehicles that fail the OBD test described in subsection (5)(E) of this rule shall be reinspected according to subsections (5)(A) and (5)(E)–(F) of this rule, to determine if the repairs were effective for correcting failures on the previous inspection, thereby reducing or preventing an increase in tailpipe or evaporative emissions.

B. The reinspection shall be performed without repair or adjustment at the emission inspection station prior to tests, except as provided for in the evaporative system pressure test.

6. If the subject vehicle passes a reinspection according to paragraphs (3)(H)3.–5. of this rule, then the procedures in paragraph (3)(F)7. of this rule shall be followed.

7. If the subject vehicle fails a reinspection according to paragraphs (3)(H)3.–5. of this rule, the vehicle owner may either:

A. Have more repairs performed on the vehicle and bring the vehicle back for another reinspection; or

B. Apply for a compliance waiver according to the requirements in paragraphs (3)(I)1.–4. of this rule.

(I) Emission Inspection Waivers.

1. 1971–1995 model year vehicles, and, before January 1, 2005, 1996 and newer model year vehicles, shall be issued a compliance waiver under the following conditions:

A. The subject vehicle has failed the initial emission inspection, has had qualifying repairs, and has failed an emission reinspection;

B. The vehicle operator has taken the vehicle to an emission inspection station or a state quality assurance/waiver facility and presented to the station manager, assistant station manager, or the department representative the vehicle test report, stating that the vehicle presented has failed the initial emission inspection and all subsequent emission reinspections;

C. The subject vehicle has shown a reduction in tailpipe emissions according to the following requirements:

(I) The measured tailpipe emissions of the reinspection must show a reduction in the tailpipe emissions that caused the vehicle to fail the preceding emission inspection; and

(II) The measured tailpipe emissions of the reinspection must not show an increase in any of the measured tailpipe emissions above the standards set in subsection (3)(G) of this rule;

D. The subject vehicle has all of its emission control components correctly installed and operating as designed by the vehicle manufacturer.

(I) The station manager, assistant station manager, or department representative shall use the anti-tampering test method described in subsection (5)(G) of this rule to fulfill the requirement of this subparagraph.

(II) If the vehicle fails the anti-tampering test described in subsection (5)(G) of this rule, then the vehicle will be denied a compliance waiver;

E. The vehicle operator has presented to the station manager, assistant station manager, or the department representative all itemized receipts of qualifying repairs. The qualifying repairs must meet the requirements of paragraph (3)(I)2. of this rule. The itemized receipts must meet the requirements of paragraph (3)(I)3. of this rule; and

F. The station manager, assistant station manager, or the department representative has, to the extent practical, visually ver-

ified that repairs were made and parts were repaired/replaced as claimed.

2. Beginning January 1, 2005, 1996 and newer model year vehicles shall not be issued a compliance waiver.

3. The minimum amount spent on qualifying repairs shall:

A. Exceed two hundred dollars (\$200) for pre-1981 model year vehicles;

B. Exceed four hundred fifty dollars (\$450) for 1981 and all subsequent model year vehicles;

C. Be inclusive of parts costs paid for emission repair services. Recognized labor costs shall be applied toward a compliance waiver. For qualifying repairs performed by someone other than a Recognized Repair Technician, parts costs, but not labor costs, shall be applied toward a compliance waiver;

D. Not include the fee for an emission inspection;

E. Not include charges for obtaining a written estimate of needed repairs;

F. Not include charges for checking for the presence of emission control devices;

G. Not include costs for repairs performed on the vehicle before the initial emission inspection failure or more than ninety (90) days before the reinspection;

H. Not include expenses which are incurred for the repair of emission control devices which have been found to be tampered with, rendered inoperative, or removed; and

I. Not include costs for emissions repairs or adjustments covered by an automobile manufacturer's warranty, insurance policy, or contractual maintenance agreement. The emissions repair costs covered by warranty, insurance, or maintenance agreements shall be separated from other emissions repair costs and shall not be applied toward the compliance waiver minimum amount. The operator of a vehicle within the statutory age and mileage coverage under subsection 207(b) of the federal Clean Air Act shall present a written denial of warranty coverage, with a complete explanation, from the manufacturer or authorized dealer in order for this provision to be waived.

4. The vehicle operator shall present the original of all itemized repair receipts at an emission inspection station or a state quality assurance/waiver facility to demonstrate compliance with the qualifying dollar amount. The itemized repair receipt(s) shall:

A. Include the name of the repair facility and the model year, make, model and vehicle identification number of the vehicle being repaired;

B. Describe the diagnostic test(s) performed to identify the reason the vehicle

failed an emission inspection, the emission repair(s) that were indicated by the diagnostic test(s), the emission repairs that were authorized by the vehicle owner or driver and performed by the repair technician, the vehicle part(s) that were serviced or replaced, and the diagnostic test(s) performed after the repairs were completed to verify that the vehicle's emissions were reduced or that the vehicle's emission control system is now operating as it was designed to operate by the manufacturer;

C. Clearly list the labor costs, if the vehicle was repaired by a repair technician, and parts costs separately for each repair. Unclear repair receipts that do not identify the vehicle that was repaired, do not itemize the actual cost of the parts that were serviced, do not list the labor costs separately from the parts costs, or contain fraudulent information or parts costs as determined by the station manager, assistant station manager, or department representative shall not be accepted for the purpose of obtaining a compliance waiver;

D. Include the repair technician's name (printed or typed), signature and, if applicable, the Recognized Repair Technician ID number of the repair technician that performed the repair work; and

E. Confirm that payment was collected for the services rendered and/or parts replaced as listed on the itemized repair receipt(s).

5. If the conditions of paragraphs (3)(I)1.-3. of this rule have been met, the station manager, the assistant station manager, or the department representative shall issue a compliance waiver and affix the windshield sticker to the vehicle. The windshield sticker shall meet the requirements of paragraph (4)(A)2. of this rule.

6. The department shall issue an emission inspection compliance certificate, with an indicator to show that the vehicle has received an out of area waiver to the vehicle owner or driver, and a windshield sticker shall be affixed to the subject vehicle, provided the vehicle owner or driver presents a completed, signed waiver affidavit to the department indicating that the vehicle will be operated exclusively in an area outside of the inspection area but within the state for a duration of at least the next twenty-four (24) months.

7. The department shall issue an emission inspection compliance certificate with an indicator to show that the vehicle has received a reciprocity waiver to the vehicle owner or driver, and a windshield sticker shall be affixed to the subject vehicle, provided the vehicle owner or driver presents

proof, acceptable to the department, that the subject vehicle has successfully passed an emission inspection of another state within the previous twelve (12) months which has been deemed equivalent to Missouri's emission inspection by the department.

(J) Clean Screening Emission Inspection Requirements. Clean screening shall be used to exempt the cleanest subject vehicles from emission inspections at centralized emission inspection stations. All subject vehicles including federal, state, and local government agency vehicles shall be eligible for clean screening. Motorist participation shall be strictly voluntary.

1. All clean screening plans must be approved by the state agency. Clean screening plans shall meet at least one (1) of the following requirements:

A. Remote Sensing Device (RSD) method. Remote sensing data collection shall occur during each month of the year, weather permitting, so that clean screening exemptions due to remote sensing are distributed throughout the year.

(I) Remote sensing units shall be designed, programmed, maintained, calibrated, and quality assured in keeping with good engineering practice.

(II) Two (2) valid RSD tests with all three (3) pollutants and appropriate speed and acceleration values on each test are required to exempt a vehicle with a clean screening determination. If a vehicle's record lacks any of the three (3) pollutant concentrations, that vehicle shall not be eligible for exemption based upon that record.

(III) The two (2) valid RSD tests must be recorded no more than twelve (12) months before the subject vehicle's registration expiration. RSD test results must be recorded on two (2) different days. If the vehicle database accumulates more than two (2) records during the twelve (12)-month period described in this part of the rule, the two (2) most recent tests must be used for clean screening evaluation.

(IV) Remote sensing sites must be selected and rotated to achieve broad vehicle fleet coverage. Remote sensing sites must also be selected using good engineering practice in terms of traffic flow, road grade, acceleration, speed, and other appropriate items. Sites should be selected that avoid vehicles still in cold start mode.

(V) Record gathering for more recent RSD data shall cease at least fifteen (15) days ahead of the beginning of each vehicle's compliance cycle. This cutoff allows time to match RSD tests, identify which vehicles can be exempted, and notify vehicle owners before the vehicle registration dead-

line according to subsections (4)(C) and (5)(H) of this rule.

(VI) A two percent (2%) random sample of the vehicles that would be excused from an emission inspection at an inspection station based on the RSD method shall undergo the emissions inspection at an inspection station during the compliance cycle. To assure these vehicles are truly random and not specially altered for the emission inspection, owners of these vehicles shall not be informed of their vehicle's clean screening eligibility status;

B. Hybrid method.

(I) The EPA and the department shall approve the use of the Hybrid method used for clean screening.

(II) One (1) valid RSD test with all three (3) pollutants and appropriate speed and acceleration values is required to exempt a vehicle with a clean screening determination. If a vehicle's record lacks any of the three (3) pollutant concentrations, that vehicle shall not be eligible for exemption based upon that record.

(III) The one (1) valid RSD test must be recorded no more than twelve (12) months before the end of the subject vehicle's registration expiration. If the vehicle database accumulates more than one (1) record during the twelve (12)-month period described in this part, the most recent test must be used for clean screening evaluation.

(IV) A Low Emitter Index (LEI) database shall be developed for the subject vehicles using sufficient information from both the Department of Revenue Division of Motor Vehicle and Drivers Licensing database and fleets in other states according to the EPA guidelines. The database shall have at least one (1) million vehicle records spanning a one (1) to two (2)-year duration.

(V) The LEI database shall identify all subject vehicles required to undergo emission inspections grouped by engine family, defined as vehicle model year, make, model, engine size, and fuel metering system, and the probability that a particular vehicle in each grouping would fail the relevant emissions tests.

(VI) The LEI database shall be updated on a regular interval with data gathered from the vehicles subject to this rule.

(VII) Record gathering for more recent RSD data shall cease at least fifteen (15) days ahead of the beginning of each vehicle's compliance cycle. This cutoff allows time to identify which vehicles can be exempted, and notify vehicle owners before the vehicle registration deadline according to subsections (4)(C) and (5)(H) of this rule.

(VIII) The one (1) valid RSD test described in part (3)(J)1.B.(II) of this rule shall be matched with a LEI database record that corresponds with the engine family of the subject vehicle. In order for a subject vehicle to be eligible to receive a clean screening notification document, both of the following conditions must be met:

(a) The RSD test must be below the clean screening standards described in subsection (3)(K) of this rule; and

(b) The LEI record must indicate that the subject vehicle has a low probability of failing the corresponding emission tests described in subsections (5)(A)–(E) of this rule.

(IX) A two percent (2%) random sample of the vehicles that would be excused from an emission inspection at an inspection station based on the Hybrid method shall undergo the emissions inspection at an inspection station during the compliance cycle. To assure these vehicles are truly random and not specially altered for the emission inspection, owners of these vehicles shall not be informed of their vehicle's clean screening eligibility status.

2. An on-road testing program shall provide information about the emission performance of in-use subject vehicles by measuring on-road emissions through the use of remote sensing devices. The program shall collect and analyze on-road testing data. On-road testing is not required every season or on every vehicle but shall evaluate the emission performance of at least 0.5% of the subject fleet.

(K) Clean Screening Emission Inspection Standards. Subject vehicles shall be eligible to receive a clean screening notification document according to paragraph (3)(J)1. and subsection (5)(H) of this rule if the on-road tailpipe emissions are equal to or below the following measured emission values:

Model Year	HC (PPM)	CO (%)	NO _x (PPM)
1971 and newer	200	0.5	2000

(L) Vehicle Registration. After a subject vehicle has passed the emission inspection according to either subsection (3)(F) or (H) of this rule, received a waiver according to subsection (3)(I) of this rule, or been clean screened according to subsection (3)(J) of this rule, the emission inspection compliance certificate issued by the emission inspection station or the clean screening compliance certificate mailed to the vehicle owner shall be submitted with registration documents by the vehicle owner or representative to the

Missouri Department of Revenue at the time of vehicle registration.

(M) Violations and Penalties. Persons violating this rule shall be subject to penalties contained in section 643.355, RSMo.

(N) Quality Control.

1. Quality control requirements for the contractor(s).

A. Contractor conduct.

(I) The department shall appoint only entities under contractual agreement with the department to operate official emission inspection stations, which includes conducting emission inspections and issuing compliance certificates.

(II) Conducting the business of the official emission inspection station shall be performed in such a way that it satisfies the intent of the enhanced emission inspection program by effectively identifying vehicles that fail to meet acceptable emission standards.

(III) Failure to comply with the provisions of this rule and the contract shall be considered a violation of this rule and shall be sufficient cause for suspension of emission inspection privileges and authority to issue compliance certificates.

B. Emission inspectors.

(I) The contractor shall provide to the department an education and training plan, to be approved by the department, for designated emission inspectors.

(II) All contractor personnel who perform emission inspections at each emission inspection station shall be designated by the contractor as emission inspectors.

(III) The contractor shall be responsible for the conduct of emission inspectors.

(IV) Designation as an emission inspector may be suspended by a department quality assurance officer immediately at any time due to a violation of this rule or a provision of the contract.

(V) The contractor shall maintain for the department a registry of designated emission inspectors, that at a minimum includes the inspector's name, beginning date of inspection duties, ending date of inspection duties and description of inspection performance.

C. Inspection records.

(I) All inspection records, calibration records, and control charts shall be accurately created, recorded, and maintained by the contractor.

(II) The contractor and all employees of the contractor shall make available all records and information requested by the department and shall fully cooperate with department personnel and other authorized

state representatives or agents who conduct audits and other quality assurance procedures.

(III) All contractors subject to this rule shall maintain emissions inspection records, including repair information as well as all inspection results.

(a) These records shall be kept for at least three (3) years after the date of an initial emissions inspection.

(b) These records shall be made available immediately upon request for review by department personnel.

(c) These records shall also be made available to the department on a continual basis through the use of an automated communication system approved by the department.

2. General requirements. General requirements for quality control practices for all test equipment shall be as follows:

A. At a minimum, the practices described in this section, in the contract, in 40 CFR part 51, subpart S, Appendix A, and in April 2000 *IM240 & Evap Technical Guidance*, 40 CFR part 85, subpart W, sections 2234 and 2235, which are incorporated by reference, shall be followed;

B. Preventive maintenance on all emission inspection equipment shall be performed on a periodic basis, as provided by the contract between the department and the contractor(s) and consistent with EPA and the equipment manufacturer's requirements;

C. To assure quality control, computerized analyzers shall automatically record quality control check information, lockouts, attempted tampering and any circumstances which require a service representative to work on the equipment;

D. To assure test accuracy, equipment shall be maintained according to demonstrated good engineering procedures;

E. Computer control of quality assurance checks and quality control charts shall be used whenever possible; and

F. The emission inspection station shall transmit the emission inspection results and the quality control results to the department as prescribed in the contract between the department and the contractor(s).

3. Evaporative system pressure test equipment quality control requirements. Calibration and maintenance procedures shall be as specified by EPA in April 2000 *IM240 & Evap Technical Guidance*, 40 CFR part 85, subpart W, section 2235, which is incorporated by reference.

4. Single-speed and two (2)-speed idle test equipment quality control requirements. Calibration and maintenance procedures shall be as specified by EPA in 40 CFR part 51,

subpart S, Appendix A, paragraph (I), which is incorporated by reference.

5. Transient emission test equipment quality control requirements. Calibration and maintenance procedures shall be as specified by EPA in April 2000 *IM240 & Evap Technical Guidance*, 40 CFR part 85, subpart W, section 2234, which is incorporated by reference.

(4) Reporting and Record Keeping.

(A) The contractor shall provide the owners or drivers of vehicles that pass the emission inspection, or are issued a compliance waiver, an emission inspection compliance certificate and windshield sticker. After the effective date of this rule, any revision to the contractor supplied forms shall be presented to the regulated community for a forty-five (45)-day comment period.

1. The compliance certificate shall contain:

A. A vehicle description, including license plate number, vehicle identification number, vehicle make, vehicle model, vehicle model year, and odometer reading;

B. The date and time of inspection;

C. The identification number of the individual(s) performing the test and the location of the inspection station and lane number;

D. The applicable test standards;

E. The applicable test results, including exhaust quantities, OBD test results, and a pass indicator for the evaporative system pressure test;

F. The results of the recall provisions check, if applicable, including the recall campaign number and the date the recall repairs were completed;

G. A certification that tests were performed in accordance with the regulations;

H. A waiver indicator, if applicable; and

I. The statement: “This inspection is mandated by your United States Congress.”

2. The windshield sticker shall:

A. Be affixed by the emission inspector to each vehicle which is subject to and passes the emission inspection, or has been issued a waiver on the inside of the vehicle’s front windshield in the lower left hand corner. A windshield sticker affixed to a vehicle that has been issued a waiver shall have a waiver indicator clearly visible on the sticker. Previous windshield stickers affixed to the windshield shall be removed. Destroyed, damaged, or lost windshield stickers can only be replaced after a satisfactory explanation of the details of the incident has been furnished to the department. Windshield stickers are valid for two (2) calendar years; and

B. Contain the statement: “This inspection is mandated by your United States Congress.”

(B) The contractor shall provide the vehicle owner or driver of a vehicle that fails an emission inspection with a vehicle test report. Also provided shall be a repair facility performance report, a repair data sheet, and a copy of the customer complaint procedure. The contractor shall not refer vehicle owners to a particular repair station(s) that may or may not be included in the repair facility performance report. After the effective date of this rule, any revision to the contractor supplied forms shall be presented to the regulated community for a forty-five (45)-day comment period.

1. The vehicle test report shall include:

A. A vehicle description, including license plate number, vehicle identification number, vehicle make, vehicle model, vehicle model year, and odometer reading;

B. The date and time of inspection;

C. The identification number of the individual(s) performing the test and the location of the inspection station and lane number;

D. The applicable test standards;

E. The applicable test results, including exhaust quantities, pass/fail results for the OBD test, pass/fail results for the evaporative system pressure test, and which emission control devices were passed, failed, or not applicable according to the anti-tampering test;

F. If the vehicle is subject to the OBD test described in subsection (5)(E) of this rule, the information required by 40 CFR part 85, subpart W, section 2223, which is incorporated by reference;

G. To the extent possible, a description of the nature of the failure and the components responsible, recommended repair and adjustment procedures, and an estimated cost for those repairs;

H. A statement indicating the availability of warranty coverage as required in section 207 of the Clean Air Act;

I. The results of the recall provisions check, if applicable, including the recall campaign number and date the recall repairs were completed;

J. A statement that the vehicle test report is not valid for vehicle registration purposes; and

K. A statement that the vehicle may be reinspected for free according to subparagraph (3)(H)1.A. of this rule.

2. The repair facility performance report shall list facilities employing at least one (1) Recognized Repair Technician in the area which perform emission related repairs on

vehicles and information on the results of emission repairs performed by these facilities. This information shall include:

A. Statistics on the number of vehicles submitted for an emission reinspection after repairs by the repair facility;

B. The percentage of vehicles repaired by the repair facility that passed a reinspection; and

C. The percentage of vehicles repaired by the repair facility that were granted compliance waivers.

3. A repair data sheet must be completed prior to an emission reinspection beginning. The repair data sheet shall include:

A. The total cost of repairs, divided into parts and labor costs;

B. The printed name and signature of the person who performed the repairs and, if applicable, the Recognized Repair Technician’s ID number;

C. If applicable, the name of the repair facility and, if the repair facility employs a Recognized Repair Technician, the repair facility’s ID number;

D. The type of inspection failure the vehicle was being repaired for and the emission-related repairs performed;

E. If applicable, the signature of the repair technician to indicate if all of the emission-related repairs that they recommended to the motorist were completed; and

F. If applicable, the printed name and signature of the vehicle owner if the owner is seeking a compliance waiver.

4. The contractor shall collect all repair data sheets submitted at the emission inspection stations. The information contained on the repair data sheets shall be electronically entered into a database and made available to the department according to the contract.

5. The customer complaint procedure shall include the telephone number of the department’s quality assurance facility. Any challenge regarding the performance or results of the emission inspection must be made in writing within ten (10) business days of the failure of the emission inspection.

(C) The contractor shall send the owners of vehicles that pay for a clean screening inspection according to paragraph (3)(D)4. and subsection (5)(H) of this rule a clean screening inspection compliance certificate and windshield sticker.

1. If the subject vehicle is eligible for clean screening via the RSD method described in subparagraph (3)(J)1.A. of this rule, the compliance certificate shall include the dates and locations of the two (2) valid test results. The RSD test results shall be compared to the clean screening test standards.

2. If the subject vehicle is eligible for clean screening via the Hybrid method described in subparagraph (3)(J)1.B. of this rule, the compliance certificate shall include the date and location of the (1) valid RSD test result. The RSD test result shall be compared to the clean screening test standards.

3. The windshield sticker shall—

A. Be affixed by the vehicle owners that pay for a clean screening inspection to the inside of the vehicle's front windshield in the lower left hand corner. A clean screening indicator shall be clearly visible on the sticker. Previous windshield stickers affixed to the windshield shall be removed. Destroyed, damaged, or lost windshield stickers can only be replaced after a satisfactory explanation of the details of the incident has been furnished to the department. Windshield stickers are valid for two (2) calendar years; and

B. Contain the statement: "This inspection is mandated by your United States Congress."

(D) Federal, state, and local government agencies shall provide documentation of compliance with this rule to the department. On a quarterly, or every three (3) months, basis, the agencies shall present a list of all vehicles owned by the agency or operated by agency personnel that are subject to this rule. These quarterly lists shall be submitted to the department by January 15, April 15, July 15, and October 15 for the corresponding preceding quarter. If the fifteenth is a weekend day or state holiday, the quarterly lists shall be submitted to the department by the following business day.

(5) Test Methods.

(A) Evaporative System Pressure Test. Until such time as the department approves an Evaporative System Pressure Test that is more comprehensive, non-intrusive, and is approved by the EPA, the evaporative system pressure test procedure shall be as follows:

1. A gas cap test, done to the extent practical, shall be performed on all 1981 and newer model year subject vehicles;

2. The gas cap test sequence shall consist of the following steps:

A. The gas cap shall be connected to the adapter of the test equipment;

B. The gas cap shall be pressurized with air to 30 ± 0.5 inches of water; and

C. The gas cap leak rate shall be compared to an orifice with a flow rate of sixty (60) cubic centimeters per minute at thirty inches (30") of water;

3. Vehicles shall pass the gas cap test if the gas cap leak rate is less than or equal to a flow rate of sixty (60) cubic centimeters per minute.

(B) Single-Speed Idle Test.

1. Except as provided by subsection (5)(F) of this rule, single-speed idle tests shall be performed on pre-1981 model year subject vehicles and specially constructed vehicles described in paragraph (3)(G)6. of this rule in accordance with the procedures contained in 40 CFR part 51, subpart S, Appendix B, paragraph (I), which is incorporated by reference.

2. If the measured emission values are equal to or below the appropriate standards specified in paragraphs (3)(G)1, and (3)(G)6. of this rule, respectively, then the subject vehicle shall pass the single-speed idle test.

(C) Transient Emission Test.

1. Except as provided by paragraphs (5)(C)4., (5)(C)7. and (5)(C)8. and subsection (5)(F) of this rule, transient emission tests shall be performed on 1981 and newer model year subject vehicles in accordance with the procedures contained in April 2000 *IM240 & Evap Technical Guidance*, 40 CFR part 85, subpart W, section 2221, which is incorporated by reference. The driving cycle shall include acceleration, deceleration, and idle operating modes as specified in April 2000 *IM240 & Evap Technical Guidance*, 40 CFR part 85, subpart W, subsection 2221(e).

2. The two hundred forty (240)-second sequence may end earlier using fast pass algorithms specified in April 2000 *IM240 & Evap Technical Guidance*, 40 CFR part 85, subpart W, paragraph 2205(a)(4), which is incorporated by reference.

3. To decrease the possibility of falsely failing a vehicle due to inadequate pre-conditioning, vehicles failing by two (2) times, or less, the applicable transient emission test standards described in paragraphs (3)(G)3. and (3)(G)4. of this rule will be retested immediately as specified in April 2000 *IM240 & Evap Technical Guidance*, 40 CFR part 85, subpart W, paragraph 2221(d)(1). The results of the first transient emission test shall be disregarded.

4. If a vehicle cannot be tested on standard transient test equipment because of vehicle design, vehicle condition, or equipment limitations, the vehicle will be tested using a two (2)-speed idle test, as defined in subsection (5)(D) of this rule.

5. The department shall determine the number and distribution of lanes necessary to test four (4)-wheel drive vehicles and vehicles with traction control using the transient emission test.

6. If the measured emission values are equal to or below the appropriate standards specified in paragraphs (3)(G)3. and (3)(G)4. of this rule, then the subject vehicle shall pass the transient emission test.

7. Between January 1, 2003, and December 31, 2004, all 1996 and newer model year subject vehicles shall be emission inspected according to the OBD test procedures described in paragraph (5)(E)3. of this rule.

8. Beginning January 1, 2005, all 1996 and newer model year subject vehicles shall be emission inspected according to the OBD test procedures described in paragraph (5)(E)4. of this rule.

(D) Two (2)-Speed Idle Test.

1. Except as provided by subsection (5)(F) of this rule, two (2)-speed idle tests shall be performed on subject vehicles that cannot be tested by the transient emission test method in paragraph (5)(C) of this rule because of vehicle design, vehicle condition, or equipment limitations. The two (2)-speed idle test shall be performed in accordance with the procedures contained in 40 CFR part 51, subpart S, Appendix B, paragraph (II), which is incorporated by reference.

2. If the measured emission values are equal to or below the standards specified in subsection (3)(G)5. of this rule, then the subject vehicle shall pass the two (2)-speed idle test.

(E) On-Board Diagnostics (OBD) Test.

1. All 1996 and later model year subject vehicles shall have the OBD systems interrogated.

2. Prior to January 1, 2003, the OBD test described in 40 CFR part 85, subpart W, section 2222, which is incorporated by reference, and the OBD test standards specified in paragraph (3)(G)7. of this rule shall be performed on an advisory-only basis.

3. Between January 1, 2003, and December 31, 2004, the OBD test shall be performed according to the following procedure:

A. If the subject vehicle cannot be tested with the OBD test due to manufacturer design or the inability of the inspection equipment to communicate with the vehicle's OBD system, then the subject vehicle shall be tested with the transient emission test described in subsection (5)(C) of this rule;

B. If the subject vehicle passes the OBD test described in 40 CFR part 85, subpart W, section 2222 according to the OBD test standards specified in paragraph (3)(G)7. of this rule during either an initial emission inspection or a reinspection, then the vehicle shall not be subject to the transient emission test described in subsection (5)(C) of this rule, and the procedures in paragraph (3)(F)7. of this rule shall be followed;

C. If the subject vehicle fails the OBD test described in 40 CFR part 85, subpart W,

section 2222 according to the OBD test standards specified in paragraph (3)(G)7. of this rule during either an initial emission inspection or a reinspection, then the vehicle shall be subject to the transient emission test described in subsection (5)(C) of this rule.

(I) If the subject vehicle passes the transient emission test, then the procedures in paragraph (3)(F)7. of this rule shall be followed.

(II) If the subject vehicle fails the transient emission test, then the procedures in paragraphs (3)(F)8., (3)(F)9. and (3)(H)4. of this rule shall be followed.

4. Beginning January 1, 2005, the OBD test shall be performed according to the following procedure:

A. If the subject vehicle cannot be tested with the OBD test due to manufacturer design, then the subject vehicle shall be tested with the transient emission test described in subsection (5)(C) of this rule.

B. If the subject vehicle passes the OBD test described in 40 CFR part 85, subpart W, section 2222 according to the OBD test standards specified in paragraph (3)(G)7. of this rule, then the procedures in paragraph (3)(F)7. of this rule shall be followed.

C. If the subject vehicle fails the OBD test described in 40 CFR part 85, subpart W, section 2222 according to the OBD test standards specified in paragraph (3)(G)7. of this rule, then the procedures in paragraphs (3)(F)8., (3)(F)9. and (3)(H)5. of this rule shall be followed.

(F) Hybrid Electric Vehicle (HEV) Test. HEVs shall not be subject to the tailpipe emission tests described in subsections (5)(B)–(D) of this rule. HEVs shall only be subject to the test methods described in subsections (5)(A), (5)(E) and (5)(G)–(H) of this rule.

(G) Anti-Tampering Test. Anti-tampering tests shall only be performed on 1971 and newer model year subject vehicles that have failed the initial emission inspection or have failed an emission reinspection that has caused the owner to apply for a compliance waiver. The anti-tampering test procedure shall be as follows:

1. Anti-tampering tests shall be performed through direct observation or through indirect observation using a mirror, video camera or other visual aid. The emission inspector shall look for the presence of the positive crankcase ventilation valve on all 1971 model year vehicles, the exhaust gas recirculation valve on all 1972 and newer model year vehicles, and the catalytic converter system on all vehicles equipped by the manufacturer with such a system;

2. The emission inspector shall also look at the evaporative emission system, where practical. Vehicles shall fail the anti-tampering test if the canister is missing or obviously damaged, if the hoses are missing, damaged or obviously disconnected, or if the gas cap is missing;

3. Vehicles shall fail the anti-tampering test if the devices described in this subsection are part of the original certified configuration of the vehicle and are found to be missing, modified, disconnected, or improperly connected; and

4. Vehicles shall fail the anti-tampering test if the devices described in this subsection are found to be incorrect for the certified vehicle configuration. Aftermarket parts, as well as original equipment manufacturer parts, may be considered correct if they are proper for the certified vehicle configuration. Where EPA aftermarket approval or a self-certification program exists for a particular class of subject parts, vehicles shall fail the anti-tampering test if the part is not from an original equipment manufacturer or from an EPA approved or self-certified aftermarket manufacturer.

(H) Clean Screening Test.

1. Owners of clean screening-eligible vehicles shall be notified by mail one (1) month prior to the vehicle's registration month.

2. If the subject vehicle is eligible for clean screening according to paragraph (3)(J)1. and subsection (3)(K) of this rule, the owner shall be mailed a clean screening notification document.

A. The notification shall be mailed to the subject vehicle owner's most current address on record.

B. If the subject vehicle owner responds to the clean screening notification and pays the inspection fee established in paragraph (3)(D)4. of this rule, then a compliance certificate and windshield sticker that meet the requirements of subsection (4)(C) of this rule shall be mailed to the subject vehicle owner.

C. If the subject vehicle owner chooses not to respond to the clean screening notification, then the subject vehicle can comply with the emission inspection requirement according to subsection (3)(F) of this rule.

(I) Evaporative System Purge Test. The department will approve an Evaporative System Purge Test when a non-intrusive procedure becomes available and is approved by the EPA. All 1981 and newer model year subject vehicles will be tested and required to meet the standards when the procedure is approved.

AUTHORITY: section 643.310.1, RSMo 2000. Original rule filed June 14, 1982, effective Jan. 13, 1983. Amended: Filed Aug. 15, 1983, effective Jan. 13, 1984. Emergency rescission and rule filed Aug. 15, 1994, effective Aug. 28, 1994, expired Dec. 25, 1994. Emergency amendment filed Dec. 12, 1994, effective Dec. 25, 1994, expired April 23, 1995. Rescinded and readopted: Filed July 20, 1994, effective March 30, 1995. Amended: Filed April 17, 1995, effective Nov. 30, 1995. Amended: Filed Dec. 13, 1996, effective July 30, 1997. Amended: Filed May 14, 1999, effective Dec. 30, 1999. Emergency amendment filed Nov. 30, 1999, effective Jan. 1, 2000, expired June 28, 2000. Amended: Filed Dec. 1, 1999, effective July 30, 2000. Amended: Filed May 15, 2002, effective Dec. 30, 2002.*

**Original authority: 643.310, RSMo 1994, amended 1998, 1999.*

10 CSR 10-5.390 Control of Emissions From Manufacture of Paints, Varnishes, Lacquers, Enamels and Other Allied Surface Coating Products

PURPOSE: This rule specifies operating equipment requirements and operating procedures for the reduction of volatile organic compounds from the manufacture of paints, varnishes, lacquers, enamels and other allied surface coating products in the St. Louis metropolitan area.

(1) Application.

(A) This rule shall apply throughout St. Louis City and Jefferson, St. Charles, Franklin and St. Louis Counties.

(B) This rule applies to all installations which have the uncontrolled potential to emit more than two hundred fifty kilograms (250 kg) per day or one hundred (100) tons per year of volatile organic compounds (VOCs) from the manufacture of paints, varnishes, lacquers, enamels and other allied surface coating products.

(2) Definitions of certain terms specified in this rule may be found in 10 CSR 10-6.020.

(3) General. No owner or operator of a manufacturing installation subject to this rule and producing the products listed in section (1) shall cause or allow the manufacture of these products unless the operating equipment meets the requirements contained in this rule and without adhering to operating procedures specified in this rule and operating procedures recommended by the equipment manufacturer and approved by the director.

(4) Operating Equipment and Operating Procedure Requirements.

(A) Tanks storing VOC with a vapor pressure greater than or equal to 10 kilopascals (kPa) (1.5 psi) at twenty degrees Celsius (20° C), shall be equipped with pressure/vacuum conservation vents set at ± 0.2 kPa (.029 psi), except where more effective air pollution control is used and has been approved by the director. Stationary VOC storage containers with a capacity greater than two hundred fifty (250) gallons shall be equipped with a submerged-fill pipe or bottom fill, except where more effective air pollution control is used and has been approved by the director.

(B) Covers shall be installed on all open-top tanks used for the production of nonwaterbase coating products. These covers shall remain closed except when production, sampling, maintenance or inspection procedures require operator access.

(C) Covers shall be installed on all tanks containing VOC used for cleaning equipment. These covers shall remain closed except when operator access is required.

(D) All vapors from varnish cooking operations shall be collected and passed through a control device which removes at least eighty-five percent (85%) on a daily basis of the VOC from the vapors before they are discharged to the atmosphere.

(E) All grinding mills shall be operated and maintained in accordance with manufacturers' specifications. The manufacturers' specifications shall be kept on file and made available to the director upon his/her request.

(F) The polymerization of synthetic varnish or resin shall be done in a completely enclosed operation with the VOC emissions controlled by the use of surface condensers or equivalent controls.

1. If surface condensers are used, they must be maintained to ensure a ninety-five percent (95%) overall removal efficiency for total VOC emissions when condensing total VOC of a vapor pressure greater than 26 mmHg (as measured at 20 degrees Celsius).

2. If equivalent controls are used, the VOC emissions must be reduced by an amount equivalent to the reduction which would be achieved under paragraph (4)(F)1. Any owner or operator desiring to use equivalent controls to comply with this subsection shall submit proof of equivalency as part of the control plan required under subsection (5)(A) of this rule. Equivalent controls may not be used unless approved by the director.

(5) Compliance Dates.

(A) The owner or operator of a paint, varnish, lacquer, enamel or other allied surface coating production manufacturing installation

subject to this rule shall submit a final control plan to the director for his/her approval no later than six (6) months after the effective date of this rule (September 11, 1984). This plan shall include a time schedule for compliance containing an engineering design, increments of progress and a final compliance date.

(B) Compliance with this rule shall be accomplished by any installation as expeditiously as practicable but in no case later than August 12, 1985.

(6) Compliance Methods and Recordkeeping.

(A) The control efficiency specified in subsections (4)(D) and (F) shall be determined by the testing methods referenced at 10 CSR 10-6.030(14)(A).

(B) Owners or operators utilizing add-on control technology shall monitor the following parameters continuously while the affected equipment is in operation:

1. Exit stream temperature on all condensers; and

2. Any other parameter which the director determines is necessary to quantify emissions or otherwise determine compliance with this rule.

(C) Records shall be kept on production rates sufficient to determine daily VOC emissions.

(D) The owner or operator shall record all information derived from monitoring required under subsections (6)(B) and (C) and shall keep records for a period of not less than two (2) years. All these records shall be made available to the director upon request.

AUTHORITY: section 643.050, RSMo Supp. 1999. Original rule filed Oct. 13, 1983, effective March 11, 1984. Amended: Filed Oct. 4, 1988, effective March 11, 1989. Amended: Filed Jan. 3, 2000, effective Aug. 30, 2000.*

**Original authority: 643.050, RSMo 1965, amended 1972, 1992, 1993, 1995.*

10 CSR 10-5.400 Control of Emissions From Production of Maleic Anhydride
(Rescinded March 11, 1989)

AUTHORITY: section 203.059, RSMo 1986. Original rule filed June 4, 1985, effective Oct. 26, 1985. Rescinded: Filed Oct. 4, 1988, effective March 11, 1989.

10 CSR 10-5.410 Control of Emissions From Manufacture of Polystyrene Resin

PURPOSE: This rule restricts emissions of volatile organic compounds from the manufacture of polystyrene resin.

(1) Applicability.

(A) This rule shall apply throughout St. Louis City and Jefferson, St. Charles, Franklin and St. Louis Counties.

(B) This rule shall apply to all installations engaged in the manufacture of polystyrene resin.

(2) Emissions Limitation.

(A) Volatile organic compound (VOC) emissions shall be limited to a daily average of 0.24 pounds of VOC per two thousand pounds (2,000 lbs.) of resin produced by the installation.

(B) The emissions limitation set forth in this section shall be achieved through the use of a condensation device which recycles styrene monomer through the resin manufacturing process or by the use of a capital device approved by the director that will provide an equivalent emissions reduction.

(3) Compliance Method. Compliance with section (2) of this rule shall be determined by the test method referenced in 10 CSR 10-6.030(14)(A).

(4) Compliance Date. Compliance with this rule by any affected installation shall occur no later than June 1, 1985.

(5) Recordkeeping. The owners or operators of polystyrene manufacturing plants subject to this rule shall keep records of all emission testing and maintenance of all emission control devices. Records shall be kept for two (2) years and shall be made available to the director upon request.

AUTHORITY: section 643.050, RSMo 1994. Original rule filed Dec. 11, 1984, effective May 11, 1985. Amended: Filed June 5, 1986, effective Sept. 26, 1986. Amended: Filed Oct. 4, 1988, effective March 11, 1989.*

**Original authority: 643.050, RSMo 1965, amended 1972, 1992, 1993.*

10 CSR 10-5.420 Control of Equipment Leaks From Synthetic Organic Chemical and Polymer Manufacturing Plants

PURPOSE: This rule is designed to control leaks of volatile organic compounds from synthetic organic chemical and polymer manufacturing equipment.

PUBLISHER'S NOTE: The secretary of state has determined that the publication of the entire text of the material which is incorporated by reference as a portion of this rule would be unduly cumbersome or expensive.



Therefore, the material which is so incorporated is on file with the agency who filed this rule, and with the Office of the Secretary of State. Any interested person may view this material at either agency's headquarters or the same will be made available at the Office of the Secretary of State at a cost not to exceed actual cost of copy reproduction. The entire text of the rule is printed here. This note refers only to the incorporated by reference material.

(1) Definitions.

(A) A component shall be considered in gas volatile organic compounds (VOC) service if it contacts a process fluid containing ten percent (10%) or greater VOC by weight that is in a gaseous state at operating conditions.

(B) A component shall be considered in light liquid VOC service if it contacts a process fluid containing ten percent (10%) or greater light liquid VOC by weight.

(C) A light liquid VOC is defined as a fluid VOC with a vapor pressure greater than 0.3 kilopascals (kPa) at twenty degrees Celsius (20°C).

(D) Definitions of certain terms specified in this rule may be found in 10 CSR 10-6.020.

(2) Applicability.

(A) This rule shall apply throughout St. Louis City and Jefferson, St. Charles, Franklin and St. Louis Counties.

(B) This rule applies to all source operations with the potential of processing at least nine hundred eighty (980) tons per year of light liquid and gaseous VOC and producing as intermediate or final products any of those chemicals listed in 10 CSR 10-6.070 (40 CFR part 60, subpart VV).

(3) General Provisions.

(A) Leaking components shall be repaired within fifteen (15) days of the date the leak was detected. A source shall be considered leaking if monitoring results in an instrument reading of ten thousand parts per million (10,000 ppm) by volume or greater at a distance no more than five centimeters (5 cm) from the source or if visual inspection indicates leaks. Repair shall be considered as reduction of the measured VOC concentration below ten thousand (10,000) ppm by volume at a distance of no more than five centimeters (5 cm) from the source. Leaking components which cannot be repaired without a unit shutdown shall be repaired at the next scheduled unit shutdown or within ninety (90) days of the date the leak was detected, whichever comes first.

(B) The detection instrument and the monitoring method employed shall be in accordance with 10 CSR 10-6.070 (40 CFR part 60, Appendix A, method 21).

(C) Pumps with double mechanical seals including a barrier fluid system shall be exempt from the requirements of subsection (3)(F) if—

1. Operated with the barrier fluid at a pressure greater than the pump stuffing box pressure;

2. Equipped with a barrier fluid degassing reservoir that is connected by a closed vent system to a control device; or

3. Equipped with a system that purges the barrier fluid into a process stream with zero VOC emissions to the atmosphere.

(D) Safety/relief valves equipped in series with a rupture disk and a spring return valve or any pressure relief device that is equipped with a closed vent system capable of capturing and transporting leakage to a control device shall be exempt from the requirements of subsections (3)(E)–(J).

(E) Open-ended valves or lines shall be equipped with a cap, plug or second valve to seal the open end except during operations requiring process fluid flow through the open-ended valve or line, during maintenance procedures or to ensure safe operations.

(F) Quarterly monitoring shall be required for the following components in VOC service:

1. Pumps in light liquid VOC service; and

2. Compressors in gas VOC service.

(G) Valves in VOC service not regulated externally or that are difficult or unsafe to monitor shall be monitored annually during April and repaired if leaking.

(H) All valves in VOC service shall be performance tested annually during April. Performance testing shall consist of monitoring all valves in VOC service and repairing any that are leaking. If more than two percent (2%) of the valves monitored in any process unit are leaking, all valves in VOC service in that process unit except those covered by subsection (3)(E) shall be monitored quarterly until less than two percent (2%) are leaking.

(I) Pumps in light liquid VOC service weekly shall be inspected visually for indications of leaks.

(J) Safety/relief valves and any other pressure relief devices in VOC services shall be additionally monitored after each pressure relief.

(4) Reporting and Recordkeeping. The owner or operator of a synthetic organic chemical or polymer manufacturing plant covered by this rule shall maintain a listing of the pumps,

compressors and valves in VOC service and identify the VOC contained in each component. The owner or operator also shall maintain records of the results of the monitoring required in section (3) including tagging any leaking components and actions taken to repair any leaks that are discovered. These records shall be kept by the owner or operator for at least two (2) years and submitted to the director upon request.

(5) Compliance Date. Owners or operators subject to this rule shall be in compliance with the monitoring, leak repair and record-keeping procedures described in sections (3) and (4) of this rule no later than October 11, 1986.

*AUTHORITY: section 643.050, RSMo 1994. * Original rule filed April 2, 1986, effective Sept. 26, 1986. Amended: Filed Oct. 4, 1988, effective March 11, 1989.*

**Original authority: 643.050, RSMo 1965, amended 1972, 1992, 1993.*

10 CSR 10-5.430 Control of Emissions From the Surface Coating of Chrome-Plated and Resist Plastic Parts

PURPOSE: This rule limits emissions of volatile organic compounds from the surface coating of chrome-plated plastic parts.

(1) Applicability. This rule applies only to the Seigel-Robert Plating Company, Incorporated located at 8645 South Broadway, St. Louis, Missouri.

(2) General Provisions. The Seigel-Robert Plating Company, Incorporated shall not emit to the atmosphere any volatile organic compounds (VOCs) from any surface coating operation in excess of the amounts allowed in section (3) of this rule.

(3) Emission Limits and Dates of Compliance.

Surface Coating Process	Emission Limit lb./gal. coating	Dates of Compliance
Chrome-Plated and Extreme Performance	6.2	12/25/87
Chrome Resist	6.4	12/25/87

(4) Determination of Compliance. Compliance with section (2) of this rule shall be determined by the test method referenced in 10 CSR 10-6.030(14)(C) using the one (1)-hour bake. The coating manufacturers' formulation data and specifications may be used to demonstrate compliance, but only after confirmation by the test method referenced previously.

(5) Recordkeeping.

(A) The owner or operator of a coating line shall keep daily records detailing specific VOC sources to include:

1. The type and quantity of coating used for specific time period;
2. The coating manufacturer's formula-tion data for each coating;
3. The type and quantity of solvents used for coating thinning, purging and equip-ment cleaning;
4. All test results to determine coating makeup;
5. The type and quantity of waste sol-vents reclaimed or discarded; and
6. Any additional information pertinent to the calculation of VOC emissions.

(B) Records as required under subsection (5)(A) shall be retained by the owner or oper-ator for a minimum of two (2) years. These records shall be made available to the direc-tor upon request.

AUTHORITY: section 643.050, RSMo 1994. Original rule filed Aug. 4, 1987, effective Dec. 24, 1987.

**Original authority: 643.050, RSMo 1965, amended 1972, transferred from 203.050 in 1986, 1992, 1993.*

10 CSR 10-5.440 Control of Emissions from Bakery Ovens

PURPOSE: This rule restricts the emission of volatile organic compounds from bakery ovens at large commercial bakeries.

PUBLISHER'S NOTE: The secretary of state has determined that the publication of the entire text of the material which is incorpo-rated by reference as a portion of this rule would be unduly cumbersome or expensive. Therefore, the material which is so incorpo-rated is on file with the agency who filed this rule, and with the Office of the Secretary of State. Any interested person may view this material at either agency's headquarters or the same will be made available at the Office of the Secretary of State at a cost not to exceed actual cost of copy reproduction. The entire text of the rule is printed here. This note refers only to the incorporated by refer-ence material.

(1) Definitions. Definitions of some of the terms used in this rule may be found in 10 CSR 10-6.020 Definition and Common Reference Tables.

(2) Applicability.

(A) This rule shall apply throughout the City of St. Louis, and Jefferson, St. Charles, Franklin, and St. Louis Counties.

(B) This rule shall apply to new or existing commercial bakeries whose potential emis-sions are greater than one hundred tons per year (100 tpy).

(3) Requirement. The applicability level in subsection (2)(B) of this rule shall change to the level of major source as defined for any ozone nonattainment classification. Existing or new commercial bakeries that emit or have the potential to emit, in ozone nonattainment areas, one hundred (100) tpy or more of volatile organic compounds in areas classified as marginal or moderate, fifty (50) tpy or more in areas classified as serious, twenty-five (25) tpy or more in areas classified as severe, and ten (10) tpy or more in areas clas-sified as extreme shall install volatile organic compound (VOC) emissions control device(s) in order to achieve at least eighty percent (80%) total removal efficiency on the com-bined emissions of all baking ovens.

(4) Determination of Compliance. Compli-ance with this rule shall be determined by the following methods:

(A) The destruction efficiency shall be determined by using (EPA) Test Method 25A or another equivalent method approved by the director;

(B) The amount of VOC per ton of baked bread shall be based on the EPA emission fac-tors published in the Environmental Protec-tion Agency document entitled "Alternative Control Technology Document for Bakery Oven Emissions," EPA 453/R-92-017, December 1992, or administrator approved alternative methods determined through stack testing or industry literature acceptable to the administrator and to the director. Alternative methods must be approved by the director; and

(C) The capture efficiency of the air pollu-tion control device shall be determined by an administrator approved method. Administra-tor approved alternative plans that demon-strate a bakery's oven(s) operate under nega-tive pressure may preclude the need for cap-ture efficiency determination. Alternative methods and plans must be approved by the director.

(5) Recordkeeping.

(A) The owner or operator of a bakery oven shall maintain a daily record of opera-tions. The daily records shall include at least:

1. The amount of raw material pro-cessed;
2. The percentage of yeast used;

3. The fermentation time;
4. The type of product baked;
5. The amount of product baked;
6. The emission factor used for each product; and
7. The quarterly emissions.

(B) Bakery owners or operators employing VOC emission control device(s) shall, as applicable, continuously monitor and record the following parameters of such device(s) while the bakery oven is in operation:

1. Exhaust temperature of all combus-tion devices, if used. Combustion devices must be operated at temperatures high enough to achieve optimum destruction effi-ciency. The optimum operating temperatures will be established at the time of compliance determination;
2. Temperature rise across a catalytic oxidation bed, if used;
3. Exit stream temperature on all con-densers, if used; and
4. Any other monitoring parameters as found necessary by the director.

(C) Records under subsections (5)(A) and (B) shall be retained by the owner or oper-ator for a minimum of five (5) years. These records shall be made available immediately upon request for review by the Missouri Department of Natural Resources personnel and other air pollution control agencies upon presentation of proper credentials.

(6) Compliance Schedules. Any bakery owner or operator of an existing source sub-ject to this rule shall submit a compliance plan to the director within three (3) months of the rule effective date or on the date that the commercial bakery becomes subject to this rule whichever is more recent. The compli-ance plan shall include, but shall not be lim-ited to, control device description, testing protocol, date of compliance, and an operat-ing and maintenance plan for the control device(s). The owner or operator shall demonstrate compliance with this rule within twelve (12) months of the date that the source becomes subject to the rule.

AUTHORITY: section 643.050, RSMo Supp. 1995. Original rule filed Oct. 7, 1994, effective May 28, 1995. Amended: Filed May 15, 1996, effective Dec. 30, 1996.*

**Original authority: 643.050, RSMo 1965, amended 1972, transferred from 203.050 in 1986, 1992, 1993, 1995.*

10 CSR 10-5.442 Control of Emissions from Lithographic Printing Operations

PURPOSE: This rule restricts volatile organ-ic compound emissions from lithographic printing operations.

PUBLISHER'S NOTE: The secretary of state has determined that the publication of the entire text of the material which is incorporated by reference as a portion of this rule would be unduly cumbersome or expensive. Therefore, the material which is so incorporated is on file with the agency who filed this rule, and with the Office of the Secretary of State. Any interested person may view this material at either agency's headquarters or the same will be made available at the Office of the Secretary of State at a cost not to exceed actual cost of copy reproduction. The entire text of the rule is printed here. This note refers only to the incorporated by reference material.

(1) Definitions. Definitions of some terms specified in this rule may be found in 10 CSR 10-6.020. Other definitions specific to this rule are as follows:

(A) Alcohol—Refers to isopropanol, isopropyl alcohol; normal propyl alcohol or ethanol;

(B) Alcohol Substitutes—Nonalcohol additives that contain volatile organic compounds (VOCs) and are used in the fountain solution;

(C) Cleanup solution—A liquid used to remove printing ink and debris from the surfaces of the printing press and its parts;

(D) Fountain solution—The solution which is applied to the image plate to maintain the hydrophilic properties of the nonimage areas. It is primarily water containing an enchant, gum arabic and a dampening aid;

(E) Heatset—A class of web-offset lithography which requires a heated dryer to evaporate the ink oils and solvents from the printing inks;

(F) Lithographic printing—A printing process where a planographic plate is used with the image area oleophilic and the nonimage area hydrophilic;

(G) Press—A printing production assembly that can be made up of one (1) or many units to produce a finished product;

(H) Printing—Any operation that imparts color, design, alphabet, or numerals on a substrate;

(I) Printing ink—Any fluid or viscous composition used in printing, impressing, or transferring an image onto a substrate;

(J) Offset—The process that transfers an image from a plate to a rubber blanket cylinder before transfer to the substrate surface to be printed;

(K) Sheet-fed—Printing presses that are fed from a stack of individual paper sheets instead of a web. Sheet-fed presses generally use coldset inks; and

(L) Web—The substrate printed in a continuous roll-fed printing process.

(2) Applicability.

(A) This rule shall apply to installations that operate offset lithographic printing presses including heatset web offset presses, non-heatset web offset presses (newspaper and non-newspaper), and non-heatset sheet-fed offset presses in the City of St. Louis and Jefferson, St. Charles, Franklin and St. Louis Counties.

(B) This rule shall apply only to installations described in subsection (2)(A) which have ever had the potential to emit VOCs equal to or greater than one hundred (100) tons per year. Once the installation exceeds the applicability level of this rule, it shall remain subject to this rule even if its potential emissions drop below the applicability level.

(C) This rule shall not apply to printing on fabric, metal or plastic.

(3) Emission Limits.

(A) No owner or operator shall use or permit the use of any offset lithographic printing press unless—

1. For heatset web presses—

A. The fountain solution contains one and six-tenths percent (1.6%) or less by volume of alcohol; or

B. The fountain solution contains three percent (3.0%) or less by volume of alcohol and is refrigerated to a temperature of sixty degrees Fahrenheit (60°F), or less; or

C. The fountain solution contains five percent (5.0%) or less by volume alcohol substitutes; and

D. The fountain solution mixing tanks are covered for alcohol-based solutions;

2. For sheet-fed presses—

A. The fountain solution contains five percent (5.0%) or less by volume of alcohol; or

B. The fountain solution contains eight and five-tenths percent (8.5%) or less by volume of alcohol and is refrigerated to a temperature of sixty degrees Fahrenheit (60°F), or less; or

C. The fountain solution contains five percent (5.0%) or less by volume of alcohol substitutes or a combination of alcohol and alcohol substitutes; and

D. The fountain solution mixing tanks containing alcohol-based solutions are covered;

3. For non-heatset web presses—

A. The fountain solution contains five percent (5.0%) or less by volume alcohol substitutes; or

B. The fountain solution contains five percent (5%) or less by volume of a combination of alcohol and alcohol substitutes; and

C. The fountain solution mixing tanks containing alcohol-based solutions are covered;

4. Direct measurement of the alcohol content of the fountain solution sample(s) should be performed with a modification of the EPA Method 415.1. Alternately, a sample of the fountain solution may be taken from the fountain tray or reservoir of fountain solution during use and measured with a hydrometer or refractometer. The unit shall be considered in compliance with paragraphs (3)(A)1., 2., or 3. if the refractometer or hydrometer measurement is less than or equal to the measurement obtained with a modification of EPA Method 415.1, plus ten percent (10%);

5. The VOC content of a fountain solution containing alcohol substitutes or nonalcohol additives shall be established with proper recordkeeping including the amount of concentrated substitute added per quantity of fountain water, date of preparation and calculated VOC content of the final solution; and

6. Determination of fountain solution temperature for refrigerated fountain solutions shall be determined by a thermometer or other temperature detection device capable of reading to one-half degree Fahrenheit (0.5°F).

(B) No owner or operator shall use or permit the use of any offset lithographic printing press that uses cleanup solutions containing VOCs unless—

1. The cleanup solution has a VOC content of thirty percent (30%) or less, by weight, or a composite vapor pressure less than or equal to ten (10) millimeters of Mercury (Hg) at twenty degrees Celsius (20°C);

2. The cleanup solutions are kept in tightly covered tanks or containers during transport and storage; and

3. The cleaning cloths used with the cleanup solutions are placed in tightly closed containers when not in use and while awaiting off-site transportation. The cleaning cloths should be properly cleaned and disposed. The cloths, when properly cleaned or disposed, shall be processed in such a way that as much of the solvent, as practicable, is recovered for further use or is destroyed. A cleaning and disposal plan shall be submitted to the director by the compliance deadline specified in section (5) of this rule. A copy of the plan must be kept on-site for inspection purposes.

(C) No owner or operator shall use or permit the use of any heatset web-offset lithographic printing press with a dryer that has ever had an actual emission rate of ten (10) tons per year or more of VOCs unless one

hundred percent (100%) of the dryer exhaust is ducted to a control device that achieves ninety percent (90%) or greater, by weight control efficiency and the highest achievable capture efficiency reasonable. The dryer pressure shall be maintained below the pressure of the press room to reduce the potential for fugitive VOC emissions from the dryer. Testing procedures for capture efficiencies shall be done as stated in 10 CSR 10-6.030(20), or by another method approved by the director.

(D) Use of emission control equipment under subsection (3)(C) shall require that continuous monitors be installed, calibrated, operated and maintained. The monitors continuously shall measure—

1. The exhaust gas temperature of all VOC destruction devices and the gas temperature immediately upstream and downstream of any catalytic bed with an accuracy of plus or minus seventy-five hundredths of one percent ($\pm 0.75\%$) measured in degrees Celsius, or two and one-half degrees Celsius (2.5°C);

2. The cumulative amount of VOC recovered during a calendar month for all VOC recovery equipment attached to a dryer; and

3. Any other parameters considered necessary by the director to verify proper operation of emission control equipment.

(4) Recordkeeping.

(A) All persons subject to this rule shall maintain records as required by this section sufficient to determine continuous compliance with this rule. These records shall be kept for at least two (2) years to be automatically extended if enforcement action is pending. These records shall be available immediately upon request for review by the Department of Natural Resources personnel and other air pollution control agencies upon presentation of proper credentials.

(B) All persons subject to subsection (3)(C) shall maintain records for each control device sufficient to demonstrate that the control efficiency is being maintained.

(C) For each regulated printing press, records shall be maintained to show—

1. Percent by volume of alcohol or alcohol substitute(s), if either is used, in fountain solution as monitored on a once-per-day basis;

2. Daily and monthly quantity of alcohol or alcohol substitute(s), if either is used, by volume added to the fountain solution;

3. A Material Safety Data Sheet (MSDS) listing the physical properties of alcohol or alcohol substitute(s) such as density and percent VOC as purchased from the supplier;

4. Results of any testing conducted on an emission unit at a regulated facility;

5. Maintenance records of any air pollution control equipment; and

6. The temperature of refrigerated alcohol-based fountain solution as recorded on a once-per-shift basis.

(D) For each lithographic printing installation subject to this rule, records shall be maintained to show—

1. Properties of heatset inks as applied (determined by the manufacturer's formulation data), density of inks in pounds per gallon, and total VOC content in weight percent;

2. Quantity in pounds of heatset inks as applied to substrate on a monthly basis;

3. Quantity in gallons of cleanup solution used on a monthly basis; and

4. A Material Safety Data Sheet listing the percentage by weight of VOC in the cleanup solution.

(E) The director may require other records as reasonable and necessary to carry out the provisions of the Missouri Air Conservation Law.

(5) Compliance.

(A) All persons subject to the provisions of this rule shall provide to the director for approval a demonstration of final compliance with subsections (3)(A)–(C)—

1. Upon startup of presses which are not in existence and operating on the effective date of this rule; and

2. Within eighteen (18) months after the effective date of this rule for any presses in existence and operating on the effective date of this rule.

(B) All persons subject to the provisions of this rule and not in compliance with all provisions of this rule within twelve (12) months from the effective date of this rule must submit a compliance plan to the director for approval. This plan shall be received within six (6) months after the effective date of this rule. This plan shall include the following:

1. A detailed plan of process modifications; and

2. A time schedule for compliance containing increments of progress, including—

A. Date of submittal of the source's final control plan to the appropriate air pollution control agency;

B. Date by which contracts for emission control systems or process modifications will be awarded; or date by which orders will be issued for the purchase of component parts to accomplish emission control or process modification;

C. Date of initiation of on-site construction or installation of emission control equipment or process change;

D. Date by which on-site construction or installation of emission control equipment or process modification is to be completed; and

E. Date by which final compliance is to be achieved.

(6) Testing Procedures. Testing and compliance demonstrations for subsection (3)(C) of this rule shall follow the procedures contained in Environmental Protection Agency Reference Methods 25 or 25A found in 40 CFR part 60 Appendix A. Further clarification shall be provided by Environmental Protection Agency memo dated October 25, 1993, from John B. Rasnic to all Environmental Protection Agency regional offices.

AUTHORITY: section 643.050, RSMo 1994. Original rule filed Oct. 7, 1994, effective May 28, 1995.*

**Original authority: 643.050, RSMo 1965, amended 1972, transferred from 203.050 in 1986, 1992, 1993.*

10 CSR 10-5.443 Control of Gasoline Reid Vapor Pressure

(Rescinded: January 30, 2003)

AUTHORITY: section 643.050, RSMo 1994. Original rule filed Dec. 13, 1993, effective July 30, 1994. Amended: Filed Oct. 7, 1994, effective May 28, 1995. Rescinded: Filed April 2, 2002, effective Jan. 30, 2003.

10 CSR 10-5.450 Control of VOC Emissions from Traffic Coatings

PURPOSE: This rule limits volatile organic compound content of traffic coatings. Volatile organic compounds are precursors to ozone, which poses health and environmental concerns. This rule is part of the fifteen percent state implementation plan for the ozone nonattainment area.

PUBLISHER'S NOTE: The secretary of state has determined that the publication of the entire text of the material which is incorporated by reference as a portion of this rule would be unduly cumbersome or expensive. Therefore, the material which is so incorporated is on file with the agency who filed this rule, and with the Office of the Secretary of State. Any interested person may view this material at either agency's headquarters or the same will be made available at the Office of the Secretary of State at a cost not to exceed actual cost of copy reproduction. The entire text of the rule is printed here. This

note refers only to the incorporated by reference material.

(1) Definitions.

(A) Grams of volatile organic compounds (VOC) per liter of coating, less water and less exempt compounds is the weight of VOC per combined volume of VOC and coating solids and can be calculated by the following equation:

(B) Traffic coatings are coatings formulated for and applied to public streets, highways, and other surfaces including, but not limited to, curbs, berms, driveways, and parking lots.

$$\text{Grams of VOC per liter of coating, less water and less exempt compounds} = \frac{W_s - W_w - W_{es}}{V_m - V_w - V_{es}}$$

Where: W_s = weight of volatile compounds in grams

W_w = weight of water in grams

W_{es} = weight of exempt compounds in grams

V_m = volume of material in liters

V_w = volume of water in liters

V_{es} = volume of exempt compounds in liters

(C) Other definitions of certain terms specified in this rule may be found in 10 CSR 10-6.020.

(2) Applicability.

(A) This rule shall apply throughout the St. Louis metropolitan area which includes the City of St. Louis and Jefferson, Franklin, St. Louis, and St. Charles Counties.

(B) This rule shall apply to any person who supplies, sells, offers for sale, applies, solicits the application of, or manufactures for use any coating intended for use in traffic marking.

(C) This rule shall not apply to traffic coatings sold for shipment outside of the area defined in subsection (2)(A) or for shipment to other manufacturers for repackaging.

(3) Provisions.

(A) Except as provided in subsections (3)(B) and (C), no person shall supply, sell, offer for sale, apply, or solicit the application of, any traffic coating which, at the time of sale or manufacture, contains more than one hundred fifty (150) grams of VOCs per liter of coating one point twenty-six (1.26) pounds per gallon, excluding water, exempt compounds, and any colorant added to tint bases, or manufacture, blend, or repackage such a coating for use within the St. Louis metropolitan area without the approval of the staff director.

(B) If anywhere on the container of any coating, on any sticker or label affixed thereto, or in any sales or advertising literature, any representation is made that the coating may be used as, or is suitable for use as, a coating for which a lower VOC is specified, then the lowest VOC standard shall apply.

(C) Sale or application of a coating manufactured prior to the effective date of the rule, and not complying with the standard in subsection (3)(A), shall not constitute a violation until April 15, 1996.

(D) The manufacture of a coating not complying with subsection (3)(A) shall not constitute a violation until thirty (30) days after the effective date of the rule.

(E) All VOC-containing materials shall be stored in closed containers when not in use. In use includes, but is not limited to, being accessed, filled, emptied, or repaired.

(4) Labeling.

(A) Containers for all traffic coatings 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 staff director an explanation of each code.

(B) Containers for all coatings subject to the requirements of this rule shall carry a statement of the manufacturer's recommendation regarding thinning of the coating. The recommendation shall either specify that the coating is to be applied under normal environmental and application conditions without thinning, or limit thinning required for normal environmental and application conditions such that after thinning the coating will not exceed one hundred fifty (150) grams of VOCs per liter.

(C) Containers of any coating subject to this rule shall display the maximum grams of VOC in a liter of traffic coating as produced by the manufacturer, excluding water and any colorant added to tint bases and after any recommended thinning. The VOC content displayed may be calculated using product formulation data, or may be determined using the test method in section (5).

(5) Test Method.

(A) The VOC content of traffic coatings shall be determined by the Environmental Protection Agency (EPA) Reference Test Method 24 (Determination on Volatile Matter Content, Water Content, Density Volume Solids, and Weight Solids of Surface Coatings, *Code of Federal Regulations* Title 40, part 60, Appendix A).

(B) Other test methods for determining VOC content may be used if found to be equivalent after review by the director.

AUTHORITY: 643.050, RSMo 1994.*
Original rule filed Oct. 7, 1994, effective May 28, 1995.

*Original authority: 643.050, RSMo 1965, amended 1972, transferred from 203.050 in 1986, 1992, 1993.

10 CSR 10-5.451 Control of Emissions from Aluminum Foil Rolling

PURPOSE: *This rule specifies operating procedures, materials requirements, and control equipment specifications for the reduction of volatile organic compounds from aluminum foil rolling mills in the St. Louis ozone nonattainment area. Since volatile organic compounds are precursors to ozone formation, ambient ozone levels will be reduced.*

(1) Applicability. This rule shall apply to all aluminum foil rolling facilities with potential volatile organic compound (VOC) emissions greater than or equal to one hundred (100) tons per year throughout St. Louis City and Jefferson, St. Charles, Franklin and St. Louis Counties.

(2) Definitions.

(A) Cold rolling mill—Batch process aluminum sheet rolling mill with a preset gap between the work rolls used to reduce the sheet thickness. The process generally occurs at temperatures below two hundred sixty-five degrees Fahrenheit (265°F.). A cold rolling mill is used mainly for the production of aluminum sheet at gauges between 0.3 inches to 0.002 inches. Reductions to finish gauge may occur in one (1) pass or several passes.

(B) Intermediate foil mill—Batch process aluminum foil rolling mill with the work rolls in contact to reduce foil gauge. This process reduces finished sheet to intermediate foil gauges. An intermediate foil mill is used mainly in the production of aluminum foil at gauges between 0.010 inches to 0.0004 inches. Reductions to finish gauge may occur in several passes through the mill.

(C) Finish foil mill—Batch process aluminum foil rolling mill with work rolls in contact to reduce foil gauge. This process reduces intermediate foil and in some cases finished sheet to final gauges. A finish foil mill is used mainly in the production of aluminum foil at gauges between 0.005 inches to 0.00018 inches. Reductions to finish gauge may occur in several passes through the mill.

(D) Rolling lubricant—Petroleum based oil usually mixed with additives. The lubricant is used to cool the work rolls and provide lubrication for the product in contact with the work rolls.

(E) Definitions of certain terms specified in this rule may be found in 10 CSR 10-6.020.

(3) Emission Limits.

(A) Rolling Lubricants.

1. Cold rolling mill.

A. Rolling lubricants used on the cold mill shall consist of low vapor pressure lubricants composed of saturated oils and additives. For purposes of this subparagraph, low vapor pressure shall be defined as less than 1.0 mmHg at one hundred degrees Fahrenheit (100°F).

B. The initial boiling point of the as-received oils shall be three hundred eighty degrees Fahrenheit (380°F) or greater.

C. The initial boiling point of the as-applied rolling lubricants shall be greater than three hundred eighty degrees Fahrenheit (380°F).

D. The inlet or as-applied rolling lubricant temperatures at each mill shall not exceed one hundred fifty-five degrees Fahrenheit (155°F) and such temperatures shall be monitored at all times that the mill is in operation.

2. Intermediate and finishing mills.

A. Rolling lubricants used on the intermediate and finish mills shall consist of low vapor pressure lubricants composed of saturated oils and additives. For purposes of this subparagraph, low vapor pressure shall be defined as less than 1.0 mmHg at one hundred degrees Fahrenheit (100°F).

B. The initial boiling point of the as-received oils shall be three hundred thirty-five degrees Fahrenheit (335°F) or greater.

C. The initial boiling point of the as-applied rolling lubricants shall be greater than three hundred degrees Fahrenheit (300°F).

D. The inlet or as-applied rolling lubricant temperatures at each mill shall not exceed one hundred sixty degrees Fahrenheit (160°F) and such temperatures shall be monitored at all times that the mill is in operation.

(B) Large Emission Sources.

1. For any rolling mill that has ever had actual VOC emissions equal to or greater than one thousand (1,000) tons per calendar year—

A. Emissions capture methods and emissions control equipment must be installed and used, which will result in an overall VOC emission reduction of at least eighty percent (80%).

B. An affected facility shall submit a compliance plan that details how the required VOC emissions will be controlled. The compliance plan shall include:

(I) A physical description and the operating characteristics of the rolling mill;

(II) A physical description of the capture methods to be used and the operating characteristics and design specifications of the control equipment;

(III) Expected annual quantities of material throughputs to the mill and the control equipment;

(IV) Potential VOC emissions, expected actual VOC emissions from the mill, both controlled and uncontrolled, and total operating hours from the two (2) previous calendar years to be used as a baseline for determination of overall emissions reductions;

(V) Proposed methods of testing, monitoring, record keeping and reporting for determining compliance with this rule;

(VI) A compliance schedule detailing all important interim dates up to and including final compliance testing; and

(VII) Any additional information as requested by the director.

C. The compliance plan shall be submitted to the director no later than sixty (60) days after the effective date of this rule.

D. The compliance plan shall be subject to the approval of the director.

2. Contingency plans.

A. Should an affected facility not be able to meet the overall eighty percent (80%) VOC emission reduction, the facility must develop and submit a plan detailing corrective actions to obtain VOC emission reductions equivalent to the shortfall. The contingency plans shall be submitted to the director for approval.

B. The contingency plan shall include the following:

(I) The total VOC emission reductions that will be achieved by the plan;

(II) The emission reduction method of control that will be used to make up for any shortfall in the original compliance plan;

(III) Proposed method of record keeping; and

(IV) A proposed implementation schedule.

C. The contingency plan shall be submitted no later than one hundred twenty (120) days after a determination is made that the compliance plan does not meet the eighty percent (80%) emission reduction.

(4) Record Keeping.

(A) For cold rolling mills—

1. Records of rolling lubricant formulations with identification of all oils and additives shall be maintained;

2. Records of the initial and final boiling points of all as-received oil shipments shall be maintained;

3. Records of the initial boiling points of the as-applied rolling lubricant shall be maintained on a monthly basis;

4. The temperature of the as-applied rolling lubricant shall be continuously recorded; and

5. All records of rolling lubricant formulations, distillation tests for oils, and as-applied rolling lubricants and rolling lubricant temperatures shall be retained for a period of at least three (3) years and be immediately available for inspection upon request by the department or any agency with proper authority.

(B) For intermediate and finishing mills—

1. Records of rolling lubricant formulations with identification of all oils and additives shall be maintained;

2. Records of the initial and final boiling points of all as-received oil shipments shall be maintained;

3. Records of the initial boiling points of the as-applied rolling lubricant shall be maintained on a monthly basis;

4. The temperature of the as-applied rolling lubricant shall be continuously recorded; and

5. All records of rolling lubricant formulations, distillation tests for oils, and as-applied rolling lubricants and rolling lubricant temperatures shall be retained for a period of at least three (3) years and be immediately available for inspection upon request by the department of any agency with proper authority.

(5) Determination of Compliance.

(A) All incoming shipments of oil shall be sampled and a distillation range test shall be performed using American Society for Testing and Materials (ASTM) methods D86-99, Standard Method for Distillation of Petroleum Products or other methods approved by the director. The results of such tests shall be used for compliance with subparagraph (3)(A)1.B. of this rule and subparagraph (3)(A)2.B. of this rule.

(B) A grab sample of the as-applied rolling lubricants shall be taken on a monthly basis from each mill during any month that a mill is in operation. A distillation range test shall be performed using ASTM methods. The results of such tests shall be used to determine compliance with subparagraphs (3)(A)1.C. and (3)(A)2.C.

(C) Compliance with subparagraphs (3)(A)1.D. and (3)(A)2.D. shall be met with continuous monitoring and recording of the rolling lubricant temperature.



(D) Determination of the eighty percent (80%) emission reduction requirement in subparagraph (3)(B)1.A. shall be determined through control efficiency emissions testing.

AUTHORITY: section 643.050, RSMo Supp. 1999.* *Emergency rule filed March 15, 1995, effective March 25, 1995, expired July 11, 1995. Original rule filed March 15, 1995, effective Nov. 30, 1995. Amended: Filed Feb. 9, 2000, effective Sept. 30, 2000.*

**Original authority:* 203.050, RSMo 1965, amended 1972, transferred to 643.050, RSMo 1986, amended 1992, 1993, 1995.

10 CSR 10-5.455 Control of Emission from Solvent Cleanup Operations

PURPOSE: This rule will reduce solvent emissions from solvent cleanup operations.

PUBLISHER'S NOTE: The secretary of state has determined that the publication of the entire text of the material which is incorporated by reference as a portion of this rule would be unduly cumbersome or expensive. Therefore, the material which is so incorporated is on file with the agency who filed this rule, and with the Office of the Secretary of State. Any interested person may view this material at either agency's headquarters or the same will be made available at the Office of the Secretary of State at a cost not to exceed actual cost of copy reproduction. The entire text of the rule is printed here. This note refers only to the incorporated by reference material.

(1) Definitions of certain terms specified in this rule may be found in 10 CSR 10-6.020.

(2) Applicability.

(A) This rule shall apply throughout St. Louis City and the Counties of Jefferson, St. Charles, Franklin, and St. Louis.

(B) This rule shall apply to any person who performs or allows the performance of any cleaning operation involving the use of a volatile organic compound (VOC) solvent or solvent solution. The provisions of this rule shall not apply to any stationary source at which cleaning solvent VOCs are emitted at less than five hundred (500) pounds per day.

(C) The following cleaning operations are not subject to the provisions of this rule:

1. Cold cleaner;
2. Open top vapor degreaser;
3. Conveyorized cold cleaner;
4. Conveyorized vapor degreaser;
5. Nonmanufacturing area cleaning. Nonmanufacturing areas include cafeterias,

laboratories, pilot facilities, restrooms, and office buildings;

6. Cleaning operations for which there has been made a best available control technology (BACT), reasonably available control technology (RACT), or lowest achievable emission rate (LAER) determination; and

7. Cleaning operations which are subject to the Aerospace National Emission Standards for Hazardous Air Pollutants Standards (NESHAP) source category.

(3) General Provisions. Any person performing any industrial cleaning operation, not excluded in subsection (2)(B) or (C), involving the use of a VOC solvent or solvent solution shall demonstrate a thirty percent (30%) reduction in plant-wide industrial VOC cleaning solvent emissions as described in section (4) of this rule by May 31, 1996.

(4) Solvent Emission Reduction. The following provisions apply to any stationary source subject to section (3) of this rule:

(A) A thirty percent (30%) emission reduction shall be based on emissions in 1990 and in 1995. If the owner/operator demonstrates that either 1990 or 1995 is not a representative production year, then a demonstration shall be made to the agency that another year is more representative for purposes of comparison or for prorating cleaning solvent usage. The following applicable documentation of actions and associated emission reductions shall be sent to the department for approval by March 1, 1996:

1. Changes in cleaning solvents used;
2. Changes in work practices; and
3. Changes in equipment or processes;

and

(B) The changes described in subsection (4)(A) of this rule shall remain in effect until other changes resulting in greater, or equal, emission reductions from the cleaning operations are implemented.

(5) Recordkeeping. The person responsible for industrial cleaning operations at an affected facility seeking to comply with section (3) of this rule shall keep records of information sufficient for the calculation of emissions from each Unit Operation System (UOS) from the use of industrial cleaning solvents. A UOS consists of an industrial cleaning operation around which all organic solvent usage disposal, and fugitive losses may be calculated using a simple mass balance equation. As an aid to compliance with this section, records for industrial cleaning UOSs may include one (1) or more of the following:

(A) Engineering drawings or sketches of all UOSs used to define industrial cleaning operations within the facility, including a system boundary, organic solvent input(s), organic solvent output(s), and organic solvent evaporative loss points. These drawings shall include each of the following:

1. Labeled boxes within the system boundary which describe all components of the UOS, including any virgin solvent containers, solvent applicators, used solvent containers, and the surface being cleaned;

2. Numbered or lettered arrows depicting liquid and/or evaporative solvent flow, accurate with respect to relative mass flow rates in and out of the system boundary; and

3. Arrows depicting all organic solvent pathways within the system boundary;

(B) One (1) accurate mass balance equation for each UOS depicted in subsection (5)(A) of this rule. Each equation shall have variables consistent with those used to define the corresponding UOS and shall be solved for total VOC emissions for the UOS; and

(C) Any assumptions or approximations made in defining the UOSs.

AUTHORITY: section 643.050, RSMo Supp. 1995.* *Original rule filed Oct. 7, 1994, effective May 28, 1995. Amended: Filed July 15, 1996, effective Feb. 28, 1997.*

**Original authority:* 643.050, RSMo 1965, amended 1972, transferred from 203.050 in 1986, amended 1992, 1993.

10 CSR 10-5.480 St. Louis Area Transportation Conformity Requirements

PURPOSE: This rule implements section 176(c)(4)(E) of the Clean Air Act (CAA), as amended (42 U.S.C. 7401-7671q.), and the related requirements of 23 U.S.C. 109(j), with respect to the conformity of transportation plans, programs, and projects which are developed, funded, or approved by the United States Department of Transportation (DOT), and by metropolitan planning organizations (MPOs) or other recipients of funds under Title 23 U.S.C. or the Federal Transit Laws (49 U.S.C. Chapter 53). This rule sets forth policy, criteria, and procedures for demonstrating and assuring conformity of such activities to the applicable implementation plan, developed pursuant to section 110 and part D of the CAA. This rule applies to the St. Louis ozone and PM_{2.5} nonattainment and carbon monoxide maintenance areas.

PUBLISHER'S NOTE: The secretary of state has determined that the publication of the entire text of the material which is incorporated by reference as a portion of this rule



would be unduly cumbersome or expensive. This material as incorporated by reference in this rule shall be maintained by the agency at its headquarters and shall be made available to the public for inspection and copying at no more than the actual cost of reproduction. This note applies only to the reference material. The entire text of the rule is printed here.

(1) Applicability.

(A) This rule applies to the St. Louis ozone and PM_{2.5} nonattainment and carbon monoxide maintenance areas.

(B) This rule meets the requirements for state transportation conformity state implementation plans as provided in section 6011(f)(4) of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users. This regulation addresses and gives full legal effect to the following three (3) requirements of the Federal Transportation Conformity Rule, 40 CFR part 93 subpart A: 1) 40 CFR 93.105, which addresses consultation procedures; 2) 40 CFR 93.122(a)(4)(ii), which states that conformity plans must require written commitments to control measures to be obtained prior to a conformity determination if the control measures are not included in a metropolitan planning organization's transportation plan and transportation improvement program, and that such commitments be fulfilled; and 3) 40 CFR 93.125(c), which states that conformity plans must require written commitments to mitigation measures to be obtained prior to a project-level conformity determination, and that project sponsors comply with such commitments.

(C) The Federal Transportation Conformity Rule (for reference) is located at 40 Code of Federal Regulations (CFR) 93.100 through 93.129.

(2) Definitions.

(A) Definitions for key words and phrases used in this rule may be found in subsection 40 CFR 93.101 of 40 CFR 93 Subpart A, promulgated as of July 1, 2006, which is hereby incorporated by reference in this rule, as published by the Office of the Federal Register, U.S. National Archives and Records, 700 Pennsylvania Avenue NW, Washington, D.C. 20408. This rule does not incorporate any subsequent amendments or additions.

(B) Participants in the interagency consultation process must include the following public agencies:

- 1. City of St. Louis Department of Health Air Pollution Control Program;

2. East-West Gateway Council of Governments;

3. Federal Highway Administration, Illinois Division;

4. Federal Highway Administration, Missouri Division;

5. Federal Transit Administration, Region 7;

6. Illinois Department of Transportation;

7. Illinois Environmental Protection Agency;

8. Madison County Highway Department;

9. Madison County Transit District;

10. Metro (Bi-State Development Agency);

11. Missouri Department of Natural Resources' Air Pollution Control Program;

12. Missouri Department of Transportation

13. St. Clair County Department of Roads and Bridges;

14. St. Clair County Transit District;

15. St. Louis County Department of Health;

16. St. Louis County Department of Highways;

17. U.S. Environmental Protection Agency, Region 5; and

18. U.S. Environmental Protection Agency, Region 7.

(C) Metropolitan planning organization (MPO)—That organization designated as being responsible, together with the state, for conducting the continuing, cooperative, and comprehensive planning process under 23 U.S.C. 134 and 49 U.S.C. 5303. It is the forum for cooperative transportation decision-making. The East-West Gateway Council of Governments is the MPO for the St. Louis metropolitan area and the organization responsible for conducting the planning required under section 174 of the CAA.

(D) Definitions of certain terms specified in this rule, other than those defined in this rule section, may be found in 10 CSR 10-6.020.

(3) General Provisions.

(A) Interagency Consultation Procedures (Federal Code Location: 40 CFR 93.105).

1. General. Procedures for interagency consultation (federal, state and local), resolution of conflicts, and public consultation are described in paragraphs (3)(A)1.–(3)(A)6. of this rule. Public consultation procedures meet the requirements for public involvement in 23 CFR part 450.

A. The implementation plan revision required shall include procedures for interagency consultation (federal, state, and local),

resolution of conflicts, and public consultation as described in paragraphs (3)(A)1.–(3)(A)6. of this rule. Public consultation procedures will be developed in accordance with the requirements for public involvement in 23 CFR part 450.

B. MPOs and state departments of transportation will provide reasonable opportunity for consultation with state air agencies, local air quality and transportation agencies, Department of Transportation (DOT), and U.S. Environmental Protection Agency (EPA), including consultation on the issues described in subparagraph (3)(A)3.A. of this rule, before making conformity determinations.

2. Interagency consultation procedures—General factors.

A. Representatives of the MPO, state and local air quality planning agencies, state and local transportation agencies shall undertake an interagency consultation process in accordance with this section with each other and with local or regional offices of the EPA, Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) on the development of the implementation plan, the list of Transportation Control Measures (TCMs) in the applicable implementation plan, the unified planning work program under 23 CFR section 450.314, the transportation plan, the Transportation Improvement Plan (TIP), and any revisions to the preceding documents and associated conformity determinations.

B. The state air quality agency shall be the lead agency responsible for preparing the final document or decision and for assuring the adequacy of the interagency consultation process as required by this section with respect to the development of the applicable implementation plans and control strategy implementation plan revisions and the list of TCMs in the applicable implementation plan. The MPO shall be the lead agency responsible for preparing the final document or decision and for assuring the adequacy of the interagency consultation process as required by this section with respect to the development of the unified planning work program under 23 CFR section 450.314, the transportation plan, the TIP, and any amendments or revisions thereto. The MPO shall also be the lead agency responsible for preparing the final document or decision and for assuring the adequacy of the interagency consultation process as required by this section with respect to any determinations of conformity under this rule for which the MPO is responsible.

C. In addition to the lead agencies identified in subparagraph (3)(A)2.B. of this rule, other agencies entitled to participate in



any interagency consultation process under this rule include:

(I) The Illinois Department of Transportation, the Missouri Department of Transportation, the Federal Highway Administration, the Federal Transit Administration, the U.S. Environmental Protection Agency, the Illinois Environmental Protection Agency and the Missouri Department of Natural Resources;

(II) Local transportation agencies through the appointment of one (1) representative from local transportation agency interests on the Illinois side of the St. Louis area and the appointment of one (1) representative from local transportation agency interests on the Missouri side of the St. Louis area. The MPO and the Illinois Department of Transportation shall jointly appoint the Illinois representative, and the MPO and Missouri Department of Transportation shall jointly appoint the Missouri representative;

(III) Local air quality agencies through the appointment of one (1) representative from each of the two (2) local air quality agencies. The MPO and the Missouri Department of Natural Resources shall jointly appoint the local air quality agency representatives; and

(IV) Local mass transit agencies through the appointment of one (1) representative from local mass transit agency interests on the Illinois side of the St. Louis area and the appointment of one (1) representative from local mass transit agency interests on the Missouri side of the St. Louis area. The MPO and the Illinois Department of Transportation shall jointly appoint the Illinois representative, and the MPO and Missouri Department of Transportation shall jointly appoint the Missouri representative;

(V) Nothing in this paragraph shall preclude the authority of the lead agency listed in subparagraph (3)(A)2.B. of this rule to involve additional agencies in the consultation process which are directly impacted by any project or action subject to this rule;

(VI) Representatives appointed under parts (3)(A)2.C.(II)–(3)(A)2.C.(V) of this rule shall not come from an agency already represented as a consulting agency under this section.

D. It shall be the responsibility of the appropriate lead agency designated in subparagraph (3)(A)2.B. of this rule to solicit early and continuing input from all other consulting agencies, to provide those agencies with all relevant information needed for meaningful input and, where appropriate, to assure policy-level contact with those agencies. The lead agency shall, at a minimum, provide opportunities for discussion and com-

ment in accordance with the interagency consultation procedures detailed in this section. The lead agency shall consider the views of each other consulting agency prior to making a final decision, shall respond in writing to those views and shall assure that such views and response (or where appropriate a summary thereof) are made part of the record of any decision or action.

E. It shall be the responsibility of each agency listed in subparagraph (3)(A)2.C. of this rule (other than the lead agency designated under subparagraph (3)(A)2.B. of this rule) to confer with the lead agency and the other participants in the consultation process, to review and make relevant comment on all proposed and final documents and decisions in a timely manner and to attend consultation and decision meetings. To the extent requested by the lead agency or other agencies involved, or as required by other provisions of this rule, each agency shall provide timely input on any area of substantive expertise or responsibility (including planning assumptions, modeling, information on status of TCM implementation, and interpretation of regulatory or other requirements), and shall comply with any reasonable request to render such technical assistance to the lead agency as may be needed to support the development of the document or decision.

F. For documents or decisions subject to this rule for which the MPO is the designated lead agency, the MPO shall, through the regular meetings of its board of directors and committees, be the primary forum for discussion at the policy level. The MPO shall ensure that all consulting agencies are provided with opportunity to participate throughout the decision-making process including the early planning stages. The MPO shall modify or supplement its normal schedule of meetings, if needed, to provide adequate opportunity for discussion of the matters subject to this rule.

G. It shall be the responsibility of the lead agency designated under subparagraph (3)(A)2.B. of this rule to initiate the consultation process by notifying other consulting agencies of the following:

(I) The decision(s) or document(s) for which consultation is being undertaken; and

(II) The proposed planning or programming process for the development of the decision(s) or document(s). The proposed planning or programming process shall include at a minimum:

(a) The roles and responsibilities of each agency at each stage in the planning process, including technical as well as policy aspects;

(b) The organizational level of regular consultation;

(c) The proposed schedule of, or process for convening, consultation meetings, including the process and assignment of responsibilities for selecting a chairperson and setting meeting agendas;

(d) The process for circulating or otherwise making available all relevant materials in a timely fashion at each stage in the consultation process, and in particular for circulating or otherwise making available drafts of proposed documents or decisions before formal adoption or publication;

(e) The process and assignment of responsibility for maintaining an adequate record of the consultation process; and

(f) The process for responding to the significant comments of involved agencies;

(III) The consultation planning and programming process to be followed for each document or decision subject to this rule shall be determined by consensus among the consulting agencies and shall thereafter be binding on all parties until such time as it may be revised by consensus among the consulting agencies.

H. All drafts and supporting materials subject to consultation shall be provided at such level of detail as each consulting agency may need to determine its response. Any consulting agency may request, and the appropriate lead agency shall supply, supplemental information as is reasonably available for the consulting agency to determine its response.

I. The time allowed at each stage in the consultation process shall not be less than that specified by regulation or this rule, published by the lead agency in any document describing the consultation procedures to be followed under 23 CFR part 450, 40 CFR part 51 or this rule, or otherwise previously agreed by consensus of the consulting agencies. Where no such time has been specified, published or agreed to, the time shall be determined by consensus of the consulting agencies based upon the amount of material subject to consultation, the extent of prior informal or technical consultation and discussion, the nature of the decision to be made, and such other factors as are previously agreed by the consulting agencies. The time allowed for consultation shall be the same for all agencies being consulted, and any extension of time granted to one (1) agency shall also be allowed all other agencies.

J. Determining the adequacy of consultation opportunities.

(I) Representatives of the consulting agencies listed in subparagraph (3)(A)2.C. of this rule shall meet once each



calendar year for the purpose of reviewing the sequence and adequacy of the consultation planning and programming processes established or proposed under subparagraph (3)(A)2.G. of this rule for each type of document or decision. Responsibility for convening this meeting shall rest with the appropriate lead agency designated in subparagraph (3)(A)2.B. of this rule.

(II) In any year (other than the first after the adoption of this rule) in which there is an agreed upon consultation planning or programming process in effect and no consulting agency has requested any change to that process, the appropriate lead agency may propose that this process remain in effect. Upon notification of acceptance of this proposal by all consulting agencies, no further action by the lead agency shall be required and the meeting and review required under part (3)(A)2.J.(I) of this rule need not take place for that year.

K. The consultation planning and programming processes proposed and agreed to under subparagraph (3)(A)2.G. of this rule shall comply with the following general principles:

(I) Consultation shall be held early in the planning process, so as to facilitate sharing of information needed for meaningful input and to allow the consulting agencies to confer with the lead agency during the formative stages of developing any document or decision subject to this rule;

(II) For conformity determinations for transportation plan revisions or TIPs, the consultation process shall, at a minimum, specifically include opportunities for the consulting agencies to confer upon the analysis required to make conformity determinations. This consultation shall normally take place at the technical level, except to the extent agreed by consensus under subparagraph (3)(A)2.J. of this rule, and shall take place prior to the consideration of draft documents or conformity determinations by the MPO;

(III) For state implementation plans, the consultation process shall, at a minimum, specifically include opportunities for the consulting agencies to confer upon the motor vehicle emissions budget. This consultation shall take place at the technical and policy levels, except to the extent agreed by consensus under subparagraph (3)(A)2.J. of this rule, and shall take place prior to the consideration of the draft budget by the state air quality agency;

(IV) In addition to the requirements of parts (3)(A)2.K.(II)–(3)(A)2.K.(III) of this rule, if TCMs are to be considered in transportation plans, TIPs or state implementation plans, specific opportunities to consult

regarding TCMs by air quality and transportation agencies must be provided prior to the consideration of the TCMs by the appropriate lead agency; and

(V) Additional consultation opportunities must be provided prior to any final action being taken by any of the lead agencies defined in subparagraph (3)(A)2.B. of this rule on any document or decision subject to this rule. Before taking formal action to approve any plan, program, document or other decision subject to this rule, the consulting agencies shall be given an opportunity to communicate their views in writing to the lead agency. The lead agency shall consider those views and respond in writing in a timely and appropriate manner prior to any final action. Such views and written response shall be made part of the record of the final decision or action. Opportunities for formal consulting agency comment may run concurrently with other public review time frames.

L. Consultation on planning assumptions.

(I) The MPO shall convene a meeting of the consulting agencies listed in subparagraph (3)(A)2.C. of this rule no less frequently than once each calendar year for the purpose of reviewing the planning, transportation and air quality assumptions, and models and other technical procedures in use or proposed to be used for the state implementation plan (SIP) motor vehicle emissions inventory, motor vehicle emissions budget, and conformity determinations. This meeting shall normally take place at the technical level except to the extent agreed by consensus under subparagraph (3)(A)2.J. of this rule.

(II) In all years when it is intended to determine the conformity of a transportation plan revision or TIP, the meeting required in part (3)(A)2.L.(I) of this rule shall be held before the MPO commences the evaluation of projects submitted or proposed for inclusion in the transportation plan revision or TIP, and before the annual public meeting held in accordance with 23 CFR section 450.322(c). The MPO shall consider the views of all consulting agencies before making a decision on the latest planning assumptions to be used for conformity determinations. The state air quality agencies shall consider the views of all consulting agencies before making a decision on the latest planning assumptions to be used for developing the SIP motor vehicle emissions inventory, motor vehicle emissions budget and for estimating the emissions reductions associated with TCMs.

(III) It shall be the responsibility of each of the consulting agencies to advise the MPO of any pending changes to their plan-

ning assumptions or methods and procedures used to estimate travel, forecast travel demand, or estimate motor vehicle emissions. Where necessary the MPO shall convene meetings, additional to that required under part (3)(A)2.L.(I) of this rule, to share information and evaluate the potential impacts of any proposed changes in planning assumptions, methods or procedures and to exchange information regarding the timetable and scope of any upcoming studies or analyses that may lead to future revision of planning assumptions, methods or procedures.

(IV) Whenever a change in air quality or transportation planning assumptions, methods or procedures is proposed that may have a significant impact on the SIP motor vehicle emissions inventory, motor vehicle emissions budget or conformity determinations, the agency proposing the change shall provide the consulting agencies an opportunity to review the basis for the proposed change. All consulting agencies shall be given at least thirty (30) days to evaluate the impact of the proposed change prior to final action by the agency proposing the change. To the fullest extent practicable, the time frame for considering and evaluating proposed changes shall be coordinated with the procedures for consultation on planning assumptions in parts (3)(A)2.L.(I)–(3)(A)2.L.(III) of this rule.

M. A meeting that is scheduled or required for another purpose may be used for the purposes of consultation if the consultation purpose is identified in the public notice for the meeting and all consulting agencies are notified in advance of the meeting.

N. In any matter which is the subject of consultation, no consulting agency may make a final decision or move to finally approve a document subject to this rule until the expiry of the time allowed for consultation and the completion of the process notified under subparagraph (3)(A)2.G. of this rule. Notwithstanding the previous sentence, any consulting agency may make a final decision or move to finally approve a document subject to this rule if final comments on the draft document or decision have been received from all other consulting agencies. The lead agency designated under subparagraph (3)(A)2.B. of this rule shall, in making its decision, take account of all views expressed in response to consultation.

3. Interagency consultation procedures—specific processes. Interagency consultation procedures shall also include the following specific processes:

A. An interagency consultation process in accordance with paragraph (3)(A)2. of this rule involving the MPO, state and



local air quality planning agencies, state and local transportation agencies, the EPA and the DOT shall be undertaken for the following (except where otherwise provided, the MPO shall be responsible for initiating the consultation process):

(I) Evaluating and choosing a model (or models) and associated methods and assumptions to be used in hot-spot analyses and regional emissions analyses;

(II) Determining which minor arterials and other transportation projects should be considered “regionally significant” for the purposes of regional emissions analysis (in addition to those functionally classified as principal arterial or higher or fixed guideway systems or extensions that offer an alternative to regional highway travel), and which projects should be considered to have a significant change in design concept and scope from the transportation plan or TIP;

(III) Evaluating whether projects otherwise exempted from meeting the requirements of 40 CFR 93.126 and 93.127 should be treated as nonexempt in cases where potential adverse emissions impacts may exist for any reason;

(IV) Making a determination, required by 40 CFR 93.113(c)(1), whether past obstacles to implementation of TCMs which are behind the schedule established in the applicable implementation plan have been identified and are being overcome, and whether state and local agencies with influence over approvals or funding for TCMs are giving maximum priority to approval or funding for TCMs over other projects within their control. This process shall also consider whether delays in TCM implementation necessitate revisions to the applicable implementation plan to remove TCMs or substitute TCMs or other emission reduction measures;

(V) Notification of transportation plan or TIP revisions or amendments which merely add or delete exempt projects listed in 40 CFR 93.126 or 40 CFR 93.127. In any year when it is intended to prepare a transportation plan revision, TIP or TIP amendment that merely adds or deletes exempt projects, the MPO shall notify all consulting agencies in writing within seven (7) calendar days after taking action to approve such exempt projects. The notification shall include enough information about the exempt projects for the consulting agencies to determine their agreement or disagreement that the projects are exempt under 40 CFR 93.126 or 40 CFR 93.127;

(VI) Determining whether a project is considered to be included in the regional emissions analysis supporting the currently conforming TIP’s conformity determination,

even if the project is not strictly included in the TIP for the purposes of MPO project selection or endorsement, and whether the project’s design concept and scope have not changed significantly from those which were included in the regional emissions analysis, or in a manner which would significantly impact use of the facility;

(VII) Advising on the horizon years to be used for conformity determinations, in accordance with 40 CFR 93.106;

(VIII) Advising whether the modeling methods and functional relationships used in the model are consistent with acceptable professional practice and are reasonable for the purposes of emission estimation, as specified in 40 CFR 93.122;

(IX) Reviewing the models, databases and other requirements specified in 40 CFR 93.123 and advising if there are grounds for recommending to the EPA regional administrator that these models, databases or requirements are inappropriate. In such an event, the consulting agencies shall propose alternative methods to satisfy the requirements for conformity in accordance with 40 CFR 93.123;

(X) Determining what forecast of vehicle miles traveled to use in establishing or tracking motor vehicle emissions budgets, developing transportation plans, TIPs or applicable implementation plans, or in making conformity determinations;

(XI) Determining whether the project sponsor or the MPO has demonstrated that the requirements of 40 CFR 93.116–93.119 are satisfied without a particular mitigation or control measure, as provided in 40 CFR 93.125;

(XII) Developing a list of TCMs to be included in the applicable implementation plan; and

(XIII) Choosing conformity tests and methodologies for isolated rural nonattainment and maintenance areas, as required by 40 CFR 93.109(I)(2);

B. An interagency consultation process in accordance with paragraph (3)(A)2. involving the MPO, state and local air quality planning agencies and state and local transportation agencies for the following (except where otherwise provided, the MPO shall be responsible for initiating the consultation process):

(I) Evaluating events which will trigger new conformity determinations in addition to those triggering events established in 40 CFR 93.104. Any of the consulting agencies listed in subparagraph (3)(A)2.C. of this rule may request that the MPO initiate the interagency consultation process to evaluate an event which should, in the opinion of

the consulting agency, trigger a need for a conformity determination. The MPO shall initiate appropriate consultation with the other consulting agencies in response to such request, and shall notify the consulting agencies and the requesting agency in writing of its proposed action in response to this evaluation and consultation; and

(II) Consulting on the procedures to be followed in performing emissions analysis for transportation activities which cross the borders of the MPO’s region or the St. Louis nonattainment area or air basin;

C. Consultation on nonfederal projects.

(I) An interagency consultation process in accordance with paragraph (3)(A)2. of this rule involving the MPO, state and local air quality agencies and state and local transportation agencies shall be undertaken to ensure that plans for construction of regionally significant projects which are not FHWA/FTA projects (including projects for which alternative locations, design concept and scope, or the no-build option are still being considered), including all those by recipients of funds designated under Title 23 U.S.C. or Title 49 U.S.C., are disclosed to the MPO on a regular basis, and to assure that any changes to those plans are immediately disclosed.

(II) Notwithstanding the provisions of part (3)(A)3.A.(I) of this rule, it shall be the responsibility of the sponsor of any such regionally significant project, and of any agency that becomes aware of any such project through applications for approval, permitting or funding, to disclose such project to the MPO in a timely manner. Such disclosure shall be made not later than the first occasion on which any of the following actions is sought: any policy board action necessary for the project to proceed, the issuance of administrative permits for the facility or for construction of the facility, the execution of a contract to design or construct the facility, the execution of any indebtedness for the facility, any final action of a board, commission or administrator authorizing or directing employees to proceed with design, permitting or construction of the project, or the execution of any contract to design or construct or any approval needed for any facility that is dependent on the completion of the regionally significant project.

(III) Any such regionally significant project that has not been disclosed to the MPO in a timely manner shall be deemed not to be included in the regional emissions analysis supporting the conformity determination for the TIP and shall not be consistent with the motor vehicle emissions budget in the



applicable implementation plan, for the purposes of 40 CFR 93.121.

(IV) For the purposes of this section and of 40 CFR 93.121, the phrase adopt or approve of a regionally significant project means the first time any action necessary to authorizing a project occurs, such as any policy board action necessary for the project to proceed, the issuance of administrative permits for the facility or for construction of the facility, the execution of a contract to construct the facility, any final action of a board, commission or administrator authorizing or directing employees to proceed with construction of the project, or any written decision or authorization from the MPO that the project may be adopted or approved;

D. This interagency consultation process involving the agencies specified in subparagraph (3)(A)2.C. of this rule shall be undertaken for assuming the location and design concept and scope of projects which are disclosed to the MPO as required by subparagraph (3)(A)3.C. of this rule but whose sponsors have not yet decided these features in sufficient detail to perform the regional emissions analysis according to the requirements of 40 CFR 93.122. This process shall be initiated by the MPO;

E. The MPO shall undertake an ongoing process of consultation with the agencies listed in subparagraph (3)(A)2.C. of this rule for the design, schedule, and funding of research and data collection efforts and regional transportation model development by the MPO. This process shall, as far as practicable, be integrated with the cooperative development of the Unified Planning Work Program under 23 CFR section 450.314; and

F. This process insures providing final documents (including applicable implementation plans and implementation plan revisions) and supporting information to each agency after approval or adoption. This process is applicable to all agencies described in subparagraph (3)(A)1.A. of this rule, including federal agencies.

4. Record keeping and distribution of final documents.

A. It shall be the responsibility of the lead agency designated under subparagraph (3)(A)2.B. of this rule to maintain a complete and accurate record of all agreements, planning and programming processes, and consultation activities required under this rule and to make these documents available for public inspection upon request.

B. It shall be the affirmative responsibilities of the lead agency designated under subparagraph (3)(A)2.B. of this rule to provide to the other consulting agencies copies

of any final document or final decision subject to this rule within thirty (30) days of final action by the lead agency.

5. Resolving conflicts.

A. Conflicts among state agencies or between state agencies and the MPO regarding a final action on any conformity determination subject to this rule shall be escalated to the governor if the conflict cannot be resolved by the heads of the involved agencies. Such agencies shall make every effort to resolve any differences, including personal meetings between the heads of such agencies or their policy-level representatives, to the extent possible.

B. It shall be the responsibility of the state air quality agency to provide timely notification to the MPO and other consulting agencies of any proposed conformity determination where the agency identifies a potential conflict which, if unresolved, would, in the opinion of the agency, justify escalation to the governor. To the extent that consultation is not otherwise required under this rule, the state air quality agency shall consult with the other agencies listed in subparagraph (3)(A)2.C. of this rule in advance of escalating a potential conflict to the governor, and, if necessary, shall convene the meetings required under subparagraph (3)(A)5.A. of this rule.

C. When the MPO intends to make a final determination of conformity for a transportation plan, plan revision, TIP or TIP amendment, the MPO shall first notify the director of the state air quality agency of its intention and include in that notification a written response to any comments submitted by the state air quality agency on the proposed conformity determination. Upon receipt of such notification (including the written response to any comments submitted by the state air quality agency), the state air quality agency shall have fourteen (14) calendar days in which to appeal a proposed determination of conformity to the governor. If the Missouri air quality agency appeals to the governor of Missouri, the final conformity determination will automatically become contingent upon concurrence of the governor of Missouri. If the Illinois air quality agency presents an appeal to the governor of Missouri regarding a conflict involving both Illinois and Missouri agencies or the MPO, the final conformity determination will automatically become contingent upon concurrence of both the governor of Missouri and the governor of Illinois. The state air quality agency shall provide notice of any appeal under this subsection to the MPO, the state transportation agency and the Illinois air quality agency. If neither state air quality

agency appeals to the governor(s) within fourteen (14) days of receiving written notification, the MPO may proceed with the final conformity determination.

D. The governor may delegate the role of hearing any such appeal under this subsection and of deciding whether to concur in the conformity determination to another official or agency within the state, but not to the head or staff of the state air quality agency or any local air quality agency, the state department of transportation, a state transportation commission or board, any agency that has responsibility for only one (1) of these functions, or an MPO.

6. Interagency consultation procedures—public consultation procedures. Affected agencies making conformity determinations on transportation plans, programs, and projects shall establish a proactive public involvement process which provides opportunity for public review and comment by, at a minimum, providing reasonable public access to technical and policy information considered by the agency at the beginning of the public comment period and prior to taking formal action on a conformity determination for all transportation plans and TIPs, consistent with these requirements and those of 23 CFR 450.316(b). Any charges imposed for public inspection and copying should be consistent with the fee schedule contained in 49 CFR 7.43. In addition, these agencies must specifically address in writing all public comments that known plans for a regionally significant project which is not receiving FHWA or FTA funding or approval have not been properly reflected in the emissions analysis supporting a proposed conformity finding for a transportation plan or TIP. These agencies shall also provide opportunity for public involvement in conformity determinations for projects where otherwise required by law.

(B) Requirement to Fulfill Commitments to Control Measures (Federal Code Location: 40 CFR 93.122(a)(4)(ii)). Written commitments to control measures that are not included in the transportation plan and TIP must be obtained from the entity or entities with authority and ability to implement the control measures prior to a conformity determination and such commitments must be fulfilled.

(C) Requirement to Fulfill Commitments to Mitigation Measures (Federal Code Location: 40 CFR 93.125(c)). Written commitments to project-level mitigation measures which are conditions for making conformity determinations for a transportation plan or transportation improvement program must be obtained from the project sponsor prior to a positive conformity determination. Project sponsors committing to mitigation measures



to facilitate positive conformity determinations must comply with such commitments.

(4) Reports and Records Keeping. (*Not Applicable*)

(5) Test Methods. (*Not Applicable*)

AUTHORITY: section 643.050, RSMo 2000. Original rule filed Oct. 4, 1994, effective May 28, 1995. Amended: Filed May 1, 1996, effective Dec. 30, 1996. Amended: Filed June 15, 1998, effective Jan. 30, 1999. Amended: Filed Feb. 14, 2003, effective Sept. 30, 2003. Amended: Filed April 1, 2005, effective Dec. 30, 2005. Amended: Filed Oct. 24, 2006, effective July 30, 2007.*

**Original authority: 643.050, RSMo 1965, amended 1972, transferred from 203.050 in 1986, 1992, 1993, 1995.*

10 CSR 10-5.490 Municipal Solid Waste Landfills

PURPOSE: This rule requires municipal solid waste landfills to monitor their non-methane organic compound (NMOC) emissions. Landfills having NMOC emission rates above the regulatory cutoff shall design and install a gas collection and control system.

PUBLISHER'S NOTE: The secretary of state has determined that the publication of the entire text of the material which is incorporated by reference as a portion of this rule would be unduly cumbersome or expensive. Therefore, the material which is so incorporated is on file with the agency who filed this rule, and with the Office of the Secretary of State. Any interested person may view this material at either agency's headquarters or the same will be made available at the Office of the Secretary of State at a cost not to exceed actual cost of copy reproduction. The entire text of the rule is printed here. This note refers only to the incorporated by reference material.

(1) Applicability.

(A) This rule applies to all municipal solid waste (MSW) landfills located in the St. Louis ozone nonattainment area (Jefferson, Franklin, St. Charles, St. Louis Counties and St. Louis City) that have accepted waste any time since November 8, 1987, or have additional capacity available for future waste deposition.

(B) For purposes of obtaining an operating permit under Title V of the Clean Air Act, the owner or operator of an MSW landfill subject to this rule with a design capacity less than two and one-half (2.5) million mega-

grams or two and one-half (2.5) million cubic meters is not subject to the requirements to obtain an operating permit for the landfill under 40 *Code of Federal Regulations* (CFR) part 70 or 71, unless the landfill is otherwise subject to either 40 CFR part 70 or 71. For purposes of submitting a timely application for an operating permit under 40 CFR part 70 or 71, the owner or operator of an MSW landfill subject to the rule with a design capacity greater than or equal to two and one-half (2.5) million megagrams and two and one-half (2.5) million cubic meters on the effective date of EPA approval of the state's program under section 111(d) of the Clean Air Act (June 23, 1998), and not otherwise subject to either 40 CFR part 70 or 71, becomes subject to the requirements of section 70.5(a)(1)(i) or 71.5(a)(1)(i) of the Clean Air Act ninety (90) days after the effective date of such 111(d) program approval, even if the design capacity report is submitted earlier.

(C) When an MSW landfill subject to this rule is closed, the owner or operator is no longer subject to the requirement to maintain an operating permit under 40 CFR part 70 or 71 for the landfill if the landfill is not otherwise subject to the requirements of either 40 CFR part 70 or 71 and if either of the following conditions is met:

1. The landfill was never subject to a requirement for a control system under section (3) of this rule; or

2. The owner or operator meets the conditions for control system removal specified in section 60.752(b)(2)(v) of subpart WWW.

(2) Definitions.

(A) Active collection system—A gas collection system that uses gas mover equipment.

(B) Closed landfill—A landfill in which solid waste is no longer being placed, and in which no additional wastes will be placed without first filing a notification of modification as prescribed under 40 CFR part 60.7(a)(4) (incorporated by reference). Once a notification of modification has been filed, and additional solid waste is placed in the landfill, the landfill is no longer closed.

(C) Closure—That point in time when a landfill becomes a closed landfill.

(D) Design capacity—The maximum amount of solid waste the landfill can accept, as indicated in terms of volume or mass in the most recent operating or construction permit issued by the county or state agency responsible for regulating the landfill, plus any in-place waste not accounted for in the most recent permit. If the owner or operator chooses to convert the design capacity from

volume to mass or from mass to volume to demonstrate its design capacity is less than two and one-half (2.5) million megagrams or two and one-half (2.5) million cubic meters, the calculation must include a site-specific density, which must be recalculated annually.

(E) Enclosed combustor—An enclosed firebox which maintains a relatively constant limited peak temperature generally using a limited supply of combustion air. An enclosed flare is considered an enclosed combustor.

(F) Flare—An open combustor without enclosure or shroud.

(G) Gas mover equipment—The equipment (i.e., fan, blower, compressor) used to transport landfill gas through the header system.

(H) Household waste—Any solid waste (including garbage, trash, and sanitary waste in septic tanks) derived from households (including, but not limited to, single and multiple residences, hotels and motels, bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds, and day-use recreation areas).

(I) Lateral expansion—A horizontal expansion of the waste boundaries of an existing MSW landfill. A lateral expansion is not a modification unless it results in an increase in the design capacity of the landfill.

(J) Modification—An increase in the permitted volume design capacity of the landfill by either horizontal or vertical expansion based on its most recent permitted design capacity. Modification does not occur until the owner or operator commences construction on the horizontal or vertical expansion.

(K) Municipal solid waste landfill or MSW landfill—An entire disposal facility in a contiguous geographical space where household waste is placed in or on land. An MSW landfill may also receive other types of Resource Conservation and Recovery Act (RCRA) Subtitle D wastes such as commercial solid waste, nonhazardous sludge, conditionally exempt small quantity generator waste, and industrial solid waste. Portions of an MSW landfill may be separated by access roads. An MSW landfill may be publicly or privately owned. An MSW landfill may be a new MSW landfill, an existing MSW landfill or a lateral expansion.

(L) NMOC—Nonmethane organic compounds.

(M) Passive collection system—A gas collection system that solely uses positive pressure within the landfill to move the gas rather than using gas mover equipment.

(N) Solid waste—Any garbage, sludge from a wastewater treatment plant, water supply treatment plant, or air pollution control



facility and other discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities, but does not include solid or dissolved material in domestic sewage, or solid or dissolved materials in irrigation return flows or industrial discharges that are point sources subject to permits under 33 U.S.C. 1342 (incorporated by reference), or source, special nuclear, or by-product material as defined by the Atomic Energy Act of 1954, as amended (42 U.S.C. 2011 et seq., incorporated by reference).

(O) Sufficient density—Any number, spacing, and combination of collection system components, including vertical wells, horizontal collectors, and surface collectors, necessary to maintain emission and migration control as determined by measures of performance set forth in this rule.

(P) Sufficient extraction rate—A rate sufficient to maintain a negative pressure at all wellheads in the collection system without causing air infiltration, including any wellheads connected to the system as a result of expansion or excess surface emissions, for the life of the blower.

(3) General Provisions.

(A) Each owner or operator of a municipal solid waste (MSW) landfill having a design capacity less than one (1.0) million megagrams (one and one-tenth (1.1) million tons) by mass or one (1.0) million cubic meters (one and three-tenths (1.3) million cubic yards) by volume shall submit within ninety (90) days of the rule effective date an initial design capacity report, as described in section (7) of this rule, to the director. The landfill may calculate design capacity in either megagrams or cubic meters for comparison with the exemption values. Any density conversions shall be documented and submitted with the report. Submittal of the initial design capacity report shall fulfill the requirements of this rule, except as provided for in paragraphs (3)(A)1. and 2. of this rule.

1. The owner or operator shall submit an amended design capacity report to the director when there is any increase in the design capacity of the landfill. An increase in design capacity may result from an increase in the area or depth of the landfill, a change in the operating procedures of the landfill, or any other means.

2. If an increase in the design capacity of the landfill results in a revised maximum design capacity equal to or greater than one (1.0) million megagrams or one (1.0) million cubic meters, the owner or operator shall

comply with the provisions of subsection (3)(B) of this rule.

(B) Each owner or operator of an MSW landfill having a design capacity equal to or greater than one (1.0) million megagrams or one (1.0) million cubic meters shall submit within ninety (90) days of the rule effective date an initial design capacity report and an NMOC emission rate report, as described in sections (4) and (7) of this rule, to the director. The NMOC emission rate shall be recalculated annually except as provided for in subsection (7)(C) of this rule.

1. If the calculated NMOC emission rate is less than twenty-five (25) megagrams (twenty-seven and one-half (27.5) tons) per year, the owner or operator shall—

A. Submit an annual emission rate report to the director; and

B. Recalculate the NMOC emission rate annually until such time as the calculated NMOC emission rate is equal to or greater than twenty-five (25) megagrams, or the landfill closes.

(I) If the NMOC emission rate, upon recalculation, is equal to or greater than twenty-five (25) megagrams per year, the owner or operator shall install a collection and control system in compliance with paragraph (3)(B)2. of this rule.

(II) If the landfill is permanently closed, a closure notification shall be submitted to the director.

2. If the calculated NMOC emission rate is equal to or greater than twenty-five (25) megagrams per year, the owner or operator shall—

A. Submit a collection and control system design plan prepared by a professional engineer to the director within one (1) year of the NMOC emission rate report. Permit modification approval from the Missouri Department of Natural Resources' Solid Waste Management Program shall be required prior to construction of any gas collection system.

(I) The collection and control system shall meet the design requirements of subparagraph (3)(B)2.B. of this rule.

(II) The collection and control system design plan shall include any alternatives to the operation standards, test methods, procedures, compliance measures, monitoring, record keeping or reporting provisions of sections (4) through (7) of this rule proposed by the owner or operator.

(III) The collection and control system design plan shall either conform with specifications for active collection systems or include a demonstration to the director's satisfaction of the sufficiency of the alternate system.

(IV) The director will review the collection and control system design plan and either approve it, disapprove it, or request that additional information be submitted;

B. Install a collection and control system that captures the gas generated within the landfill as required by part (3)(B)2.B.(I) or (II) and subparagraph (3)(B)2.C. of this rule within thirty (30) months after the first annual report in which the emission rate equals or exceeds twenty-five (25) megagrams per year, unless Tier 2 or Tier 3 sampling under subsection (4)(C) or (4)(D) of this rule demonstrates that the emission rate is less than twenty-five (25) megagrams per year, as specified in paragraph (7)(D)1. or 2. of this rule.

(I) An active collection system shall—

(a) Be designed to handle the maximum expected gas flow rate from the entire area of the landfill that warrants control;

(b) Collect gas from each area, cell, or group of cells in the landfill in which the initial solid waste has been placed for a period of five (5) years or more, if active, or two (2) years or more, if closed or at final grade;

(c) Collect gas at a sufficient extraction rate; and

(d) Be designed to minimize off-site migration of subsurface gas.

(II) A passive collection system shall—

(a) Comply with the provisions of subparts (3)(B)2.B.(I)(a), (b), and (d) of this rule; and

(b) Be installed with liners on the bottom and all sides in all areas in which gas is to be collected;

(III) Each owner or operator of an MSW landfill gas collection and control system shall—

(a) Operate the collection system with negative pressure at each wellhead except under the following conditions:

I. A fire or increased well temperature. The owner or operator shall record instances when positive pressure occurs in efforts to avoid a fire. These records shall be submitted with the annual reports as provided in subsection (7)(H) of this rule;

II. Use of a geomembrane or synthetic cover. The owner or operator shall develop acceptable pressure limits in the design plan; and

III. A decommissioned well. A well may experience a static positive pressure after shut down to accommodate for

declining flows. All design changes shall be approved by the director;

(b) Operate each interior well-head in the collection system with a landfill gas temperature less than fifty-five degrees Celsius (55°C) and with either a nitrogen level less than twenty percent (20%) or an oxygen level less than five percent (5%). The owner or operator may establish a higher operating temperature, nitrogen, or oxygen value at a particular well. A higher operating value demonstration shall show supporting data that the elevated parameter does not cause fires or significantly inhibit anaerobic decomposition by killing methanogens.

I. The nitrogen level shall be determined using Method 3C of Appendix A, 40 CFR part 60, unless an alternative test method is established as allowed by part (3)(B)2.A.(II) of this rule.

II. Unless an alternative test method is established as allowed by part (3)(B)2.A.(II) of this rule, the oxygen shall be determined by an oxygen meter using Method 3A of Appendix A, 40 CFR part 60, except that—

a. The span shall be set so that the regulatory limit is between twenty and fifty percent (20 and 50%) of the span;

b. A data recorder is not required;

c. Only two (2) calibration gases are required, a zero and span, and ambient air may be used as the span;

d. A calibration error check is not required; and

e. The allowable sample bias, zero drift, and calibration drift are plus or minus ten percent ($\pm 10\%$);

(c) Operate the collection system so that the methane concentration is less than five hundred (500) parts per million above background concentration at the surface of the landfill. To determine if this level is exceeded, the owner or operator shall conduct surface testing around the perimeter of the collection area along a pattern that traverses the landfill at thirty (30)-meter intervals and where visual observations indicate elevated concentrations of landfill gas, such as distressed vegetation and cracks or seeps in the cover. The owner or operator may establish an alternative traversing pattern that ensures equivalent coverage. A surface monitoring design plan shall be developed that includes a topographical map with the monitoring route and the rationale for any site-specific deviations from the thirty (30)-meter intervals. Areas with steep slopes or other dangerous areas may be excluded from the surface testing;

(d) Operate the system such that all collected gases are vented to a control system designed and operated in compliance with subparagraph (3)(B)2.C. of this rule. In the event the collection or control system is inoperable, the gas mover system shall be shut down and all valves in the collection and control system contributing to venting of the gas to the atmosphere shall be closed within one (1) hour;

(e) Operate the control or treatment system at all times when the collected gas is routed to the system; and

(f) If monitoring demonstrates that the operational requirement in subpart (3)(B)2.B.(III)(a), (b), or (c) of this rule are not met, corrective action shall be taken as specified in subsection (5)(B) of this rule. If corrective actions are taken as specified in subsection (5)(B) of this rule, the monitored exceedance is not a violation of the operational requirements in this section;

C. Route all the collected gas to one or more of the following control systems:

(I) An open flare designed and operated in accordance with 40 CFR part 60.18 (incorporated by reference);

(II) A control system designed and operated to reduce NMOC by ninety-eight (98) weight-percent, or when an enclosed combustion device is used for control, to either reduce NMOC by ninety-eight (98) weight-percent, or reduce the outlet NMOC concentration to less than twenty (20) parts per million by volume, dry basis as hexane at three percent (3%) oxygen. The reduction efficiency or parts per million by volume shall be established by an initial performance test, to be completed no later than one hundred eighty (180) days after the initial startup of the approved control system; or

(III) A system that routes the collected gas to a treatment system that processes the collected gas for subsequent sale or use; and

D. The collection and control system may be capped or removed provided the following conditions are met:

(I) The landfill shall be no longer accepting solid waste and be permanently closed. A closure report shall be submitted to the director;

(II) The collection and control system has been in operation a minimum of fifteen (15) years; and

(III) The calculated NMOC gas produced by the landfill is less than twenty-five (25) megagrams per year on three (3) successive test dates. The test dates shall be no less than ninety (90) days apart and no more than one hundred eighty (180) days apart; and

E. The planning, awarding of contracts, and installation of MSW landfill air emission collection and control equipment capable of meeting the emission standards in subsection (3)(B) of this rule shall be accomplished within thirty (30) months after the date the initial NMOC emission rate report shows NMOC emissions equal or exceed twenty-five (25) megagrams per year.

(4) Test Methods.

(A) The owner or operator of a MSW landfill shall calculate the NMOC emission rate using either the equation provided in paragraph (4)(A)1. of this rule or the equation provided in paragraph (4)(A)2. of this rule. Both equations may be used if the actual year-to-year solid waste acceptance rate is known. The values to be used in both equations are 0.05 per year for k , 170 cubic meters per megagram for L_o , and 4,000 parts per million by volume as hexane for the C_{NMOC} unless site-specific values are calculated as described under Tier 1, Tier 2, and Tier 3 in subsections (4)(B), (4)(C), and (4)(D) of this rule. For landfills located in geographical areas with a thirty (30)-year annual average precipitation of less than twenty-five inches (25"), as measured at the nearest representative official meteorologic site, the k value to be used is 0.02 per year.

1. The mass of nondegradable solid waste may be subtracted from the total mass of solid waste in a particular section of the landfill when calculating the value for M_i if documentation of the nature and amount of such wastes is maintained. The following equation shall be used if the actual year-to-year solid waste acceptance rate is known:

$$M_{NMOC} = \sum_{i=1}^n 2kL_oM_i(e^{-kt_i}) (C_{NMOC}) (3.6 \times 10^{-9})$$

where,

M_{NMOC} = Total NMOC emission rate from the landfill, megagrams per year

k = methane generation rate constant, year⁻¹

L_o = methane generation potential, cubic meters per megagram solid waste

M_i = mass of solid waste in the i^{th} section, megagrams

t_i = age of the i^{th} section, years

C_{NMOC} = concentration of NMOC, parts per million by volume as hexane

3.6×10^{-9} = conversion factor

2. The mass of nondegradable solid waste may be subtracted from the average annual acceptance rate when calculating a value for R if documentation is provided. The



following equation shall be used if the actual year-to-year solid waste acceptance rate is unknown:

$$M_{\text{NMOC}} = \frac{2L_o R (e^{-kc} - e^{-kt}) (C_{\text{NMOC}})}{(3.6 \times 10^{-9})}$$

where,

M_{NMOC} = mass emission rate of NMOC, megagrams per year

L_o = methane generation potential, cubic meters per megagram solid waste

R = average annual acceptance rate, megagrams per year

k = methane generation rate constant, year⁻¹

c = time since closure, years (for active landfill $c = 0$ and $e^{-kc} = 1$)

t = age of landfill, years

C_{NMOC} = concentration of NMOC, parts per million by volume as hexane

3.6×10^{-9} = conversion factor

(B) Tier 1. The owner or operator shall compare the calculated NMOC mass emission rate to the standard of twenty-five (25) megagrams per year.

1. If the NMOC emission rate calculated in paragraph (4)(A)1. or 2. of this rule is less than twenty-five (25) megagrams per year, then the landfill owner shall submit an emission rate report and shall recalculate the NMOC mass emission rate annually as required under paragraph (3)(B)1. of this rule.

2. If the calculated NMOC emission rate is equal to or greater than twenty-five (25) megagrams per year, then the landfill owner shall either comply with paragraph (3)(B)2. of this rule, or determine a site-specific NMOC concentration and recalculate the NMOC emission rate using the procedures provided in subsection (4)(C) of this rule.

(C) Tier 2. The owner or operator shall determine the NMOC concentration using the following sampling procedure. The landfill owner or operator shall install at least two (2) sample probes per hectare of landfill surface that has retained solid waste for at least two (2) years. If the landfill is larger than twenty-five (25) hectares in area, only fifty (50) samples are required. The sample probes shall be located to avoid known areas of non-degradable solid waste. The owner or operator shall collect and analyze one (1) sample of landfill gas from each probe to determine the NMOC concentration using Method 25C or Method 18 of Appendix A, 40 CFR part 60. If composite sampling is used, equal volumes shall be taken from each sample probe. If more than the required number of samples

are taken, all samples shall be used in the analysis. The landfill owner or operator shall divide the NMOC concentration from Method 25C by six (6) to convert from C_{NMOC} as carbon to C_{NMOC} as hexane. The owner or operator shall recalculate the NMOC mass emission rate using the equations provided in paragraph (4)(A)1. or 2. of this rule and using the average NMOC concentration from the collected samples instead of the default value in the equation.

1. If the resulting NMOC mass emission rate is less than twenty-five (25) megagrams per year, the owner or operator shall submit an emission rate report as required under paragraph (3)(B)1. of this rule and retest the site-specific NMOC concentration every five (5) years using the methods specified in this section.

2. If the resulting mass emission rate calculated using the site-specific NMOC concentration is equal to or greater than twenty-five (25) megagrams per year, then the landfill owner or operator shall either comply with paragraph (3)(B)2. of this rule, or determine the site-specific methane generation rate constant and recalculate the NMOC emission rate using the site-specific methane generation rate using the procedure specified in subsection (4)(D) of this rule.

(D) Tier 3. The site-specific methane generation rate constant shall be determined using the procedures provided in Method 2E of Appendix A, 40 CFR part 60. The landfill owner or operator shall estimate the NMOC mass emission rate using the equations in paragraph (4)(A)1. or 2. of this rule using a site-specific methane generation rate constant k , and using the site-specific NMOC concentration as determined in subsection (4)(C) of this rule instead of the default values provided in subsection (4)(A) of this rule. The landfill owner or operator shall compare the resulting NMOC mass emission rate to the standard of twenty-five (25) megagrams per year.

1. If the NMOC mass emission rate is less than twenty-five (25) megagrams per year, then the owner or operator shall submit a periodic emission rate report as provided in paragraph (3)(B)1. of this rule and shall recalculate the NMOC mass emission rate annually. The calculation of the methane generation rate constant is performed only once, and the value obtained shall be used in all subsequent annual NMOC emission rate calculations.

2. If the NMOC mass emission rate as calculated using the site-specific methane generation rate and concentration of NMOC is equal to or greater than twenty-five (25) megagrams per year, the owner or operator

shall comply with paragraph (3)(B)2. of this rule.

(E) The owner or operator may use other methods to determine the NMOC concentration or a site-specific k as an alternative to the methods in subsections (4)(C) and (D) of this rule if the method has been approved in writing by the director.

(F) After the installation of a collection and control system in compliance with section (5) of this rule, the owner or operator shall calculate the NMOC emission rate for purposes of determining when the system can be removed as provided in subparagraph (3)(B)2.D. of this rule, using the following equation:

$$M_{\text{NMOC}} = 1.89 \times 10^{-3} Q_{\text{LFG}} C_{\text{NMOC}}$$

where,

M_{NMOC} = mass emission rate of NMOC, megagrams per year

Q_{LFG} = flow rate of landfill gas, cubic meters per minute

C_{NMOC} = NMOC concentration, parts per million by volume as hexane

1. The flow rate of landfill gas, Q_{LFG} , shall be determined by measuring the total landfill gas flow rate at the common header pipe that leads to the control device using a gas flow measuring device calibrated according to the provisions of section 4 of Method 2E of Appendix A, 40 CFR part 60.

2. The average NMOC concentration, C_{NMOC} , shall be determined by collecting and analyzing landfill gas sampled from the common header pipe before the gas moving or condensate removal equipment using the procedures in Method 25C or Method 18 of Appendix A, 40 CFR part 60. If using Method 18, the minimum list of compounds to be tested shall be those published in the most recent *Compilation of Air Pollutant Emission Factors* (AP-42). The sample location on the common header pipe shall be before any condensate removal or other gas refining units. The landfill owner or operator shall divide the NMOC concentration from Method 25C by six (6) to convert from C_{NMOC} as carbon to C_{NMOC} as hexane.

3. The owner or operator may use another method to determine landfill gas flow rate and NMOC concentration if the method has been approved by the director.

(G) The owner or operator of each MSW landfill shall estimate the NMOC emission rate for comparison to the Prevention of Significant Deterioration (PSD) major source and significance levels in section 51.166 or

52.21 of 40 CFR parts 51 and 52 using AP-42 or other approved measurement procedures. If a collection system, which complies with the provisions in paragraph (3)(B)2. of this rule is already installed, the owner or operator shall estimate the NMOC emission rate using the procedures provided in subsection (4)(F) of this rule.

(H) For the performance test required in part (3)(B)2.C.(II) of this rule, Method 25C or Method 18 shall be used to determine compliance with ninety-eight (98) weight-percent efficiency or the twenty parts per million by volume (20 ppmv) outlet concentration level, unless another method to demonstrate compliance has been approved by the director as provided by part (3)(B)2.A.(II) of this rule. If using Method 18, the minimum list of compounds to be tested shall be those published in the most recent *Compilation of Air Pollutant Emission Factors* (AP-42). The following equation shall be used to calculate efficiency:

$$\text{Control Efficiency} = \frac{(\text{NMOC}_{\text{in}} - \text{NMOC}_{\text{out}})}{(\text{NMOC}_{\text{in}})}$$

where,

NMOC_{in} = mass of NMOC entering control device

NMOC_{out} = mass of NMOC exiting control device

(5) Compliance.

(A) Except as provided for in part (3)(B)2.A.(II) of this rule, the following methods shall be used to determine whether the gas collection system is in compliance:

1. One of the following equations shall be used in calculating the maximum expected gas generation flow rate from the landfill as described in subpart (3)(B)2.B.(I)(a) of this rule. The k and L_o kinetic factors shall be those published in the most recent *Compilation of Air Pollutant Emission Factors* (AP-42) or other site-specific values demonstrated to be appropriate and approved in writing by the director. A value of no more than fifteen (15) years shall be used for the intended use period of the gas mover equipment. The active life of the landfill is the age of the landfill plus the estimated number of years until closure. After installation of a collection and control system, actual flow data shall be used to project the maximum flow rate.

A. For sites with unknown year-to-year solid waste acceptance rate:

$$Q_m = 2L_o R (e^{-kc} - e^{-kt})$$

where,

Q_m = maximum expected gas generation flow rate, cubic meters per year

L_o = methane generation potential, cubic meters per megagram solid waste
 R = average annual acceptance rate, megagrams per year
 k = methane generation rate constant, year⁻¹
 c = time since closure, years (for an active landfill c = 0 and e^{-kc} = 1)
 t = age of the landfill at equipment installation plus the time the owner or operator intends to use the gas mover equipment or active life of the landfill, whichever is less. If the equipment is installed after closure, t is the age of the landfill at installation, years

B. For sites with known year-to-year solid waste acceptance rate:

$$Q_m = \sum_{i=1}^n 2 k L_o M_i (e^{-kt_i})$$

where,

Q_m = maximum expected gas generation flow rate, cubic meters per year

k = methane generation rate constant, year⁻¹

L_o = methane generation potential, cubic meters per megagram solid waste

M_i = mass of solid waste in the ith section, megagrams

t_i = age of the ith section, years;

2. For the purposes of determining sufficient density of gas collectors for compliance with subpart (3)(B)2.B.(I)(b) of this rule, the owner or operator shall design a system of vertical wells, horizontal collectors, or other collection devices, satisfactory to the director, capable of controlling and extracting gas from all portions of the landfill;

3. For the purposes of demonstrating whether the gas collection system flow rate is sufficient to determine compliance with subpart (3)(B)2.B.(I)(c) of this rule, the owner or operator shall measure gauge pressure in the gas collection header at each individual well, monthly. If a positive pressure exists, action shall be initiated to correct the exceedance within five (5) calendar days. If negative pressure cannot be achieved without excess air infiltration within fifteen (15) calendar days of the first measurement, the gas collection system shall be expanded to correct the exceedance within one hundred twenty (120) days of the initial measurement of positive pressure. Compliance with this subsection will not be required during the first one hundred eighty (180) days after gas collection

system start-up. An alternative timeline for correcting the exceedance may be submitted to the director for approval; and

4. An owner or operator seeking to demonstrate compliance with subpart (3)(B)2.B.(I)(d) of this rule shall provide information satisfactory to the director demonstrating that off-site migration is being controlled.

(B) After installation of the collection system, the owner or operator shall monitor surface concentrations of methane along the entire perimeter of the collection area and in a serpentine pattern every thirty (30) meters for each collection area on a quarterly basis using an organic vapor analyzer, flame ionization detector, or other portable monitor meeting the specification provided in Method 21 of Appendix A, 40 CFR part 60, except that "methane" shall replace all references to VOC.

1. The background concentration shall be determined by moving the probe inlet upwind and downwind outside the boundary of the landfill at a distance of at least thirty (30) meters from the perimeter wells.

2. Surface emission monitoring shall be performed in accordance with section 4.3.1 of Method 21 of Appendix A, 40 CFR part 60, except that the probe inlet shall be placed within five to ten centimeters (5–10 cm) of the ground.

3. Any reading of five hundred parts per million (500 ppm) or more above background at any location shall be recorded as an exceedance.

A. The location of each exceedance shall be marked, and the location recorded.

B. Cover maintenance or adjustments to the vacuum of the adjacent wells to increase the gas collection in the vicinity of each exceedance shall be made within ten (10) calendar days of detecting the exceedance.

C. Any location at which an exceedance has occurred shall be rechecked within ten (10) calendar days of detecting the exceedance. The location shall be rechecked every ten (10) calendar days until either a reading below five hundred parts per million (500 ppm) is taken or there are three (3) exceedances.

D. Any location that initially exceeded five hundred parts per million (500 ppm) methane, but does not exceed five hundred parts per million (500 ppm) methane at the ten (10)-day recheck, shall be remonitored one (1) month from the initial exceedance. If the monthly remonitoring does not exceed five hundred parts per million (500 ppm) methane, then quarterly monitoring can be resumed.



E. When any location exceeds five hundred parts per million (500 ppm) methane three (3) times within a quarterly period, a new well or other collection device shall be installed within one hundred twenty (120) calendar days of the initial exceedance. An alternative remedy to the exceedance, such as upgrading the blower, header pipes or control device, and a corresponding time line for installation may be submitted to the director for written approval.

(6) Monitoring.

(A) Each owner or operator seeking to comply with part (3)(B)2.B.(1) of this rule for an active gas collection system shall install a sampling port and a thermometer or other temperature measuring device, or an access port for temperature measurements at each wellhead and—

1. Measure the gauge pressure in the gas collection header on a monthly basis;
2. Monitor the nitrogen or oxygen concentration in the landfill gas on a monthly basis; and
3. Monitor the temperature of the landfill gas on a monthly basis.

(B) Each owner or operator seeking to comply with subparagraph (3)(B)2.C. of this rule using an enclosed combustion device shall calibrate, maintain, and operate according to the manufacturer's specifications, the following equipment:

1. A temperature monitoring device equipped with a continuous recorder and having a minimum accuracy of plus or minus one percent ($\pm 1\%$) of the temperature being measured expressed in degrees Celsius or plus or minus one-half degree Celsius ($\pm 0.5^\circ\text{C}$), whichever is greater. A temperature monitoring device is not required for boilers or process heaters with maximum design heat input capacity greater than forty-four (44) megawatts; and

2. A device that records flow to or bypass of the control device. The owner or operator shall either—

A. Install, calibrate, and maintain a gas flow rate measuring device that shall record the flow to the control device at least every fifteen (15) minutes; or

B. Secure the bypass line valve in the closed position with a car-seal or a lock-and-key type configuration.

(C) Each owner or operator seeking to comply with subparagraph (3)(B)2.C. of this rule using an open flare shall install, calibrate, maintain, and operate according to the manufacturer's specifications the following equipment:

1. A heat sensing device, such as an ultraviolet beam sensor or thermocouple, at

the pilot light or the flame itself to indicate the continuous presence of a flame; and

2. A device that records flow to or bypass of the flare. The owner or operator shall either—

A. Install, calibrate, and maintain a gas flow rate measuring device that shall record the flow to the control device at least every fifteen (15) minutes; or

B. Secure the bypass line valve in the closed position with a car-seal or a lock-and-key type configuration.

(D) Each owner or operator seeking to comply with subparagraph (3)(B)2.C. of this rule using a device other than an open flare or an enclosed combustion device shall provide information satisfactory to the director describing the operation of the control device, the operating parameters that would indicate proper performance, and appropriate monitoring procedures. The director shall review the information and either approve it, or request that additional information be submitted.

(E) Each owner or operator seeking to comply with subsection (5)(B) of this rule shall monitor surface concentrations of methane according to the instrument specifications. Any closed landfill that has no exceedances of the five hundred parts per million (500 ppm) standard in three (3) consecutive quarterly monitoring periods may change to annual monitoring. Any exceedance of the five hundred parts per million (500 ppm) standard recorded during the annual monitoring shall return the monitoring frequency to quarterly testing.

(7) Reporting and Record Keeping.

(A) The initial design capacity report shall be submitted ninety (90) days from the rule effective date and contain the following information:

1. A map or plot of the landfill, providing the size and location of the landfill, and identifying all areas where solid waste may be landfilled according to the provision of the state, local, tribal, or RCRA construction or operating permit; and

2. The maximum design capacity of the landfill. Where the maximum design capacity is specified in the state or local construction or RCRA permit, a copy of the permit specifying the maximum design capacity may be submitted as part of the report. If the maximum design capacity of the landfill is not specified in the permit, the maximum design capacity shall be calculated using good engineering practices. The calculations shall be provided, along with such parameters as depth of solid waste, solid waste acceptance rate, and compaction practices as part of the

report. The director may request other information as may be necessary to verify the maximum design capacity of the landfill.

(B) An amended design capacity report shall be submitted to the director providing notification of any increase in the design capacity of the landfill. The amended design capacity report shall be submitted within ninety (90) days of the issuance of an amended construction or operating permit.

(C) The initial NMOC emission rate report shall be submitted within ninety (90) days of the rule effective date and annually thereafter. The initial NMOC emission rate report may be combined with the initial design capacity report required in subsection (7)(A) of this rule. The NMOC emission rate report shall include all the data, calculations, sample reports and measurements used to estimate the annual emission rate. An annual emission rate report will not be required for landfills after installation of a collection and control system.

(D) Each owner or operator subject to subparagraph (3)(B)2.A. of this rule shall submit a collection and control system design plan to the director within one (1) year of the NMOC emission rate report, required under subsection (7)(C) of this rule, in which the emission rate exceeds twenty-five (25) megagrams per year, except as follows:

1. If the owner or operator elects to recalculate the NMOC emission rate after Tier 2 NMOC sampling and analysis as provided under subsection (4)(C) of this rule and the resulting rate is less than twenty-five (25) megagrams per year, annual periodic reporting shall be resumed, using the Tier 2 determined site-specific NMOC concentration, until the calculated emission rate is equal to or greater than twenty-five (25) megagrams per year or the landfill is closed. The revised NMOC emission rate report, with the recalculated emission rate based on NMOC sampling and analysis, shall be submitted within one hundred eighty (180) days of the first calculated exceedance of twenty-five (25) megagrams per year; and

2. If the owner or operator elects to recalculate the NMOC emission rate after determining a site-specific methane generation rate constant (k), as provided in Tier 3 in subsection (4)(D) of this rule and the resulting NMOC emission rate is less than twenty-five (25) megagrams per year, annual periodic reporting shall be resumed. The resulting site-specific methane generation rate constant (k) shall be used in the emission rate calculation until such time as the emissions rate calculation results in an exceedance. The revised NMOC emission rate report, with the site-specific methane generation rate constant (k)



shall be submitted to the director within one (1) year of the first calculated emission rate exceeding twenty-five (25) megagrams per year.

(E) Each owner or operator of a controlled landfill shall submit a closure report to the director within thirty (30) days of the date the landfill ceases accepting solid waste. The director may request additional information as may be necessary to verify that permanent closure has taken place.

(F) Each owner or operator of a controlled landfill shall submit an equipment removal report to the director thirty (30) days prior to removal or cessation of operation of the control equipment. The report shall contain all of the following items:

1. A copy of the closure report;
2. A copy of the initial performance test report demonstrating that the fifteen (15)-year minimum control period has expired; and
3. Dated copies of three (3) successive NMOC emission rate reports demonstrating that the landfill is no longer producing twenty-five (25) megagrams or greater of NMOC per year.

(G) Each owner or operator of an MSW landfill subject to paragraph (3)(B)2. of this rule shall keep up-to-date, readily accessible on-site records of the following:

1. Maximum design capacity;
2. Control equipment compliance monitoring;
3. A plot map showing each existing and planned collector in the system and providing a unique identification location label for each collector; and
4. Collection and control system exceedances of the operation standards and the location of each exceedance.

(H) Each owner or operator of a landfill seeking to comply with paragraph (3)(B)2. of this rule using an active collection system designed in accordance with subparagraph (3)(B)2.B. of this rule shall submit to the director annual reports of the recorded information in paragraphs (7)(H)1.-6. of this rule. The initial annual report shall be submitted within one hundred and eighty (180) days of installation and start-up of the collection and control system, and shall include an initial performance test report.

1. Value and length of time for exceedance of applicable parameters monitored under subsections (6)(A), (B), (C), and (D) of this rule.

2. Description and duration of all periods when the gas stream is diverted from the control device through a bypass line or the indication of bypass flow.

3. Description and duration of all periods when the control device was not operating for a period exceeding one (1) hour and length of time the control device was not operating.

4. All periods when the collection system was not operating in excess of five (5) days.

5. The location of each exceedance of the five hundred parts per million (500 ppm) methane concentration as provided in subpart (3)(B)2.B.(III)(c) of this rule and the concentration recorded at each location for which an exceedance was recorded in the previous month.

6. The date of installation and the location of each well or collection system expansion added.

(I) Each owner or operator seeking to comply with subparagraph (3)(B)2.A. of this rule shall include the following information with the initial performance test report:

1. A diagram of the collection system showing collection system positioning including all wells, horizontal collectors, surface collectors, or other gas extraction devices, including the locations of any areas excluded from collection and the proposed sites for the future collection system expansion;

2. The data upon which the sufficient density of wells, horizontal collectors, surface collectors, or other gas extraction devices and the gas mover equipment sizing are based;

3. The documentation of the presence of asbestos or nondegradable material for each area from which collection wells have been excluded based on the presence of asbestos or nondegradable material;

4. The sum of the gas generation flow rates for all areas from which collection wells have been excluded based on nonproductivity and the calculations of gas generation flow rate for each excluded area;

5. The provisions for increasing gas mover equipment capacity with increased gas generation flow rate, if the present gas mover equipment is inadequate to move the maximum flow rate expected over the life of the landfill; and

6. The provisions for the control of off-site migration.

(J) Landfill owners or operators who convert design capacity from volume to mass or mass to volume to demonstrate that landfill design capacity is less than one (1.0) million megagrams or one (1.0) million cubic meters, as provided in the definition of design capacity, shall keep readily accessible, on-site records of the annual recalculation of site-specific density, design capacity, and the supporting documentation. Off-site records may

be maintained if they are retrievable within four (4) hours of request. Either paper copy or electronic formats are acceptable.

AUTHORITY: section 643.050, RSMo Supp. 1998.* Original rule filed May 15, 1996, effective Dec. 30, 1996. Amended: Filed Oct. 7, 1999, effective July 30, 2000.

*Original authority: 643.050, RSMo 1965, amended 1972, transferred from 203.050 in 1986, 1992, 1993, 1995.

10 CSR 10-5.500 Control of Emissions From Volatile Organic Liquid Storage

PURPOSE: This rule limits the volatile organic compound (VOC) emissions from installations with volatile organic liquid storage vessels by incorporating reasonably available control technology (RACT) as required by the Clean Air Act Amendments (CAAA) of 1990.

PUBLISHER'S NOTE: The secretary of state has determined that the publication of the entire text of the material which is incorporated by reference as a portion of this rule would be unduly cumbersome or expensive. Therefore, the material which is so incorporated is on file with the agency who filed this rule, and with the Office of the Secretary of State. Any interested person may view this material at either agency's headquarters or the same will be made available at the Office of the Secretary of State at a cost not to exceed actual cost of copy reproduction. The entire text of the rule is printed here. This note refers only to the incorporated by reference material.

(1) Applicability.

(A) This rule shall apply throughout the City of St. Louis and St. Charles, St. Louis, Jefferson and Franklin Counties.

(B) The provisions of this rule shall apply to all storage containers of volatile organic liquid (VOL) with a maximum true vapor pressure of one-half pound per square inch (0.5 psia) or greater in any stationary tank, reservoir or other container of forty thousand (40,000) gallon capacity or greater, except to vessels as follows:

1. Vessels with a capacity greater than or equal to forty thousand (40,000) gallons storing a liquid with a maximum true vapor pressure of less than one-half (0.5) psia;

2. Vessels permanently attached to mobile vehicles such as trucks, railcars, barges or ships;

3. Vessels used to store beverage alcohol;



4. Pressure vessels designed to operate in excess of twenty-nine and four-tenths (29.4) psia and without emissions to the atmosphere;

5. Vessels of coke oven by-product plants;

6. Vessels used only to store or transfer petroleum liquids and that are subject to the requirements of 10 CSR 10-5.220; or

7. Vessels used to store volatile organic liquids that are subject to or exempt from the requirements of 40 CFR parts 60, 61 or 63.

(2) Definitions.

(A) Beverage alcohol—Consumable products and their process intermediates and by-products, consisting of ethanol or mixtures of ethanol and non-volatile organic liquids.

(B) Liquid-mounted seal—A foam- or liquid-filled seal mounted in contact with the liquid between the wall of the storage vessel and the floating roof continuously around the circumference of the tank.

(C) Mechanical shoe seal—A metal sheet held vertically against the wall of the storage vessel by springs or weighted levers and is connected by braces to the floating roof. A flexible coated fabric (envelope) spans the annular space between the metal sheet and the floating roof.

(D) Volatile organic liquid—Any substance which is a liquid at storage conditions and which contains one or more volatile organic compounds as defined in 10 CSR 10-6.020.

(E) Definitions of certain terms specified in this rule, other than those specified in this rule section, may be found in 10 CSR 10-6.020.

(3) General Provisions.

(A) Every owner or operator storing VOL in a vessel of forty thousand (40,000) gallons or greater with a maximum true vapor pressure greater than or equal to one-half (0.5) psia but less than three-quarters (0.75) psia shall be subject to the record-keeping requirements of subsection (4)(G) and the monitoring requirements of subsection (4)(H). Furthermore, every owner or operator storing VOL in a vessel of forty thousand (40,000) gallons or greater with a maximum true vapor pressure equal to three-quarters (0.75) psia but less than eleven and one-tenth (11.1) psia shall reduce VOC emissions from storage tanks, reservoirs or other containers as follows:

1. Each fixed roof tank shall be equipped with an internal floating roof that meets the following specifications or shall be equipped with a vapor control system that meets the specifications contained in paragraph (3)(A)4. of this rule:

A. The internal floating roof shall rest or float on the liquid surface but not necessarily in complete contact with it inside a storage vessel that has a fixed roof. The internal floating roof shall be floating on the liquid surface at all times, except during initial fill and during those intervals when the storage vessel is completely emptied and subsequently refilled. When the roof is resting on the leg supports, the process of filling, emptying or refilling shall be continuous and shall be accomplished as rapidly as possible;

B. Each internal floating roof shall be equipped with one of the following closure devices between the wall of the storage vessel and the edge of the internal floating roof:

(I) A liquid-mounted seal;

(II) Two (2) seals mounted one above the other so that each forms a continuous closure that completely covers the space between the wall of the storage vessel and the edge of the internal floating roof. The lower seal may be vapor-mounted, but both must be continuous; or

(III) A mechanical shoe seal;

C. Each opening in a non-contact internal floating roof except for automatic bleeder vents such as vacuum breaker vents and the rim space vents shall provide a projection below the liquid surface;

D. Each opening in the internal floating roof except for leg sleeves, automatic bleeder vents, rim space vents, column wells, ladder wells, sample wells, and stub drains shall be equipped with a cover or lid which is to be maintained in a closed position at all times with no visible gap except when the device is in actual use. The cover or lid shall be equipped with a gasket. Covers on each access hatch and automatic gauge float well shall be bolted except when they are in use;

E. Automatic bleeder vents shall be equipped with a gasket and shall be closed at all times when the roof is floating except when the roof is being floated off or is being landed on the roof leg supports;

F. Rim space vents shall be equipped with a gasket and shall be set to open only when the internal floating roof is not floating or at the manufacturer's recommended setting;

G. Each penetration of the internal floating roof for the purpose of sampling shall be a sample well. The sample well shall have a slit fabric cover that covers at least ninety percent (90%) of the opening; and

H. Each penetration of the internal floating roof that allows for passage of a ladder shall have a gasketed sliding cover;

2. During the next scheduled tank cleaning or before March 15, 2004, whichever comes first, each internal floating roof tank

shall meet the specifications set forth in subparagraphs (3)(A)1.A. through (3)(A)1.H. of this rule;

3. Each external floating roof tank shall meet the following specifications:

A. Each external floating roof shall be equipped with a closure device between the wall of the storage vessel and the roof edge. The closure device shall consist of two (2) seals, one above the other. The lower seal is referred to as the primary seal, and the upper seal is referred to as the secondary seal.

(I) Except as provided in subparagraph (3)(C)2.D. of this rule, the primary seal shall completely cover the annular space between the edge of the floating roof and tank wall and shall be either a liquid-mounted seal or a mechanical shoe seal.

(II) The secondary seal shall completely cover the annular space between the external floating roof and the wall of the storage vessel in a continuous fashion except as allowed in subparagraph (3)(C)2.D. of this rule.

(III) The tank shall be equipped with the closure device after the next scheduled tank cleaning, but no later than March 15, 2004;

B. Except for automatic bleeder vents and rim space vents, each opening in a non-contact external floating roof shall provide a projection below the liquid surface. Except for automatic bleeder vents, rim space vents, roof drains, and leg sleeves, each opening in the roof shall be equipped with a gasketed cover, seal or lid that is to be maintained in a closed position at all times with no visible gap except when the device is in actual use. Automatic bleeder vents shall be closed at all times when the roof is floating except when the roof is being floated off or is being landed on the roof leg supports. Rim vents shall be set open when the roof is being floated off the roof leg supports or at the manufacturer's recommended setting. Automatic bleeder vents and rim space vents shall be gasketed. Each emergency roof drain shall include a slotted membrane fabric cover that covers at least ninety percent (90%) of the area of the opening; and

C. The roof shall be floating off the roof leg supports on the liquid at all times except when the tank is completely emptied and subsequently refilled. The process of filling, emptying or refilling when the roof is resting on the leg supports shall be continuous and shall be accomplished as rapidly as possible;

4. After the next tank cleaning but no later than March 15, 2004, a closed vent system and control device respectively shall meet the following specifications:



A. The closed vent system shall be designed to collect all VOC vapors and gases discharged from the storage vessel and operated with no detectable emissions as indicated by an instrument reading of less than five hundred parts per million (500 ppm) above background and visual inspections, as determined by the methods specified in 40 CFR 60.485(c), which is hereby incorporated by reference; and

B. The control device shall be designed and operated to reduce inlet VOC emissions by ninety percent (90%) or greater. If a flare is used as the control device, it shall meet the specifications described in the general control device requirements of 40 CFR 60.18, which is hereby incorporated by reference; or

5. An alternative emission control plan equivalent to the requirements of paragraphs (3)(A)1., (3)(A)2., (3)(A)3. or (3)(A)4. of this rule that has been approved by the department and the United States Environmental Protection Agency in a federally enforceable permit.

(B) After the next tank cleaning but no later than March 15, 2004, the owner or operator of each storage vessel with a design capacity equal to or greater than forty thousand (40,000) gallons which contains VOL that, as stored, has a maximum true vapor pressure greater than or equal to eleven and one-tenth (11.1) psia shall equip each storage vessel with a closed vent system and control device as specified in paragraph (3)(A)4. of this rule.

(C) Testing Requirements. The owner or operator of each storage vessel specified in section (1) of this rule shall comply with the requirements of paragraph (3)(C)1., (3)(C)2. or (3)(C)3. of this rule. The applicable requirements for a particular storage vessel depends on the control equipment installed to meet the requirements of this rule.

1. After installing the control equipment necessary for the source to comply with the requirements of paragraphs (3)(A)1. and (3)(A)2. of this rule for permanently affixed roofs and internal floating roofs, each owner or operator shall—

A. Visually inspect the internal floating roof, the primary seal, and the secondary seal (if one is in service) prior to filling the storage vessel with VOL. If there are holes, tears or other openings in the primary seal, the secondary seal or the seal fabric or defects in the internal floating roof, or both, the owner or operator shall repair the items before filling the storage vessel;

B. For vessels equipped with a liquid-mounted or mechanical shoe primary seal, visually inspect the internal floating roof and

the primary seal or the secondary seal (if one is in service) through manholes and roof hatches on the fixed roof at least once every twelve (12) months after initial fill. If the internal floating roof is not resting on the surface of the VOL inside the storage vessel, or if there is liquid accumulated on the roof, or if the seal is detached, or if there are holes or tears in the seal fabric, the owner or operator shall repair the items or empty and remove the storage vessel from service within forty-five (45) days. If a failure that is detected during inspections required in this rule subsection cannot be repaired within forty-five (45) days and if the vessel cannot be emptied within forty-five (45) days, the owner or operator may request a thirty (30)-day extension from the department in the inspection report required in paragraph (4)(A)2. of this rule. Such a request for an extension must document that alternate storage capacity is unavailable and specify a schedule of actions the owner or operator will take that will assure that the control equipment will be repaired or the vessel will be emptied within thirty (30) days;

C. For vessels equipped with both primary and secondary seals—

(I) Visually inspect the vessel as specified in subparagraph (3)(C)1.D. of this rule at least every five (5) years; or

(II) Visually inspect the vessel as specified in subparagraph (3)(C)1.B. of this rule;

D. Visually inspect the internal floating roof, the primary seal, the secondary seal if one is in service, gaskets, slotted membranes, and sleeve seals if any each time the storage vessel is emptied and degassed. If the internal floating roof has defects, the primary seal has holes, tears or other openings in the seal, or if the seal fabric or the secondary seal has holes, tears or other openings in the seal, or if the seal fabric or the gaskets no longer close off the liquid surfaces from the atmosphere, or if the slotted membrane has more than ten percent (10%) open area, the owner or operator shall repair the items as necessary so that none of the conditions specified in this rule subsection exist before refilling the storage vessel with VOL. In no event shall inspections conducted in accordance with this provision occur at intervals greater than ten (10) years in the case of vessels subject to the annual visual inspection as specified in subparagraph (3)(C)1.B. and part (3)(C)1.C.(II) of this rule and at intervals no greater than five (5) years in the case of vessels specified in part (3)(C)1.C.(I) of this rule; and

E. Notify the department in writing at least thirty (30) days prior to the filling or

refilling of each storage vessel for which an inspection is required by subparagraphs (3)(C)1.A. and (3)(C)1.D. of this rule to afford the department the opportunity to have an observer present. If the inspection required by subparagraph (3)(C)1.D. of this rule is not planned and the owner or operator could not have known about the inspection thirty (30) days in advance of refilling the tank, the owner or operator shall notify the department at least seven (7) days prior to the refilling of the storage vessel. Notification shall be made by telephone immediately followed by written documentation demonstrating why the inspection was unplanned. Alternatively, this notification including the written documentation may be made in writing and sent by express mail so that it is received by the department at least seven (7) days prior to the refilling.

2. The owner or operator of external floating roof tanks shall—

A. Determine the gap areas and maximum gap widths between the primary seal and the wall of the storage vessel and between the secondary seal and the wall of the storage vessel.

(I) Measurements of gaps between the tank wall and the primary seal (seal gaps) shall be performed during the hydrostatic testing of the vessel or within sixty (60) days after the initial fill with VOL and at least once every five (5) years thereafter.

(II) Measurements of gaps between the tank wall and the secondary seal shall be performed within sixty (60) days after the initial fill with VOL and at least once per year thereafter.

(III) If any source ceases to store VOL for a period of one (1) year or more, subsequent introduction of VOL into the vessel shall be considered an initial fill for the purposes of parts (3)(C)2.A.(I) and (3)(C)2.A.(II) of this rule;

B. Determine gap widths and areas in the primary and secondary seals individually according to the following procedures:

(I) Measure seal gaps, if any, at one or more floating roof levels when the roof is floating off the roof leg supports;

(II) Measure seal gaps around the entire circumference of the tank in each place where a one-eighth inch (1/8") in diameter uniform probe passes freely without forcing or binding against seal between the seal and the wall of the storage vessel and measure the circumferential distance of each such location; and

(III) Determine the total surface area of each gap described in part (3)(C)2.B.(II) of this rule by using probes of various widths to measure accurately the



actual distance from the tank wall to the seal and multiplying each such width by its respective circumferential distance;

C. Add the gap surface area of each gap location for the primary seal and the secondary seal individually and divide the sum for each by the nominal diameter of the tank and compare each ratio to the respective standards in subparagraph (3)(C)2.D. of this rule;

D. Make necessary repairs or empty the storage vessel within forty-five (45) days after identification in any inspection for seals not meeting the requirements listed in parts (3)(C)2.D.(I) and (3)(C)2.D.(II).

(I) The accumulated area of gaps between the tank wall and the mechanical shoe or liquid-mounted primary seal shall not exceed one inch (1.0") per foot of tank diameter, and the width of any portion of any gap shall not exceed one and one-half inches (1.5"). There shall be no holes, tears or other openings in the shoe, seal fabric or seal envelope.

(II) The secondary seal shall meet the following requirements:

(a) Be installed above the primary seal so that it completely covers the space between the roof edge and the tank wall except as provided in part (3)(C)2.B.(III) of this rule;

(b) The accumulated area of gaps between the tank wall and the secondary seal used in combination with a metallic shoe or liquid-mounted primary seal shall not exceed one inch (1.0") per foot of tank diameter, and the width of any portion of any gap shall not exceed one-half inch (0.5"). There shall be no gaps between the tank wall and the secondary seal when used in combination with vapor mounted primary seal; and

(c) There shall be no holes, tears or other openings in the seal or seal fabric.

(III) If a failure that is detected during inspections required in subparagraph (3)(C)2.A. of this rule cannot be repaired within forty-five (45) days and if the vessel cannot be emptied within forty-five (45) days, the owner or operator may request a thirty (30)-day extension from the department in the inspection report required in subparagraph (3)(C)2.D. of this rule. Such extension request must include a demonstration of unavailability of alternate storage capacity and a specification of a schedule that will assure that the control equipment will be repaired or the vessel will be emptied as soon as possible;

E. Notify the department thirty (30) days in advance of any gap measurements required by subparagraph (3)(C)2.A. of this

rule to afford the department the opportunity to have an observer present; and

F. Visually inspect the external floating roof, the primary seal, secondary seal, and fittings each time the vessel is emptied and degassed.

(I) If the external floating roof has defects, if the primary seal has holes, tears or other openings in the seal or the seal fabric, or if the secondary seal has holes, tears or other openings in the seal or the seal fabric, the owner or operator shall repair the items as necessary so that none of the conditions specified in this rule subsection exist before filling or refilling the storage vessel with VOL.

(II) For all the inspections required by subparagraph (3)(C)2.F. of this rule, the owner or operator shall notify the department in writing at least thirty (30) days prior to the filling or refilling of each storage vessel to afford the department the opportunity to inspect the storage vessel prior to refilling. If the inspection required by subparagraph (3)(C)2.F. of this rule is not planned and the owner or operator could not have known about the inspection thirty (30) days in advance of refilling the tank, the owner or operator shall notify the department at least seven (7) days prior to the refilling of the storage vessel. Notification shall be made by telephone immediately followed by written documentation demonstrating why the inspection was unplanned. Alternatively, this notification including the written documentation may be sent by express mail so that it is received by the department at least seven (7) days prior to the refilling.

3. The owner or operator of each source that is equipped with a closed vent system and a flare to meet the requirements of paragraph (3)(A)4. of this rule shall meet the requirements specified in the general control device requirements of 40 CFR 60.18(e) and (f), which are hereby incorporated by reference.

(4) Reporting and Record Keeping. The owner or operator shall maintain all records required by this rule section, except for the records required by subsection (4)(F) of this rule, on-site for at least five (5) years. The records required by subsection (4)(F) of this rule shall be kept on-site for the life of the source. The records required by this rule shall be made available to the department immediately upon request.

(A) After installing control equipment in accordance with paragraph (3)(A)1. or (3)(A)2. of this rule for fixed roofs and internal floating roofs, the owner or operator shall—

1. Keep a record of each inspection performed as required by subparagraphs (3)(C)1.A., (3)(C)1.B., (3)(C)1.C., and (3)(C)1.D. of this rule. Each record shall identify the storage vessel on which the inspection was performed and shall contain the date the vessel was inspected and the observed condition of each component of the control equipment including seals, internal floating, and fittings;

2. If any of the conditions described in subparagraph (3)(C)1.B. of this rule are detected during the annual visual inspection required by subparagraph (3)(C)1.B. of this rule, report to the department within twenty (20) days after the inspection the identity of the storage vessel, the nature of the defects, and the date the storage vessel was emptied or the nature of and date the repair was made; and

3. After each inspection required by subparagraph (3)(C)1.C. of this rule where tears or holes in the seal or seal fabric, or defects in the internal floating roof, or other control equipment defects listed in part (3)(C)1.C.(II) of this rule are discovered, report to the department within twenty (20) days after the inspection the identity of the storage vessel and the reason it did not meet the specifications of paragraph (3)(A)1., (3)(A)2. or (3)(C)1. of this rule, and list each repair made.

(B) After installing control equipment in accordance with paragraph (3)(A)3. of this rule for external floating roofs, the owner or operator shall—

1. Within sixty (60) days after performing the seal gap measurements required by subparagraph (3)(C)2.A. of this rule, furnish the department with a report that contains the date of measurement, the raw data obtained in the measurement and the calculations of this rule described in subparagraphs (3)(C)2.B. and (3)(C)2.C. of this rule;

2. Maintain records of each gap measurement performed as required by subparagraph (3)(C)2.B. of this rule. Such records shall identify the storage vessel in which the measurement was performed and shall contain the date of measurement, the raw data obtained in the measurement and the calculations of this rule described in subparagraphs (3)(C)2.B. and (3)(C)2.C. of this rule; and

3. After each seal gap measurement that detects gaps exceeding the limitations specified by subparagraph (3)(C)2.D. of this rule, submit a report to the department within twenty (20) days after the inspection identifying the vessel and containing the information specified in paragraph (4)(B)1. of this rule and the date the vessel was emptied or the repairs were made and the date of the repair.



(C) After installing control equipment to comply with subsection (3)(C) of this rule for closed vent systems and control device other than a flare, the owner or operator shall maintain a record of the measured values of the parameters monitored in accordance with the requirements of this rule.

(D) After installing a closed vent system and flare to comply with subsection (3)(C) of this rule, the owner or operator shall—

1. Provide the department with a report containing the measurements required by 40 CFR 60.18(f)(1), (2), (3), (4), (5), and (6) within six (6) months after the initial start-up date;

2. Maintain records of all periods of operation during which the flare pilot flame is absent; and

3. Report semiannually all periods recorded under 40 CFR 60.115b(d)(2), which is hereby incorporated by reference, in which the pilot flame was absent.

(E) The owner or operator shall maintain records of tank cleaning operations to document the date when control devices are required.

(F) The owner or operator of each storage vessel specified in section (1) of this rule shall maintain readily accessible records of the dimensions of the storage vessel and an analysis of the capacity of the storage vessel. Each storage vessel with a design capacity less than forty thousand (40,000) gallons is subject to no provision of this rule other than those required by maintaining readily accessible records of the dimensions of the storage vessel and analysis of the capacity of the storage vessel.

(G) Except as provided in paragraphs (4)(H)3. and (4)(H)4. of this rule, the owner or operator of each storage vessel subject to the requirements in subsection (3)(A) or (3)(B) of this rule with a design capacity greater than or equal to forty thousand (40,000) gallons storing a liquid with a maximum true vapor pressure greater than or equal to one-half (0.5) psia but less than three-quarters (0.75) psia shall maintain a record of the VOL storage, the period of storage, and the maximum true vapor pressure of the VOL during the respective storage period.

(H) Monitoring Requirements.

1. Except as provided in paragraph (4)(H)4. of this rule, the owner or operator of each storage vessel with a design capacity greater than or equal to forty thousand (40,000) gallons storing a liquid with a maximum true vapor pressure that is normally less than three-quarters (0.75) psia shall notify the department within thirty (30) days when the maximum true vapor pressure of the liquid exceeds three-quarters (0.75) psia.

2. Available data on the storage temperature may be used to determine the maximum true vapor pressure.

A. For vessels operated above or below ambient temperatures, the maximum true vapor pressure is calculated based upon the highest expected calendar-month average of the storage temperature. For vessels operated at ambient temperatures, the maximum true vapor pressure is calculated based upon the maximum local monthly average ambient temperature as reported by the National Weather Service.

B. For other liquids, the vapor pressure shall be determined by an appropriate test method in section (5) of this rule or calculated by an appropriate method approved by the department.

3. The owner or operator of each vessel storing a mixture of indeterminate or variable composition shall be subject to the following:

A. Prior to the initial filling of the vessel, the maximum true vapor pressure for the range of anticipated liquid compositions to be stored will be determined using the methods described in paragraph (4)(H)2. of this rule; and

B. For vessels in which the vapor pressure of the anticipated liquid composition is one-half (0.5) psia or greater but less than three-quarters (0.75) psia, an initial physical test of the vapor pressure is required; a physical test at least once every six (6) months thereafter is required as determined by an appropriate test method in section (5) of this rule.

4. The owner or operator of each vessel equipped with a closed vent system and control device meeting the specifications of subsection (3)(A) or (3)(B) of this rule is exempt from the requirements of paragraphs (4)(H)1. and (4)(H)2. of this rule.

(5) Test Methods.

(A) Compliance with the requirements of this rule shall be determined by applying the following test methods, as appropriate:

1. Test Methods 1 and 2 (40 CFR 60, Appendix A) for determining flow rates, as necessary;

2. Test Method 18 (40 CFR 60, Appendix A) for determining gaseous organic compound emissions by gas chromatography;

3. Test Method 21 (40 CFR 60, Appendix A) for determination of volatile organic compound leaks;

4. Test Method 22 (40 CFR 60, Appendix A) for visual determination of fugitive emissions from material sources and smoke emissions from flares;

5. Test Method 25 (40 CFR 60, Appendix A) for determining total gaseous nonmethane organic emissions as carbon;

6. Test Methods 25A or 25B (40 CFR 60, Appendix A) for determining total gaseous organic concentrations using flame ionization or nondispersive infrared analysis;

7. Test method described in 40 CFR 60.113(a)(ii) for measurement of storage tank seal gap;

8. Determination of true vapor pressure using American Society for Testing and Materials (ASTM) Test Methods D323-94, D4953, D5190 or D5191 for the measurement of Reid vapor pressure; and

9. Other test methods for determining compliance may be used if found to be equivalent after review by the department.

AUTHORITY: section 643.050, RSMo Supp. 1998. Original rule filed July 15, 1999, effective Feb. 29, 2000.*

**Original authority: 643.050, RSMo 1965, amended 1972, 1992, 1993, 1995.*

10 CSR 10-5.510 Control of Emissions of Nitrogen Oxides

PURPOSE: The purpose of this regulation is to reduce the emissions of nitrogen oxides in the St. Louis ozone nonattainment area. This regulation requires major sources of Nitrogen Oxides (NO_x) to install or comply with reasonably available control technology (RACT) as required under the Clean Air Act.

(1) Applicability.

(A) This rule shall apply to all installations located in the counties of Franklin, Jefferson, St. Charles and St. Louis and the City of St. Louis with the potential to emit one hundred (100) tons or greater per year of nitrogen oxides.

(B) Installations affected by this rule shall be in compliance no later than May 1, 2002. The director may grant an extension of the compliance deadline if the affected installation submits an alternative compliance plan no later than January 1, 2001. The alternative compliance plan shall include the following items:

1. For each affected unit, a detailed analysis of the air quality benefit that will occur if the compliance date is extended;

2. For each affected unit, a detailed explanation of the reasons why the owner or operator believes that compliance with the applicable NO_x emissions limit by May 1, 2002 is impractical;

3. Information sufficient to identify each affected unit;



4. A proposed schedule setting dates by which the owner or operator will complete the following milestones for each affected unit:

- A. Applications for all necessary permits;
- B. Contracts for the implementation of new units or control equipment;
- C. Construction and installation of new units or control equipment; and
- D. Compliance with the applicable NO_x emissions limitation established in this rule; and

5. Any other information the director requests.

(C) Exemptions. The requirements of this rule shall not apply to the following emission units:

1. Any boiler having a maximum heat input of less than fifty (50) million British thermal units (mmBtu) per hour;

2. Any stationary internal combustion engine having a rated energy output capacity of less than five hundred (500) horsepower or a maximum heat input capacity of twenty (20) mmBtu per hour or less;

3. Any stationary combustion turbine having a rated maximum heat input capacity of less than twenty (20) mmBtu per hour;

4. Any emergency standby boiler, stationary internal combustion engine, stationary combustion turbine, start up unit, or black start unit which operates less than seven hundred and fifty (750) hours annually and less than four hundred (400) hours during ozone season;

5. Any research and development emissions unit;

6. Any jet engine test cell;

7. Any air pollution control device;

8. Any emission unit which is required to meet a more stringent state or federal NO_x emissions limitation;

9. Any unit that would otherwise be required to comply with this rule with actual annual NO_x emissions of thirty (30) tons per year or less. This exemption shall cease to apply to a unit if the unit ever exceeds thirty (30) tons per year of actual NO_x emissions for any calendar year. Any unit that becomes affected by this rule due to failure to maintain this exemption after January 1, 2000 shall immediately notify the department in writing that the rule applies. The unit shall be in compliance with the applicable provisions of this rule within twenty-four (24) months after notifying the department or May 1, 2002, whichever is later;

10. Any unit subject to and in compliance with Phase II acid rain requirements; and

11. Any incinerator having a maximum rated heat input capacity of less than fifty (50) mmBtu per hour.

(2) Definitions.

(A) Black start unit—Any electric generating unit operated only in the event of a complete loss of power.

(B) Cyclone boiler—A boiler with a horizontal, cylindrical furnace that burns crushed rather than pulverized coal.

(C) Emergency standby boiler—A boiler operated during times of loss of primary power at the installation that is beyond the control of the owner or operator, during routine maintenance, to provide steam for building heat; or to protect essential equipment.

(D) Emergency stationary internal combustion engine—A stationary internal combustion engine used to drive pumps, aerators or other equipment only during times of loss of primary power at the facility that is beyond the control of the owner or operator of the facility or during routine maintenance.

(E) Emergency stationary combustion turbine—A stationary combustion turbine operated only during times of loss of primary power at the facility that is beyond the control of the owner or operator of the facility or during routine maintenance.

(F) Internal combustion engine—Any engine in which power, produced by heat and/or pressure developed in the engine cylinder(s) by burning a mixture of fuel and air, is subsequently converted to mechanical work by means of one or more pistons.

(G) Jet engine test cell—A stationary jet engine used for the purpose of research and testing.

(H) Predictive emissions monitoring system (PEMS)—A system that uses process and other parameters as inputs to a computer program or other data reduction system to predict values in terms of the applicable emission limitation or standard.

(I) Research and development emissions unit—Any combustion unit operated only for the purpose of research and development work.

(J) Start-up unit—A unit operated only to start up larger electric generating units.

(K) Stationary internal combustion engine—Any internal combustion engine that is not self-propelled, but which may be mounted on a vehicle for portability.

(L) Stoker boiler—A boiler design that employs a grate assembly to combust coal.

(M) Tangentially fired boiler—A boiler that has coal and air nozzles mounted in each corner of the furnace where the vertical furnace walls meet. Both pulverized coal and air are directed from the furnace corners along a

line tangential to a circle lying in a horizontal plane of the furnace.

(N) Wall fired boiler—A boiler that has pulverized coal burners arranged on the wall of the furnace. The burners have discrete, individual flames that extend perpendicularly into the furnace area.

(O) Definitions of certain terms specified in this rule, other than those specified in this rule section, may be found in 10 CSR 10-6.020.

(3) General Provisions.

(A) No owner or operator of a boiler with a maximum rated heat input capacity of one hundred (100) mmBtu per hour or greater shall allow the unit to emit NO_x in excess of the emission rates specified in Table 1 as measured pursuant to section (5) of this rule.

**Table 1
Maximum Allowable NO_x Emission Rates
for Boilers
(Pounds of NO_x per mmBtu)**

Fuel/Boiler Type	Firing Configurations			
	Tangential	Wall	Cyclone	Stoker
Gaseous Fuels Only	0.2	0.2	0.5	-
Distillate Oil	0.3	0.3	-	-
Residual Oil	0.3	0.3	-	-
Coal - Wet Bottom	-	-	0.86	-
Coal - Dry Bottom	0.45	0.5	-	0.5

(B) An owner or operator of a boiler or incinerator with a maximum rated heat input capacity equal to or greater than fifty (50) mmBtu per hour but less than one hundred (100) mmBtu per hour shall complete an annual adjustment or tune up on the combustion process. This adjustment or tune up shall include at a minimum the following items:

1. Inspection, adjustment, cleaning or replacement of fuel burning equipment, including the burners and moving parts necessary for proper operation as specified by the manufacturer;

2. Inspection of the flame pattern or characteristics and adjustments necessary to minimize total emissions of NO_x and, to the extent practicable, minimize emissions of carbon monoxide; and

3. Inspection of the air to fuel ratio control system and adjustments necessary to ensure proper calibration and operation as specified by the manufacturer.

(C) No owner or operator of a stationary combustion turbine shall allow or permit the discharge of any NO_x emissions in excess of the following limits:

1. Seventy-five (75) parts per million (ppm), corrected to fifteen percent (15%) oxygen, for combustion turbines firing gaseous fuel only; and



2. One hundred ten (110) ppm, corrected to fifteen percent (15%) oxygen, for combustion turbines firing distillate oil or diesel fuel.

(D) No owner or operator of a stationary internal combustion engine with a rated maximum heat input capacity greater than twenty (20) mmBtu per hour shall allow or permit the discharge of NO_x emissions in excess of the following limits:

1. For rich burn engines which burn only gaseous fuels—

A. Nine and one-half (9.5) grams per horsepower-hour for engines which are rated equal to or greater than five hundred (500) horsepower and less than one thousand (1,000) horsepower; or

B. Two and one-half (2.5) grams per horsepower-hour for engines which are rated equal to or greater than one thousand (1,000) horsepower;

2. For lean burn engines which burn only gaseous fuels—

A. Ten (10.0) grams per horsepower-hour for engines which are rated equal to or greater than five hundred (500) horsepower and less than one thousand (1,000) horsepower; or

B. Three (3.0) grams per horsepower-hour for engines which are rated equal to or greater than one thousand (1,000) horsepower;

3. For engines which burn only diesel fuel or distillate oil—

A. Eight and one-half (8.5) grams per horsepower-hour for engines which are rated equal to or greater than five hundred (500) horsepower and less than one thousand eight hundred (1,800) horsepower; or

B. Two and one-half (2.5) grams per horsepower-hour for engines which are rated equal to or greater than one thousand eight hundred (1,800) horsepower; or

4. For engines which burn dual fuels—

A. Six (6.0) grams per horsepower-hour for engines which are rated equal to or greater than five hundred (500) horsepower and less than two thousand (2,000) horsepower; or

B. Two and one-half (2.5) grams per horsepower-hour for engines which are rated equal to or greater than two thousand (2,000) horsepower.

(E) No owner or operator of a regenerative container glass melting furnace shall allow the unit to emit NO_x in excess of 5.5 pounds of NO_x per ton of glass pulled.

(F) No owner or operator of a portland cement kiln shall allow the unit to operate unless good combustion practices are implemented. Each portland cement kiln shall develop a good combustion practice plan that identifies appropriate kiln operating param-

eters necessary to ensure minimum NO_x formation. Each kiln operator shall be trained to operate the kiln in accordance with the plan. The parameters included in the plan shall include at a minimum the following:

1. Kiln exit oxygen operating range or a surrogate parameter;

2. Clinker burning zone temperature operating range or a surrogate parameter; and

3. Monitoring and record keeping procedures for each parameter.

(G) Emissions Averaging. An owner or operator may comply with the requirements of subsections (3)(A), (3)(C), (3)(D), (3)(E) and (3)(H) of this rule by averaging between two (2) or more similar emission units provided they are located in the St. Louis ozone nonattainment area and provided that both units are required to comply with the subsections (3)(A), (3)(C), (3)(D), (3)(E) or (3)(H) of this rule.

1. Compliance shall be based on the weighted average of actual NO_x emissions from the units on a monthly basis. The averaged emissions rate for the units must be equal to or less than the allowable emissions rate for the units as defined in this rule. An owner or operator who elects to comply with an average NO_x emission limit shall use the following equation to determine compliance:

$$\sum(\text{actual NO}_x \text{ emission rate from each unit} * \text{actual monthly heat input from each unit}) \leq \sum(\text{allowable NO}_x \text{ emission rate from each unit} * \text{actual monthly heat input from each unit})$$

2. NO_x emission rates shall be calculated from actual data from continuous emissions monitoring system (CEMS), PEMS or established through stack testing at several loads.

3. NO_x emissions averaging may only occur between emission units operated under same owner unless a binding legal agreement between two (2) owners is filed with the director and provided the emission units are located in the St. Louis ozone nonattainment area. The binding legal agreement must specify the following:

A. A commitment between the two (2) owners or operators to comply with the averaging provisions;

B. Identification of the emission units which will be used for averaging;

C. An outline of how the emission units will comply with the averaging provisions;

D. A schedule for submitting the monthly data used to determine compliance with the averaging provisions; and

E. Contacts from each owner or operator who will be responsible for the monthly compliance reports.

(H) Case-By-Case RACT Studies.

1. The owner or operator of an emissions unit subject to this rule but not specifically identified in subsection (3)(A), (3)(B), (3)(C), (3)(D), (3)(E) or (3)(F) of this rule shall conduct and submit by July 1, 2000 a detailed engineering and RACT study for those emission units subject to this rule.

2. Each RACT proposal shall, at a minimum, include the following information:

A. A list of emission units subject to the RACT requirements;

B. The size or capacity of each affected emission unit and the types of fuel combusted or the types and quantities of materials processed or produced by each emission unit;

C. A physical description of each emission unit and its operating characteristics;

D. Estimates of the potential and actual NO_x emissions from each affected emission unit and associated supporting documentation;

E. A RACT analysis which meets the requirements of subsection (3)(H) of this rule, including technical and economic support documentation identified in subsection (3)(G) of this rule for each affected emission unit;

F. A schedule for completing implementation of the RACT proposal as expeditiously as practicable but not later than April 1, 2001, including interim dates for the issuance of purchase orders, start and completion of process technology and control technology changes and the completion of compliance testing;

G. Testing, monitoring, record keeping and reporting procedures proposed to demonstrate compliance with RACT;

H. An application for an operating permit amendment or application to incorporate the provisions of the RACT proposal; and

I. Additional information requested by the department that is necessary for the evaluation of the RACT proposal.

3. In addition, the RACT analysis shall include:

A. A ranking of the available control options for the affected emission unit in descending order of control effectiveness. Available control options are air pollution control technologies or techniques with a reasonable potential for application to the emission unit. Air pollution control technologies and techniques include the application of production process or methods and control systems for NO_x. The control technologies and techniques shall include existing controls for



the source category and technology transfer controls applied to similar source categories;

B. An evaluation of the technical feasibility of the available control options as required by paragraph (3)(G)1. of this rule. The evaluation of technical feasibility shall be based on physical, chemical and engineering principles. If an analysis is determined to be technically infeasible, the technical difficulties which would preclude the successful use of the control options on the affected emission unit shall be identified;

C. A ranking of the technically feasible control options in order of overall control effectiveness for NO_x emissions. The list shall present the array of control options and shall include, at a minimum, the following information:

- (I) The baseline emissions of NO_x before implementation of each control option;
- (II) The estimated emission reduction potential or the estimated control efficiency of each control option;
- (III) The estimated emissions after the application of each control option; and
- (IV) The economic impacts of each control option, including both overall cost effectiveness and incremental cost effectiveness; and

D. An evaluation of cost effectiveness of each control option consistent with *OAQPS Control Cost Manual* (Fourth Edition), EPA 450/3-90-006 January 1990 and subsequent revisions. The evaluation shall be conducted in accordance with the following requirements:

- (I) The cost effectiveness shall be evaluated in terms of dollars per ton of NO_x emission reduction;
- (II) The cost effectiveness shall be calculated on average and incremental bases for each option. Average cost effectiveness is calculated as the annualized cost of the control option divided by the baseline emissions rate minus the control option emission rate, as shown by the following formula:

Cost Effectiveness Equation

$$\text{Average Cost Effectiveness (\$/ton NO}_x \text{ removed)} =$$

$$\frac{\text{Total annualized cost of the control option (\$/yr)}}{\text{Baseline emission rate (tons/yr)} - \text{Control option emission rate (tons/yr)}}$$

(III) For purposes of this paragraph, baseline emission rate represents the maximum emissions before the implementation of the control option. The baseline emissions rate shall be established using either test results or approved emission factors and historical operating data; and

(IV) For purposes of this paragraph, the incremental cost effectiveness calculation compares the costs and emission level of a control option to those of the next most stringent option, as shown by the following formula:

Incremental Cost Equation

$$\text{Incremental Cost per incremental ton removed (\$/ton)} =$$

$$\frac{\text{Total annualized cost for a control option (\$/yr)} - \text{Total annualized cost for the next most stringent control option (\$/yr)}}{\text{The emission rate for the more stringent control option (tons/yr)} - \text{The emission rate for the control option (tons/yr)}}$$

4. Based upon this study, the director shall provide a case-specific RACT determination which shall be implemented by the owner or operator of the unit as expeditiously as practicable but in no case later than May 1, 2002. This case-specific RACT determination shall be submitted to the administrator of the U.S. Environmental Protection Agency.

(I) Any unit during periods of start up, shutdown, or malfunction shall comply with the requirements of 10 CSR 10-6.050.

(4) Reporting and Record Keeping.

(A) Reporting. Reporting shall be based on the test methods identified in section (5) of this rule.

1. The owner or operator of an emissions unit subject to subsections (3)(A), (3)(C), (3)(D), (3)(E), (3)(F) and (3)(G) of this rule shall comply with the following requirements:

A. Submit for each NO_x emissions unit that uses a CEMS to demonstrate compliance, an annual report containing the date, time and emissions rate in pounds NO_x per mmBtu of all thirty (30)-day rolling averages greater than the emission rates allowed under section (3) of this rule;

B. Submit for each NO_x emissions unit which uses stack tests to demonstrate compliance, an annual report identifying monthly fuel usage and monthly total heat input; and

C. Submit a written report of all stack tests completed after controls are effective to the director within sixty (60) days after completion of sample and data collection.

2. The owner or operator of an emissions unit subject to subsection (3)(H) of this rule shall comply with the reporting requirements established in the case-by-case RACT determination approved by the director. The owners or operators of emissions units complying with the averaging provisions of sub-

section (3)(H) shall submit to the director within thirty (30) days after the end of each calendar month a compliance report stating the averaged emission rate. The compliance report shall also include the data used to determine the averaged emission rate. If the average emission rate exceeds the allowable emission rate, the owners and operators shall determine which owner or operator is responsible for the violation. The owners and operators in the compliance report shall submit the identity of the responsible owner or operator. The department will take enforcement action against only the owner or operator responsible for the violation. However, if the owners or operators do not submit within thirty (30) days the identity of the violator, both owners or operators shall be responsible for the violation.

(B) Record Keeping.

1. Each owner or operator of an emissions unit subject to subsections (3)(A), (3)(C), (3)(D), (3)(E), (3)(F) and (3)(G) of this rule shall maintain records of the following:

A. Total fuel consumed on a monthly basis unless the unit is operating a CEMS or predictive emissions monitoring system (PEMS);

B. The total heat input for each emissions unit on a monthly basis unless the unit is operating a CEMS or a PEMS;

C. Reports of all stack testing conducted to meet the requirements of this rule;

D. All other data collected by a CEMS or a PEMS necessary to convert the monitoring data to the units of the applicable emission limitation;

E. If a CEMS is used, all performance evaluations conducted in the past year;

F. All CEMS or monitoring device calibration checks;

G. All monitoring system, monitoring device and performance testing measurements;

H. Records of adjustments and maintenance performed on monitoring systems and devices; and

1. A log identifying each period during which the CEMS was inoperative, except for zero and span checks, and the nature of the repairs and adjustments performed to make the system operative.

2. The owner or operator of an emissions unit subject to subsection (3)(H) of this rule shall comply with the record keeping requirements established in the case-by-case RACT determination approved by the director.

3. All records must be kept on-site for a period of five (5) years and made available to the department upon request.



(5) Test Methods.

(A) Compliance Testing. Initial compliance for all units subject to subsections (3)(A), (3)(C), (3)(D), (3)(E) or (3)(G) of this rule shall be determined through a stack test performed prior to the implementation date under section (1) of this rule except those units complying with the provisions of subsection (5)(B) of this rule. After the initial stack test, stack tests shall be required every three (3) years to determine compliance except for units complying with the provisions of subsection (5)(B) of this rule. The following test methods shall be used for all stack tests:

1. 40 CFR Part 60 Appendix A, Method 7, 7A, 7C, 7D or 7E shall be used to determine NO_x concentrations in stack gases;

2. 40 CFR Part 60 Appendix A, Method 1A, 2, 2A, 2B, 2C, 2D, 2F, 2G, or 2H shall be used to determine the exit velocity of stack gases;

3. 40 CFR Part 60 Appendix A, Method 3 or 3A shall be used to determine carbon dioxide, oxygen, excess air and molecular weight of stack gases;

4. 40 CFR Part 60 Appendix A, Method 4 shall be used to determine moisture content of stack gases from applicable stationary sources;

5. 40 CFR Part 60 Appendix A, Method 19 shall be used to determine (calculate or compute) NO_x (heat input specific) emission rates (pound per mmBtu); and

6. For stationary combustion turbines, 40 CFR Part 60 Appendix A, Method 20 may be used to determine NO_x concentrations.

(B) Monitoring. As an alternative to the compliance testing required under subsection (5)(A) for units subject to subsections (3)(A), (3)(C), (3)(D), (3)(E) and (3)(G) of this rule, an owner or operator of an emission unit may install, calibrate, maintain and operate a CEMS or a PEMS approved by the director and the U.S. Environmental Protection Agency (EPA), or use an equivalent procedure for measuring or estimating NO_x emissions approved by the director and the EPA. For units operating CEMS, PEMS or an equivalent procedure for estimating NO_x emissions, the following requirements shall apply:

1. Compliance shall be measured on a thirty (30)-day rolling average;

2. All valid data shall be used for calculating NO_x emissions rates;

3. The procedures under 40 CFR 60.13(d), (e) and (f) and 40 CFR Part 60 Appendix B, Performance Specification 2 shall be followed, or other procedures approved by the director; for the installation, evaluation and operation of CEMS or PEMS;

4. Quarterly accuracy and daily calibration drift tests shall be performed in accordance with 40 CFR Part 60 Appendix F, or other tests approved by the director; and

5. CEMS installed, certified and operated in accordance with 40 CFR Part 75 are deemed to be approved by the director to meet the monitoring and quality assurance requirements of this subsection.

*AUTHORITY: section 643.050, RSMo 2000. * Original rule filed July 15, 1999, effective Feb. 29, 2000. Amended: Filed Aug. 26, 2005, effective May 30, 2006.*

**Original authority: 643.050, RSMo 1965, amended 1972, 1992, 1993, 1995.*

10 CSR 10-5.520 Control of Volatile Organic Compound Emissions From Existing Major Sources

PURPOSE: This rulemaking will reduce volatile organic compound (VOC) emissions from major sources located in the St. Louis nonattainment area that have not been affected by other rulemakings. This rulemaking is required to comply with the Clean Air Act Amendments of 1990.

(1) Applicability. This rule applies to any installation in the counties of St. Charles, St. Louis, Franklin, or Jefferson or the City of St. Louis that have the potential to emit greater than one hundred (100) tons per year of volatile organic compounds. This rule does not apply to any installation that meets one or more of the following:

(A) One or more rules under Title 10, Division 10, Chapter 5 of the *Code of State Regulations* (CSR) apply to volatile organic compound (VOC) emissions from a product process, or a raw material, intermediate or product tank;

(B) Is exempted from one or more rules under Title 10, Division 10, Chapter 5 of the CSR as they apply to VOC emissions from a product process, or a raw material, intermediate or product tank; or

(C) Is affected by any federal rulemaking promulgated under 40 CFR part 60, 40 CFR part 61, or 40 CFR part 63 applies to VOC emissions from a product process, or a raw material, intermediate or product tank.

(2) Definitions. Definitions of certain terms specified in this rule may be found in 10 CSR 10-6.020.

(3) General Provisions.

(A) An owner or operator, to which this rule applies, shall provide the department with the following information on or before June 1, 2000:

1. An identification of each installation including individual emission units to which this rule applies; and

2. A determination of the total potential to emit and the actual emission of VOCs for the 1998 and 1999 calendar years from each emission unit at the facility. An owner or operator shall use the following hierarchy as a guide in determining the most desirable emission data to report to the department. If data is not available for an emission estimation method or an emission estimation method is impractical for a source, then the subsequent emission estimation method should be used in its place—

A. Continuous Emission Monitoring System (CEMS);

B. Stack tests;

C. Material/mass balance;

D. AP-42 (Environmental Protection Agency (EPA) *Compilation of Air Pollution Emission Factors*) or FIRE (Factor Information and Retrieval System);

E. Other EPA documents;

F. Sound engineering calculations; or

G. Facilities shall obtain department preapproval of emission estimation methods other than those listed in paragraphs (3)(A)2.A.–F. of this rule before using any such method to estimate emissions in the submission of the RACT study.

(B) The owner or operator of a major VOC emitting facility shall on or before June 1, 2000, provide to the department a written proposal for RACT for each VOC emission unit at the facility. The RACT proposal shall include, at a minimum, the information contained in subsection (3)(F) of this rule.

(C) The department will make a finding of completeness within thirty (30) calendar days of receiving a RACT proposal. The department will make a determination of approvability within sixty (60) calendar days of the finding of completeness.

(D) Upon receipt of notice of the department's approval of the RACT proposal, the facility shall begin implementation of the measures necessary to comply with the approved or modified RACT proposal. Implementation of the RACT proposal shall be completed according to the schedule established in the approved RACT proposal and shall be as expeditious as practicable but no later than September 1, 2002.

(E) Where the installation of a new emission unit, modification or change in operation of an existing emission unit will result in the emission unit or facility meeting the definition of a major VOC emitting facility, the owner and the operator shall jointly submit a RACT proposal to the department that meets the requirements of this section and complete implementation of the RACT proposal as approved or modified by the department prior



to the installation, modification or change in operation of the existing emission unit.

(F) Each RACT proposal shall, at a minimum, include the following information:

1. A list of emission units subject to the RACT requirements;
2. The size or capacity of each affected emission unit and the types of fuel combusted or the types and quantities of materials processed or produced by each emission unit;
3. A physical description of each emission unit and its operating characteristics;
4. Estimates of the potential and actual VOC emissions from each affected emission unit and associated supporting documentation;
5. A RACT analysis which meets the requirements of subsection (3)(A) of this rule, including technical and economic support documentation identified in subsection (3)(G) of this rule for each affected emission unit;
6. A schedule for completing implementation of the RACT proposal as expeditiously as practicable but not later than September 1, 2002, including interim dates for the issuance of purchase orders, start and completion of process technology and control technology changes and the completion of compliance testing;
7. Testing, monitoring, record keeping and reporting procedures proposed to demonstrate compliance with RACT; and
8. An application for an operating permit amendment or application to incorporate the provisions of the RACT proposal.

(G) In addition, the RACT analysis required under subsection (3)(F) of this rule shall include:

1. A ranking of the available control options for the affected emission unit in descending order of control effectiveness. Available control options are air pollution control technologies or techniques with a reasonable potential for application to the emission unit. Air pollution control technologies and techniques include the application of production process or methods and control systems for VOCs. The control technologies and techniques shall include existing controls for the source category and technology transfer controls applied to similar source categories;
2. An evaluation of the technical feasibility of the available control options as required by paragraph (3)(G)1. of this rule. The evaluation of technical feasibility shall be based on physical, chemical and engineering principles. If an analysis is determined to be technically infeasible, the technical difficulties which would preclude the successful use of the control options on the affected emission unit shall be identified;

3. A ranking of the technically feasible control options in order of overall control effectiveness for VOC emissions. The list shall present the array of control options and shall include, at a minimum, the following information:

- A. The baseline emissions of VOCs before implementation of each control option;
 - B. The estimated emission reduction potential or the estimated control efficiency of each control option;
 - C. The estimated emissions after the application of each control option; and
 - D. The economic impacts of each control option, including both overall cost effectiveness and incremental cost effectiveness; and
4. An evaluation of cost effectiveness of each control option consistent with "OAQPS Control Cost Manual" (Fourth Edition), EPA 450/3-90-006, January 1990, and subsequent revisions. The evaluation shall be conducted in accordance with the following requirements:

- A. The cost effectiveness shall be evaluated in terms of dollars per ton of VOC emission reduction;
- B. The cost effectiveness shall be calculated on average and incremental bases for each option. Average cost effectiveness is calculated as the annualized cost of the control option divided by the baseline emissions rate minus the control option emission rate, as shown by the following formula:

Cost Effectiveness Equation

$$\text{Average Cost Effectiveness (\$/ton VOC removed)} =$$

$$\frac{\text{Total annualized cost of the control option (\$/yr)}}{\text{Baseline emission rate (tons/yr)} - \text{Control option emission rate (tons/yr)}}$$

C. For purposes of this paragraph, baseline emission rate represents the maximum emissions before the implementation of the control option. The baseline emissions rate shall be established using either test results or approved emission factors and historical operating data; and

D. For purposes of this paragraph, the incremental cost effectiveness calculation compares the costs and emission level of a control option to those of the next most stringent option, as shown by the following formula:

Incremental Cost Equation

$$\text{Incremental Cost per incremental ton removed (\$/ton)} =$$

$$\frac{\text{Total annualized cost for a control option (\$/yr)} - \text{Total annualized cost for the next most stringent control option (\$/yr)}}{\text{The emission rate for the more stringent control option (tons/yr)} - \text{The emission rate for the control option (tons/yr)}}$$

(H) The following emission units are exempted and do not require evaluation in the RACT study:

1. Any emission unit that is used to combust fuel; and
2. Any emission unit with actual VOC emissions less than four (4) tons per year during each calendar year from 1995 through present unless such emission unit can be aggregated with like, same three (3)-digit source classification code, emission units with the total having greater than eight (8) tons of VOC per year in any one calendar year from 1995 through present.

(I) The owner or operator shall submit additional information requested by the department that is necessary for the evaluation of the RACT proposal. Such information shall be submitted within thirty (30) days after the submitter's receipt of the department's request, or such later date as is mutually agreed.

(4) Reporting and Record Keeping.

(A) An owner and/or operator must follow the RACT plan requirements outlined in paragraph (3)(F)7. of this rule.

(B) The department may make additional monitoring, reporting, or record keeping requirements as deemed necessary.

(C) Documentation supporting RACT proposals and documentation of implementation of an approved or modified RACT proposal must be kept on-site for a period of five (5) years and must be made available to the department upon request.

(5) Test Methods. (Not Applicable)

AUTHORITY: section 643.050, RSMo 2000. Original rule filed July 15, 1999, effective Feb. 29, 2000.*

**Original authority: 643.050, RSMo 1965, amended 1972, 1992, 1993, 1995.*

10 CSR 10-5.530 Control of Volatile Organic Compound Emissions From Wood Furniture Manufacturing Operations

PURPOSE: This rule limits the volatile organic compound (VOC) emissions from wood furniture manufacturing operations by incorporating reasonably available control



technology (RACT) as required by the Clean Air Act Amendments (CAAA) of 1990.

(1) Applicability.

(A) This rule shall apply throughout the City of St. Louis and St. Charles, St. Louis, Jefferson and Franklin Counties.

(B) This rule is applicable to all wood furniture manufacturing installations that have the potential to emit equal to or greater than twenty-five (25) tons per year of volatile organic compounds (VOC).

(C) Adhesives shall not be considered coatings or finishing materials for the purposes of this rule.

(D) In the event that other rules in Title 10 Division 10 of the *Code of State Regulations* are also applicable to wood furniture manufacturing installations, the more stringent rule requirement shall apply.

(2) Definitions.

(A) Adhesive—Any chemical substance that is applied for the purpose of bonding two (2) surfaces together other than by mechanical means.

(B) Affected source—A wood furniture manufacturing facility that meets the criteria listed in subsections (1)(A) and (1)(B) of this rule.

(C) Alternative method—Any method of sampling and analyzing for an air pollutant that is not a reference or equivalent method but that has been demonstrated to the director's satisfaction to, in specific cases, produce results adequate for a determination of compliance.

(D) As applied—The VOC and solids content of the finishing material that is actually used for coating the substrate. It includes the contribution of materials used for in-house dilution of the finishing material.

(E) Basecoat—A coat of colored material, usually opaque, that is applied before graining inks, glazing coats, or other opaque finishing materials and is usually topcoated for protection.

(F) Capture device—A hood, enclosed room, floor sweep, or other means of collecting solvent emissions or other pollutants into a duct so that the pollutant can be directed to a pollution control device such as an incinerator or carbon adsorber.

(G) Capture efficiency—The fraction of all organic vapors generated by a process that is directed to a control device.

(H) Certified product data sheet—Documentation furnished by a coating supplier or an outside laboratory that provides the VOC content by percent weight, the solids content by percent weight, and density of a finishing material, strippable booth coating,

or solvent, measured using the EPA Method 24, or an equivalent or alternative method (or formulation data if approved by the director). The purpose of the certified product data sheet is to assist the affected source in demonstrating compliance with the emission limitations presented in subsection (3)(A) of this rule. Therefore, the VOC content should represent the maximum VOC emission potential of the finishing material, strippable booth coating, or solvent.

(I) Cleaning operations—Operations in which organic solvent is used to remove coating materials from equipment used in wood furniture manufacturing operations.

(J) Coating—A protective, decorative, or functional material applied in a thin layer to a surface. Such materials include, but are not limited to, paints, topcoats, varnishes, sealers, stains, washcoats, basecoats, inks, and temporary protective coatings.

(K) Coating solids (or "solids")—The part of the coating that remains after the coating is dried or cured; solids content is determined using data from EPA Method 24, or an alternative or equivalent method.

(L) Compliant coating—A finishing material or strippable booth coating that meets the emission limits specified in paragraph (3)(A)1. of this rule.

(M) Continuous coater—A finishing system that continuously applies finishing materials onto furniture parts moving along a conveyor system. Finishing materials that are not transferred to the part are recycled to the finishing material reservoir. Several types of application methods can be used with a continuous coater including spraying, curtain coating, roll coating, dip coating, and flow coating.

(N) Control device—Any equipment that reduces the quantity of a pollutant that is emitted to the air. The device may destroy or secure the pollutant for subsequent recovery. Includes, but is not limited to, incinerators, carbon adsorbers, and condensers.

(O) Control device efficiency—The ratio of the pollution released by a control device and the pollution introduced to the control device, expressed as a fraction.

(P) Control system—The combination of capture and control devices used to reduce emissions to the atmosphere.

(Q) Conventional air spray—A spray coating method in which the coating is atomized by mixing it with compressed air at an air pressure greater than ten (10) pounds per square inch (gauge) at the point of atomization. Airless and air assisted airless spray technologies are not conventional air spray because the coating is not atomized by mixing it with compressed air. Electrostatic spray

technology is also not considered conventional air spray because an electrostatic charge is employed to attract the coating to the workpiece.

(R) Day—A period of twenty-four (24) consecutive hours beginning at midnight local time, or beginning at a time consistent with a facility's operating schedule.

(S) Disposed off-site—Sending used organic solvents or coatings outside of the facility boundaries for disposal.

(T) Emission—The release or discharge, whether directly or indirectly, of VOC into the ambient air.

(U) Equipment leak—Emissions of volatile organic compounds from pumps, valves, flanges, or other equipment used to transfer or apply finishing materials or organic solvents.

(V) Equivalent method—Any method of sampling and analyzing for an air pollutant that has been demonstrated to the director's satisfaction to have a consistent and quantitatively known relationship to the reference method under specific conditions.

(W) Finishing application station—The part of a finishing operation where the finishing material is applied, e.g., a spray booth.

(X) Finishing material—A coating used in the wood furniture industry. For the wood furniture manufacturing industry, such materials include, but are not limited to, basecoats, stains, washcoats, sealers, and topcoats.

(Y) Finishing operation—Those activities in which a finishing material is applied to a substrate and is subsequently air-dried, cured in an oven, or cured by radiation.

(Z) Incinerator—An enclosed combustion device that thermally oxidizes volatile organic compounds to carbon monoxide (CO) and carbon dioxide (CO₂). This term does not include devices that burn municipal or hazardous waste material.

(AA) Nonpermanent final finish—A material such as a wax, polish, nonoxidizing oil, or similar substance that must be periodically reapplied to a surface over its lifetime to maintain or restore the reapplied material's intended effect.

(BB) Normally closed container—A storage container that is closed unless an operator is actively engaged in activities such as emptying or filling the container.

(CC) Operating parameter value—A minimum or maximum value established for a control device 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 limit.



(DD) Organic solvent—A liquid containing volatile organic compounds that is used for dissolving or dispersing constituents in a coating, adjusting the viscosity of a coating, cleaning, or washoff. When used in a coating, the organic solvent evaporates during drying and does not become a part of the dried film.

(EE) Overall control efficiency—The efficiency of a control system, calculated as the product of the capture and control device efficiencies, expressed as a percentage.

(FF) Recycled on-site—The reuse of an organic solvent in a process other than cleaning or washoff.

(GG) Reference method—Any method of sampling and analyzing for an air pollutant that is published in Appendix A of 40 CFR 60.

(HH) Sealer—A finishing material used to seal the pores of a wood substrate before additional coats of finishing material are applied. Washcoats, which are used in some finishing systems to optimize aesthetics, are not sealers.

(II) Stain—Any color coat having a solids content by weight of no more than 8.0 percent that is applied in single or multiple coats directly to the substrate. Includes, but is not limited to, nongrain raising stains, equalizer stains, sap stains, body stains, no-wipe stains, penetrating stains, and toners.

(JJ) Storage container—Vessel or tank, including mix equipment, used to hold finishing, cleaning or washoff materials.

(KK) Strippable booth coating—A coating that: 1) is applied to a booth wall to provide a protective film to receive overspray during finishing operations; 2) that is subsequently peeled off and disposed; and 3) by achieving 1) and 2), reduces or eliminates the need to use organic solvents to clean booth walls.

(LL) Substrate—The surface onto which coatings are applied (or into which coatings are impregnated).

(MM) Topcoat—The last film-building finishing material applied in a finishing system. Nonpermanent final finishes are not topcoats.

(NN) Touch-up and repair—The application of finishing materials to cover minor finishing imperfections.

(OO) Washcoat—A transparent special purpose coating having a solids content by weight of 12.0 percent or less. Washcoats are applied over initial stains to protect and control color and to stiffen the wood fibers in order to aid sanding.

(PP) Washoff operations—Those operations in which organic solvent is used to remove coating from a substrate.

(QQ) Wood furniture—Any product made of wood, a wood product such as rattan or

wicker, or an engineered wood product such as particleboard that is manufactured under any of the following standard industrial classification codes: 2434, 2511, 2512, 2517, 2519, 2521, 2531, 2541, 2599 or 5712.

(RR) Wood furniture component—Any part that is used in the manufacture of wood furniture. Examples include, but are not limited to, drawer sides, cabinet doors, seat cushions, and laminated tops.

(SS) Wood furniture manufacturing operations—The finishing, cleaning, and washoff operations associated with the production of wood furniture or wood furniture components.

(TT) Working day—A day, or any part of a day, in which a facility is engaged in manufacturing.

(UU) Definitions of certain terms specified in this rule, other than those specified in this rule section, may be found in 10 CSR 10-6.020.

(3) General Provisions.

(A) Restriction of Emissions.

1. The owner or operator of an affected source shall limit VOC emissions from finishing operations by complying with one of the following requirements:

A. Where only topcoat is applied without sealers, the topcoat shall have a VOC content no greater than Table 1; or

	kg VOC/kg solids (as applied)	lb VOC/lb solids (as applied)
Topcoat	0.8	0.8

B. Where topcoat and sealers are applied and—

(I) Where sealer is not acid-cured alkyd amino vinyl or topcoat is not acid-cured alkyd amino conversion varnish, the VOC contents shall be no more than shown in Table 2;

	kg VOC/kg solids (as applied)	lb VOC/lb solids (as applied)
Sealer	1.9	1.9
Topcoat	1.8	1.8

(II) Where sealer is acid-cured alkyd amino vinyl and topcoat is acid-cured alkyd amino conversion varnish, the VOC contents shall be no more than shown in Table 3;

	kg VOC/kg solids (as applied)	lb VOC/lb solids (as applied)
Sealer	2.3	2.3
Topcoat	2.0	2.0

(III) Where sealer is not acid-cured alkyd amino vinyl and topcoat is acid-cured alkyd amino conversion varnish, the VOC contents shall be no more than shown in Table 4; or

	kg VOC/kg solids (as applied)	lb VOC/lb solids (as applied)
Sealer	1.9	1.9
Topcoat	2.0	2.0

(IV) Where sealer is acid-cured alkyd amino vinyl and topcoat is not acid-cured alkyd amino conversion varnish, the VOC contents shall be no more than shown in Table 5.

	kg VOC/kg solids (as applied)	lb VOC/lb solids (as applied)
Sealer	2.3	2.3
Topcoat	1.8	1.8

2. As an alternate to the finish operation requirements of paragraph (3)(A)1. of this rule, the owner or operator of an affected source may use an averaging approach to verify compliance by using this paragraph. Compliance is demonstrated when actual emissions from the affected source are less than or equal to allowable emissions using one of the following inequalities:

$$0.9(0.8(TC_1 + TC_2 + \dots)) \geq [(ER_{TC1})(TC_1) + (ER_{TC2})(TC_2) + \dots] \quad (1)$$

$$0.9\{[1.8(TC_1 + TC_2 + \dots)] + [1.9(SE_1 + SE_2 + \dots)] + [9.0(WC_1 + WC_2 + \dots)] + [1.2(BC_1 + BC_2 + \dots)] + [0.791(ST_1 + ST_2 + \dots)]\} \geq [ER_{TC1}(TC_1) + ER_{TC2}(TC_2) + \dots] + [ER_{SE1}(SE_1) + ER_{SE2}(SE_2) + \dots] + [ER_{WC1}(WC_1) + ER_{WC2}(WC_2) + \dots] + [ER_{BC1}(BC_1) + ER_{BC2}(BC_2) + \dots] + [ER_{ST1}(ST_1) + ER_{ST2}(ST_2) + \dots] \quad (2)$$

where:

- 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;
- ER_{TCi} = VOC content of topcoat "i" in kg VOC/kg solids, as applied;
- ER_{SEi} = VOC content of sealer "i" in kg VOC/kg solids, as applied;

ER_{WCi} = VOC content of washcoat “i” in kg VOC/kg solids, as applied;
 ER_{BCi} = VOC content of basecoat “i” in kg VOC/kg solids, as applied; and
 ER_{STi} = VOC content of stain “i” in kg VOC/liter (kg/l), as applied.

Note 1: Various numeric values used in inequalities (0.8, 1.8, 1.9, etc.) are maximum allowable VOC contents for various coatings.

Note 2: The 0.9 multiplying factor on the allowable emissions side of the inequality is used to assure that sources using the averaging approach demonstrate that their emissions are no greater than ninety percent (90%) of what they would be if they were using compliant coatings.

For Inequalities (1) and (2), the facility must use the actual VOC content of the finishing materials used prior to the effective date of this rule if the VOC content is less than the allowable VOC content. For example, if the affected source was using topcoats with a VOC content of 1.7 kilograms of VOC per kilogram of solids (1.7 pounds of VOC per pound of solids) before being subject to this rule, the affected source must use that value in Inequality (2) rather than 1.8.

3. As an alternate to the finish operation requirements of subparagraph (3)(A)1.A. or part (3)(A)1.B.(II) of this rule, the owner or operator of an affected source may use a control system that will achieve an equivalent reduction in emissions as demonstrated using the compliance requirements of subparagraph (3)(C)1.B. of this rule.

4. As an alternate to the finish operation requirements of paragraphs (3)(A)1. and (3)(A)2. of this rule, the owner or operator of an affected source may use a combination of the methods presented in paragraphs (3)(A)1., (3)(A)2. and (3)(A)3. of this rule as demonstrated using the compliance requirements of subparagraph (3)(C)1.C. of this rule.

5. The owner or operator of an affected source shall limit VOC emissions from cleaning operations when using a strippable booth coating. The VOC contents shall be no more than shown in Table 6.

Table 6

	kg VOC/kg solids (as applied)	lb VOC/lb solids (as applied)
Strippable booth coating	0.8	0.8

(B) Work Practice Standards. The owner or operator of an affected source shall develop

and maintain work practice standards that include, at a minimum:

1. A written work practice implementation plan that defines work practices for each wood furniture manufacturing operation and addresses each of the topics specified in paragraphs (3)(B)2. through (3)(B)10. of this subsection. The plan shall be developed no more than sixty (60) days after the compliance date of this rule. The owner or operator of the affected source shall comply with each provision of the work practice implementation plan. The written work practice implementation plan shall be available for inspection by the department, upon request. If the department determines that the work practice implementation plan does not adequately address each of the topics specified in paragraphs (3)(B)2. through (3)(B)10. of this subsection, the department may require the affected source to modify the plan;

2. Operator training for all new and existing personnel, including contract personnel, who are involved in finishing, cleaning, or washoff operations or implementation of the requirements of this rule. All new personnel, those hired after the effective date of the rule, shall be trained upon hiring. All existing personnel, those hired before the effective date of the rule, shall be trained within six (6) months of the effective date of the rule. All personnel shall be given refresher training annually. The affected source shall maintain a copy of the training program with the work practice implementation plan. The training program shall include, at a minimum, the following:

A. A list of all current personnel by name and job description that are required to be trained;

B. An outline of the subjects to be covered in the initial and refresher training for each position, or group of personnel;

C. Lesson plans for courses to be given at the initial and the annual refresher training that include, at a minimum, appropriate application techniques, appropriate cleaning and washoff procedures, appropriate equipment setup and adjustment to minimize finishing material usage and overspray, and appropriate management of cleanup wastes; and

D. A description of the methods to be used at the completion of initial or refresher training to demonstrate and document successful completion and a record of the date each employee is trained;

3. A leak inspection and maintenance plan that shall be prepared and maintained with the work practice implementation plan and specify, at a minimum—

A. A minimum visual inspection frequency of once per month for all equipment used to transfer or apply finishing materials or organic solvents;

B. An inspection schedule;

C. Methods for documenting the date and results of each inspection and any repairs that were made;

D. The time frame between identifying a leak and making the repair, which adheres to the following schedule:

(I) A first attempt at repair (e.g., tightening of packing glands) shall be made no later than five (5) working days after the leak is detected; and

(II) Final repairs shall be made within fifteen (15) working days, unless the leaking equipment is to be replaced by a new purchase, in which case repairs shall be completed within three (3) months;

4. A cleaning and washoff solvent accounting system that includes an organic solvent accounting form to record—

A. The quantity and type of organic solvent used each month for washoff and cleaning;

B. The number of pieces washed off with the reason for washoff; and

C. The net quantity of spent organic solvent generated from each activity. The net quantity of spent solvent is equivalent to the total amount of organic solvent that is generated from the activity minus any organic solvent that is recycled on-site for operations other than cleaning or washoff and any organic solvent that was sent disposed off-site;

5. Spray booth cleaning that shall not use compounds containing more than 8.0 percent by weight of VOC for cleaning spray booth components other than conveyors, continuous coaters and their enclosures, and/or metal filters, unless the spray booth is being refurbished. If the spray booth is being refurbished (that is, the spray booth coating or other material used to cover the booth is being replaced), the affected source shall use no more than 1.0 gallon of organic solvent to prepare the booth prior to applying the booth coating;

6. Storage requirements to ensure that owners or operators of affected sources use normally closed containers for storing finishing, cleaning and washoff materials;

7. Application equipment requirements to ensure owners or operators of affected sources do not use conventional air spray guns for applying finishing materials except for the following conditions:

A. When applying finishing materials that have a VOC content no greater than 1.0 kg VOC/kg solids (1.0 lb VOC/lb solids), as applied;



B. To touch-up and repair when—

(I) The finishing materials are applied after completion of the finishing operation; or

(II) The finishing materials are applied after the stain and before any other type of finishing material is applied, and the finishing materials are applied from a container that has a volume of no more than 2.0 gallons;

C. When spray is automated (that is, the spray gun is aimed and triggered automatically, not manually);

D. When emissions from the finishing application station are directed to a control device;

E. When the conventional air gun is used to apply finishing materials and the cumulative total usage of that finishing material is no more than 5.0 percent of the total gallons of finishing material used during that semiannual reporting period; or

F. When the conventional air gun is used to apply stain on a part for which it is technically or economically infeasible to use any other spray application technology. For this condition, the owner or operator of the affected source shall demonstrate why it is technically or economically infeasible by submitting to the department a videotape, a technical report or other documentation to support the affected source's claim. The support documentation shall include the following criteria, either independently or in combination:

(I) The production speed is too high or the part shape is too complex for one operator to coat the part and the application station is not large enough to accommodate an additional operator; or

(II) The excessively large vertical spray area of the part makes it difficult to avoid sagging or runs in the stain;

8. Line cleaning that pumps or drains all organic solvent used for line cleaning into a normally closed container;

9. Gun cleaning that collects all organic solvent used to clean spray guns into a normally closed container; and

10. Washoff operations that control emissions from washoff operations by—

A. Using normally closed tanks for washoff; and

B. Minimizing dripping by tilting or rotating the part to drain as much organic solvent as possible.

(C) Compliance Procedures and Monitoring Requirements.

1. The owner or operator of an affected source subject to the emission standards in subsection (3)(A) of this rule shall demonstrate compliance with those requirements by using one of the following methods:

A. To demonstrate that each sealer, topcoat and strippable booth coating meets the applicable requirements of paragraphs (3)(A)1. and (3)(A)5. of this rule, the owner or operator shall maintain certified product data sheets for each of these finishing materials. If solvent or other VOC is added to the finishing material before application, the owner or operator shall maintain documentation showing the VOC content of the finishing material as applied, in kg VOC/kg solids (lb VOC/lb solids); or

B. To demonstrate compliance through the use of a control system per paragraph (3)(A)3. of this rule, the owner or operator shall—

(I) Determine the overall control efficiency needed to demonstrate compliance using Equation (3) as follows:

$$R = [(C - E)/C] \times 100 \quad (3)$$

where:

R =the overall efficiency of the control system, expressed as a percentage;

C =the VOC content of a coating (C), in kilograms of VOC per kilogram of coating solids (kg VOC/kg solids), as applied. Also given in pounds of VOC per pound of coating solids (lb VOC/lb solids), as applied; and

E =the emission limit achieved by the affected emission point(s), in kg VOC/kg solids;

(II) Document that the value of C in Equation (3) is obtained from the VOC and solids content of the as-applied finishing material; and

(III) Calculate the overall efficiency of the control device, using the procedure in subsection (5)(D) of this rule, and demonstrate that the value of the overall efficiency of the control system, expressed as a percentage, is equal to or greater than the value of R calculated by Equation (3).

C. To demonstrate compliance through the use of a combination of the methods per paragraph (3)(A)4. of this rule, the owner or operator shall meet all individual compliance requirements for the applicable methods being combined.

2. Initial compliance.

A. The owner or operator of an affected source subject to a requirement of paragraph (3)(A)1. or (3)(A)5. of this rule that is complying through the method established in subparagraph (3)(C)1.A. of this rule, shall submit an initial compliance status report, as required by paragraph (4)(A)2. of this rule, stating that compliant sealers and/or topcoats and strippable booth coatings are being used by the affected source.

B. The owner or operator of an affected source subject to a requirement of paragraph (3)(A)1. of this rule that is complying through the method established in subparagraph (3)(C)1.A. of this rule and is applying sealers and/or topcoats using continuous coaters shall demonstrate initial compliance by—

(I) Submitting an initial compliance status report stating that compliant sealers and/or topcoats, as determined by the VOC content of the finishing material in the reservoir and the VOC content as calculated from records, are being used; or

(II) Submitting an initial compliance status report stating that compliant sealers and/or topcoats, as determined by the VOC content of the finishing material in the reservoir, are being used and the viscosity of the finishing material in the reservoir is being monitored. The affected source shall also provide data that demonstrates the correlation between the viscosity of the finishing material and the VOC content of the finishing material in the reservoir.

C. The owner or operator of an affected source demonstrating compliance with this rule through the use of a control system (capture device/control device) per paragraph (3)(A)3. and subparagraph (3)(C)1.B. of this rule, shall demonstrate initial compliance by—

(I) Submitting a monitoring plan that identifies the operating parameter to be monitored for the capture device and discusses why the parameter is appropriate for demonstrating ongoing compliance;

(II) Conducting an initial performance test using the procedures and test methods listed in subsections (5)(C) and (5)(D) of this rule (test methods in paragraphs (5)(C)3., (5)(C)4. and (5)(C)5. of this rule shall be performed, as applicable, at least twice during each test period);

(III) Calculating the overall control efficiency using the procedure in subsection (5)(D) of this rule;

(IV) Determining those operating conditions critical to determining compliance and establishing operating parameters that will ensure compliance with the standard as follows:



(a) For compliance with a thermal incinerator, minimum combustion temperature shall be the operating parameter;

(b) For compliance with a catalytic incinerator equipped with a fixed catalyst bed, the minimum gas temperature both upstream and downstream of the catalyst bed shall be the operating parameter;

(c) For compliance with a catalytic incinerator equipped with a fluidized catalyst bed, the minimum gas temperature upstream of the catalyst bed and the pressure drop across the catalyst bed shall be the operating parameters; and

(d) For compliance with a carbon adsorber, the operating parameters shall be either the total regeneration mass stream flow for each regeneration cycle and the carbon bed temperature after each regeneration, or the concentration level of organic compounds exiting the adsorber, unless the owner or operator requests and receives approval from the director to establish other operating parameters; and

(V) The owner or operator of an affected source demonstrating compliance with this rule per subparagraph (3)(C)2.C. of this rule shall calculate the site-specific operating parameter value as the arithmetic average of the maximum or minimum operating parameter values, as appropriate, that demonstrate compliance with the standards, during the three (3) test runs required by paragraph (5)(C)1. of this rule.

D. The owner or operator of an affected source subject to the work practice standards in subsection (3)(B) of this rule shall submit an initial compliance status report, as required by paragraph (4)(A)3. of this rule, stating that the work practice implementation plan has been developed and procedures have been established for implementing the provisions of the plan.

(D) Special Requirements for Sources Using An Averaging Approach. The owner or operator of an affected source complying with the emission limitations in subsection (3)(A) of this rule through the procedures established in paragraph (3)(A)2. of this rule shall also meet the following requirements:

1. Program goals and rationale. The owner or operator of the affected source shall provide a summary of the reasons why the affected source would like to comply with the emission limitations through the procedures established in paragraph (3)(A)2. of this rule and a summary of how averaging can be used to meet the emission limitations. The affected source shall also document that the additional environmental benefit requirement is being met through the use of the inequalities in paragraph (3)(A)2. of this rule. These

inequalities ensure that the affected source is achieving an additional ten percent (10%) reduction in emissions when compared to affected sources using a compliant coatings approach to meet the requirements of the rule.

2. Program scope. The owner or operator of the affected source shall describe the types of finishing materials that will be included in the affected source's averaging program. Stains, basecoats, washcoats, sealers and topcoats may all be used in the averaging program. Finishing materials that are applied using continuous coaters may only be used in an averaging program if the affected source can determine the amount of finishing material used each day.

3. Program baseline. The baseline for each finishing material included in the averaging program shall be the lower of the actual or allowable emission rate as of the effective date of this rule.

4. Quantification procedures. The owner or operator of the affected source shall specify methods and procedures for quantifying emissions. Quantification procedures for VOC content are included in section (5) of this rule. The owner or operator shall specify methods to be used for determining the usage of each finishing material. The quantification methods used shall be accurate enough to ensure that the affected source's actual emissions are less than the allowable emissions, as calculated using Inequality (1) or (2) in paragraph (3)(A)2. of this rule, on a daily basis to a level of certainty comparable to that for traditional control strategies applicable to surface coating sources.

5. Monitoring, record keeping and reporting. The owner or operator of an affected source shall provide a summary of the monitoring, record keeping and reporting procedures that will be used to demonstrate daily compliance with the inequalities presented in paragraph (3)(A)2. of the rule. The monitoring, record keeping and reporting procedures shall be structured in such a way that inspectors and facility owners can determine an affected source's compliance status for any day. Furthermore, the procedures must include methods for determining required data when monitoring, record keeping and reporting violations result in missing, inadequate or erroneous monitoring and record keeping. These procedures must ensure that sources have sufficiently strong incentive to properly perform monitoring and record keeping.

6. Implementation schedule. The owner or operator of an affected source shall submit an averaging proposal for state and EPA approval by July 31, 2001.

7. Administrative procedures. Any affected source may submit an averaging approach proposal to the director for consideration in meeting the compliance requirements of this rule. The director shall take the following actions:

A. Determine whether or not the proposal submittal is complete and notify the submitter of the completeness status within thirty (30) calendar days of receipt of the proposal; and

B. Approve or disapprove the proposal within thirty (30) calendar days of determining that a proposal submittal is complete.

(4) Reporting and Record Keeping.

(A) Reporting Requirements.

1. The owner or operator of an affected source using a control system to fulfill the requirements of this rule are required to submit a written report of the performance test results for the performance test, required by part (3)(C)2.C.(II) of this rule, to the director within sixty (60) calendar days of completion of the performance test.

2. The owner or operator of an affected source subject to this rule shall submit an initial compliance report no later than sixty (60) calendar days after the compliance date. The report shall include the items required by paragraph (3)(C)2. of this rule.

3. The owner or operator of an affected source subject to this rule and demonstrating compliance in accordance with subparagraph (3)(C)1.A. or (3)(C)1.B. of this rule shall submit a semiannual report covering the previous six (6) months of wood furniture manufacturing operations according to the following schedule:

A. The first report shall be submitted thirty (30) calendar days after the end of the first six (6)-month period following the compliance date;

B. Subsequent reports shall be submitted within thirty (30) calendar days after the end of each six (6)-month period following the first report; and

C. Each semiannual report shall include a statement of whether the affected source was in compliance or noncompliance, and, if the affected source was in noncompliance, the measures taken to bring the affected source into compliance.

(B) Record Keeping Requirements.

1. The owner or operator of an affected source subject to the emission standards in subsection (3)(A) of this rule shall maintain records of the following:

A. A certified product data sheet for each finishing material and strippable booth coating subject to the emission limits in subsection (3)(A) of this rule; and



B. The VOC content, kg VOC/kg solids (lb VOC/lb solids), as applied, of each finishing material and strippable booth coating subject to the emission limits in subsection (3)(A) of this rule, and copies of data sheets documenting how the as-applied values were determined.

2. The owner or operator of an affected source following the compliance method of subparagraph (3)(C)1.B. of this rule shall maintain the following records:

A. Copies of the calculations to support the equivalency of using a control system, as well as the data that are necessary to support the calculation of E in Equation (3) and the calculation of overall efficiency for a control system for subsection (5)(D) of this rule;

B. Records of the daily average value of each continuously monitored parameter for each operating day. If all recorded values for a monitored parameter are within the range established during the initial performance test, the owner or operator may record that all values were within the range rather than calculating and recording an average for that day; and

C. Records of the pressure drop across the catalyst bed for facilities complying with the emission limitations using a catalytic incinerator with a fluidized catalyst bed.

3. The owner or operator of an affected source subject to the work practice standards in subsection (3)(B) of this rule shall maintain, on-site, the work practice implementation plan and all records associated with fulfilling the requirements of that plan, including, but not limited to:

A. Records demonstrating that the operator training program is in place;

B. Records maintained in accordance with the inspection and maintenance plan;

C. Records associated with the cleaning solvent accounting system;

D. Records associated with the limitation on the use of conventional air spray guns showing total finishing material usage and the percentage of finishing materials applied with conventional air spray guns for each semiannual reporting period;

E. Records showing the VOC content of compounds used for cleaning booth components, except for solvent used to clean conveyors, continuous coaters and their enclosures, and/or metal filters; and

F. Copies of logs and other documentation developed to demonstrate that the other provisions of the work practice implementation plan are followed.

4. In addition to the records required by paragraph (4)(B)1. of this rule, the owner or

operator of an affected source that complies through the method established in subparagraph (3)(C)1.A. or by demonstrating compliance with subsection (3)(A) of this rule shall maintain a copy of the compliance certifications submitted in accordance with paragraph (4)(A)3. of this rule for each semiannual period following the compliance date.

5. The owner or operator of an affected source shall maintain a copy of all other information submitted with the initial status report required by paragraph (4)(A)2. of this rule and the semiannual reports required by paragraph (4)(A)3. of this rule.

6. The owner or operator of an affected source shall maintain all records for a minimum of five (5) years.

7. Failure to maintain the records required by paragraphs (4)(B)1. through (4)(B)6. of this rule shall constitute a violation of the rule for each day records are not maintained.

(5) Test Methods.

(A) The VOC content and the solids content by weight of the as-supplied finishing materials shall be determined by 10 CSR 10-6.030(14)(C), Reference Method 24—Determination of Volatile Matter Content, Water Content, Density, Volume, Solids and Weight Solids of Surface Coatings. The owner or operator of the affected source may request approval from the director to use an alternative or equivalent method for determining the VOC content of the finishing material.

(B) Owners or operators demonstrating compliance with the provisions of this rule via a control system shall determine the overall control efficiency of the control system (R) as the product of the capture and control device efficiencies, using the test methods cited in subsection (5)(C) of this rule and the procedure in subsection (5)(D) of this rule.

(C) Owners or operators using a control system shall demonstrate initial compliance using the procedures in paragraphs (5)(C)1. through (5)(C)5. of this rule.

1. The VOC concentration of gaseous air streams shall be determined with a test consisting of three (3) separate runs, each lasting a minimum of thirty (30) minutes using one (1) of the following methods as specified by 40 CFR 60, Appendix A—Reference Methods:

A. *Method 18—Measurement of Gaseous Organic Compound Emissions by Gas Chromatography;*

B. 10 CSR 10-6.030(14)(A), Reference Method 25—Determination of Total Gaseous Nonmethane Organic Emissions as Carbon; or

C. *Method 25A—Determination of Total Gaseous Organic Concentration Using Flame Ionization Analyzer.*

2. Sample and velocity traverses shall be determined by using one (1) of the following methods as specified by 40 CFR 60, Appendix A—Reference Methods:

A. 10 CSR 10-6.030(1), Reference Method 1—Sample and Velocity Traverses for Stationary Sources; or

B. *Method 1A—Sample and Velocity Traverses for Stationary Sources with Small Stacks or Ducts.*

3. Velocity and volumetric flow rates shall be determined by using one (1) of the following methods as specified by 40 CFR 60, Appendix A—Reference Methods:

A. 10 CSR 10-6.030(2), Reference Method 2—Determination of Stack Gas Velocity and Volumetric Flow Rate (Type S Pitot Tube); or

B. *Method 2A—Direct Measurement of Gas Volume Through Pipes and Small Ducts;*

C. *Method 2C—Determination of Stack Gas Velocity and Volumetric Flow Rate in Small Stacks or Ducts (Standard Pitot Tube);*

D. *Method 2D—Measurement of Gas Volumetric Flow Rates in Small Pipes and Ducts;*

E. *Method 2F—Determination of Stack Gas Velocity and Volumetric Flow Rate With Three-Dimensional Probes;*

F. *Method 2G—Determination of Stack Gas Velocity and Volumetric Flow Rate With Two-Dimensional Probes; or*

G. *Method 2H—Determination of Stack Gas Velocity Taking Into Account Velocity Decay Near the Stack Wall.*

4. To analyze the exhaust gases, use 10 CSR 10-6.030(3), Reference Method 3—Gas Analysis for Carbon Dioxide, Oxygen, Excess Air and Dry Molecular Weight.

5. To measure the moisture in the stack gas, use 10 CSR 10-6.030(4), Reference Method 4—Determination of Moisture Content in Stack Gases.

(D) Owners or operators using a control system to demonstrate compliance with this rule shall determine capture efficiencies by using test methods stated in 10 CSR 10-6.030(20).

AUTHORITY: section 643.050, RSMo Supp. 1998. Original rule filed July 15, 1999, effective Feb. 29, 2000.*

**Original authority: 643.050, RSMo 1965, amended 1972, 1992, 1993, 1995.*



10 CSR 10-5.540 Control of Emissions From Batch Process Operations

PURPOSE: This rule limits the volatile organic compound (VOC) emissions from batch process operations by incorporating reasonably available control technology (RACT) as required by the Clean Air Act Amendments (CAAA) of 1990.

PUBLISHER'S NOTE: The secretary of state has determined that the publication of the entire text of the material which is incorporated by reference as a portion of this rule would be unduly cumbersome or expensive. Therefore, the material which is so incorporated is on file with the agency who filed this rule, and with the Office of the Secretary of State. Any interested person may view this material at either agency's headquarters or the same will be made available at the Office of the Secretary of State at a cost not to exceed actual cost of copy reproduction. The entire text of the rule is printed here. This note refers only to the incorporated by reference material.

(1) Applicability.

(A) This rule shall apply throughout the City of St. Louis and St. Charles, St. Louis, Jefferson and Franklin Counties.

(B) This rule is applicable to all batch process operations that have the potential to emit equal to or greater than one hundred (100) tons per year of volatile organic compounds (VOC) at sources identified by any of the following four (4)-digit standard industrial classification (SIC) codes, as defined in the 1987 edition of the *Federal Standard Industrial Classification Manual*: SIC 2821, 2833, 2834, 2861, 2865, 2869, and 2879.

(C) The following single unit operations and batch process trains are subject to this rule but are considered to be *de minimis* and are, therefore, exempt from the control requirements of section (3) of this rule. However, the record keeping and reporting requirements in section (4) of this rule shall apply to such *de minimis* single unit operations and batch process trains:

1. Within a batch process operation, any single unit operation with uncontrolled total annual mass emissions of less than or equal to five hundred (500) pounds per year (lb/yr) of VOC. Such single unit operations are also excluded from the calculation of the total annual mass emissions for a batch process train. If the uncontrolled total annual mass emissions from such exempt single unit operation exceed five hundred (500) lb/yr of VOC in any subsequent year, the source shall calculate applicability in accordance with subsection (1)(E) of this rule for both the indi-

vidual single unit operation and the batch process train containing the single unit operation; and

2. Any batch process train containing process vents that have, in the aggregate, uncontrolled total annual mass emissions, as determined in accordance with paragraph (3)(E)1. of this rule, of less than thirty thousand (30,000) lb/yr of VOC for all products manufactured in such batch process train.

(D) The applicability equations in subsection (1)(E) of this rule, which require the calculation of uncontrolled total annual mass emissions and flow rate value, shall be used to determine whether a single unit operation or a batch process train is subject to the control requirements in section (3) of this rule. The applicability equation shall be applied to the following:

1. Any single unit operation with uncontrolled total annual mass emissions that exceed five hundred (500) lb/yr and with a VOC concentration greater than five hundred (500) parts per million by volume (ppmv). In this individual determination, no applicability analysis shall be performed for any single unit operation with a VOC concentration of less than or equal to five hundred (500) ppmv; and

2. Any batch process train containing process vents which, in the aggregate, have uncontrolled total annual mass emissions of thirty thousand (30,000) lb/yr or more of VOC from all products manufactured in the batch process train. Any single unit operation with uncontrolled total annual mass emissions exceeding five hundred (500) lb/yr, regardless of VOC concentration, shall be included in the aggregate applicability analysis.

(E) Applicability Equations. The applicability equations in this rule subsection are specific to volatility.

1. Weighted average volatility (WAV) shall be calculated as follows:

$$WAV = \frac{\sum_{i=1}^n \frac{[(VP_i) \times (MVOC_i)]}{[(MWVOC_i)]}}{\sum_{i=1}^n \frac{[(MVOC_i)]}{[(MWVOC_i)]}}$$

where:
WAV = weighted average volatility;
MVOC_i = mass of VOC component i;
MWVOC_i = molecular weight of VOC component i; and
VP_i = vapor pressure of VOC component i.

2. For purposes of determining applicability, flow rate values shall be calculated as follows:

A. Low WAV has a vapor pressure less than or equal to seventy-five (75) millimeters of Mercury (mmHg) at twenty degrees Celsius (20°C), and shall use the following equation:

$$FR = [0.07 (UTAME)] - 1,821$$

Where:

FR = Vent stream flow rate, expressed as standard cubic feet per minute (scfm);

UTAME = Uncontrolled total annual mass emissions of VOC, expressed as lb/yr;

B. Moderate WAV has a vapor pressure greater than seventy-five (75) mmHg but less than or equal to one hundred fifty (150) mmHg at twenty degrees Celsius (20°C), and shall use the following equation:

$$FR = [0.031 (UTAME)] - 494$$

C. High WAV has a vapor pressure greater than one hundred fifty (150) mmHg at twenty degrees Celsius (20°C), and shall use the following equation:

$$FR = [0.013 (UTAME)] - 301$$

3. To determine the vapor pressure of VOC, the applicable methods and procedures in section (5) of this rule shall apply.

(F) In the event that other rules in Title 10 Division 10 of the *Code of State Regulations* are also applicable to batch process operations, the more stringent rule shall apply.

(2) Definitions.

(A) Batch—A discontinuous process involving the bulk movement of material through sequential manufacturing steps, typically characterized as non-steady-state.

(B) Batch cycle—A manufacturing event of an intermediate or product from start to finish in a batch process.

(C) Batch process operation—A discontinuous operation in which a discrete quantity or batch of feed is charged into a chemical manufacturing process unit and distilled or reacted, or otherwise used at one time, and may include, but is not limited to, reactors, filters, dryers, distillation columns, extractors, crystallizers, blend tanks, neutralizer tanks, digesters, surge tanks and product separators. After each batch process operation, the equipment is generally emptied before a fresh batch is started.



(D) Batch process train—The collection of equipment (e.g., reactors, filters, dryers, distillation columns, extractors, crystallizers, blend tanks, neutralizer tanks, digesters, surge tanks and product separators) configured to produce a product or intermediate by a batch process operation. A batch process train terminates at the point of storage of the product or intermediate being produced in the batch process train. Irrespective of the product being produced, a batch process train which is independent of other processes shall be considered a single batch process train for purposes of this rule.

(E) Control devices—Air pollution abatement devices. For purposes of this rule, condensers operating under reflux conditions are not considered control devices.

(F) Emission events—Discrete venting episodes that may be associated with a single unit of operation.

(G) Processes—Any equipment within a contiguous area that are connected together during the course of a year where connected is defined as a link between equipment, whether it is physical, such as a pipe, or whether it is next in a series of steps from which material is transferred from one unit operation to another.

(H) Unit operations—Discrete processing steps that occur within distinct equipment that are used to prepare reactants, facilitate reactions, separate and purify products, and recycle materials.

(I) Vent—A point of emission from a unit operation. Typical process vents from batch processes include condenser vents, vacuum pumps, steam ejectors, and atmospheric vents from reactors and other process vessels. Vents also include relief valve discharges. Equipment exhaust systems that discharge from unit operations also would be considered process vents.

(J) Volatility—For purposes of this rule, low volatility materials are defined as those which have a vapor pressure less than or equal to seventy-five (75) mmHg at twenty degrees Celsius (20°C), moderate volatility materials have a vapor pressure greater than seventy-five (75) and less than or equal to one hundred fifty (150) mmHg at twenty degrees Celsius (20°C), and high volatility materials have a vapor pressure greater than one hundred fifty (150) mmHg at twenty degrees Celsius (20°C). To evaluate VOC volatility for single unit operations that service numerous VOCs or for processes handling multiple VOCs, the weighted average volatility can be calculated from knowing the total amount of each VOC used in a year, and the individual component vapor pressure, per the equation in paragraph (1)(E)1. of this rule.

(K) Definitions of certain terms, other than those specified in this rule, may be found in 10 CSR 10-6.020.

(3) General Provisions.

(A) Every owner or operator of a single unit operation with an average flow rate, as determined in accordance with paragraph (3)(E)2. of this rule, below the flow rate value calculated by the applicability equations contained in subsection (1)(E) of this rule, shall reduce uncontrolled VOC emissions from such single unit operation by an overall efficiency, on an annual average, of at least ninety percent (90%), or twenty (20) ppmv, per batch cycle.

(B) Every owner or operator of a batch process train with an average flow rate, as determined in accordance with subparagraph (3)(E)2.B. of this rule, below the flow rate value calculated by the applicability equations contained in subsection (1)(E) of this rule, shall reduce uncontrolled VOC emissions from such batch process train by an overall efficiency, on an annual average, of at least ninety percent (90%), or twenty (20) ppmv, per batch cycle. For purposes of demonstrating compliance with the emission limitations in this rule section, any control device meeting the criteria in subsection (3)(D) of this rule shall be deemed to achieve a control efficiency of ninety percent (90%), or twenty (20) ppmv, per batch cycle, as applicable.

(C) Notwithstanding subsection (3)(A) or (3)(B) of this rule, any source that has installed on or before December 15, 1999, any control device which is demonstrated to the department's satisfaction to be unable to meet the applicable control requirements of this rule section, a scrubber, or shell and tube condenser using a non-refrigerated cooling media, and such device achieves at least eighty-one percent (81%) control efficiency of VOC emissions, is required to meet the ninety percent (90%) emission limitation or twenty (20) ppmv VOC concentration in subsection (3)(A) or (3)(B) of this rule, as applicable, upon the earlier to occur of the date the device is replaced for any reason, including, but not limited to, normal maintenance, malfunction, accident, and obsolescence, or May 1, 2002. Control devices installed on or before December 15, 1999, that do not achieve at least eighty-one percent (81%) control efficiency of VOC emissions shall comply with the control requirements of subsection (3)(A) or (3)(B) on or before May 1, 2001. A scrubber, shell and tube condenser using a non-refrigerated cooling media, or other control device meeting the criteria of this rule subsection, is considered replaced when—

1. The entire device is replaced; or

2. When either the cost to repair the device or the cost to replace part of the device exceeds fifty percent (50%) of the cost of replacing the entire device with a control device that complies with the ninety percent (90%) emission limitation or twenty (20) ppmv VOC concentration level in subsection (3)(A) of this rule, as applicable.

(D) Control Equipment Specifications.

1. If a boiler or process heater is used to comply with this rule section, the vent stream shall be introduced into the flame zone of the boiler or process heater. The boiler or process heater shall meet the control device requirements for boilers and process heaters included in 40 CFR 60.703, 60.704, and 60.705.

2. If a flare is used to comply with this rule section, it shall comply with the requirements of 40 CFR 60.18, which are hereby incorporated by reference. The flare operation requirements of 40 CFR 60.18 do not apply if a process, not subject to this rule, vents an emergency relief discharge into a common flare header and causes the flare servicing the process subject to this rule to not comply with one or more of the provisions of 40 CFR 60.18. This exemption from flare specification requirements is a temporary exemption lasting only for the period of time during the emergency relief venting discharge.

3. If an afterburner, scrubber, absorber, condenser or adsorber is used to comply with this rule section, such equipment shall meet the control device requirements for this equipment included in 40 CFR 60.703, 60.704, and 60.705.

4. If an incinerator is used to comply with this rule section, the incinerator shall meet the control device requirements for incinerators included in 40 CFR 60.703, 60.704, and 60.705.

(E) Determination of uncontrolled total annual mass emissions and actual weighted average flow rate values for batch process operations.

1. Uncontrolled total annual mass emissions shall be determined by the following methods:

A. Direct process vent emissions measurements taken prior to any release to the atmosphere, following any recovery device and prior to any control device, provided such measurements conform with the requirements of measuring the mass flow rate of VOC incoming to the control device as in paragraph (5)(F)2. and subparagraphs (5)(F)3.A. and (5)(F)3.B. of this rule; or

B. Engineering estimates of the uncontrolled VOC emissions from a process



vent or process vents, in the aggregate, within a batch process train, using either the potential or permitted number of batch cycles per year or total production as represented in the source's operating permit.

(I) Engineering estimates of the uncontrolled VOC emissions shall be based upon accepted chemical engineering principles, measurable process parameters, or physical or chemical laws and their properties. Examples of methods include, but are not limited to, the following:

(a) Use of material balances based on process stoichiometry to estimate maximum VOC concentrations;

(b) Estimation of maximum flow rate based on physical equipment design such as pump or blower capacities; and

(c) Estimation of VOC concentrations based on saturation conditions.

(II) All data, assumptions and procedures used in any engineering estimate shall be documented.

2. Average flow rate shall be determined by any of the following methods:

A. Direct process vent flow rate measurements taken prior to any release to the atmosphere, following any recovery device and prior to any control device, provided such measurements conform with the requirements of measuring incoming volumetric flow rate in paragraph (5)(F)2. of this rule;

B. Average flow rate for a single unit operation having multiple emission events or batch process trains shall be the weighted average flow rate, calculated as follows:

$$WAF = \frac{\sum_{i=1}^n (AFR_i \times ADE_i)}{\sum_{i=1}^n (ADE_i)}$$

where:

WAF = Actual weighted average flow rate for a single unit operation or batch process train;

AFR_i = Average flow rate per emission event;

ADE_i = Annual duration of emission event; and

n = Number of emission events.

For purposes of this formula, the term "emission event" shall be defined as a discrete period of venting that is associated with a single unit operation. For example, a displacement of vapor resulting from the charging of a single unit operation with VOC will result in a discrete emission event that will last through the duration of the charge and will have an average flow rate equal to the rate of

the charge. The expulsion of expanded vapor space when the single unit operation is heated is also an emission event. Both of these examples of emission events and others may occur in the same single unit operation during the course of the batch cycle. If the flow rate measurement for any emission event is zero, according to paragraph (5)(F)2. of this rule, then such event is not an emission event for purposes of this rule section; or

C. Engineering estimates calculated in accordance with the requirements in subparagraph (3)(E)1.B. of this rule.

3. For purposes of determining the average flow rate for steam vacuuming systems, the steam flow shall be included in the average flow rate calculation.

4. In cases where two (2) or more single unit operations share a process vent and where flow measurement for such single unit operations is difficult, alternate methods of flow measurement may be used only when approved by the department.

(4) Reporting and Record Keeping.

(A) Every owner or operator of a *de minimis* single unit operation or batch process train exempt under paragraph (1)(C)1. or (1)(C)2. of this rule shall keep records of the uncontrolled total annual mass emissions for any *de minimis* single unit operation or batch process train, as applicable, and documentation verifying these values or measurements. The documentation shall include the engineering calculations, any measurements made in accordance with section (5) of this rule, and the potential or permitted number of batch cycles per year, or, in the alternative, total production as represented in the source's operating permit.

(B) Every owner or operator of a single unit operation exempt under subsection (1)(D) of this rule shall keep the following records:

1. The uncontrolled total annual mass emissions and documentation verifying these values or measurements. The documentation shall include any engineering calculations, any measurements made in accordance with section (5) of this rule, and the potential or permitted number of batch cycles per year or, in the alternative, total production as represented in the source's operating permit; and

2. The average flow rate in standard cubic feet per minute (scfm) and documentation verifying this value.

(C) Every owner or operator of a batch process operation subject to the control requirements of section (3) of this rule shall keep records of the following parameters required to be monitored under subsection (4)(I) of this rule:

1. If using a thermal or catalytic afterburner to comply with section (3) of this rule, records indicating the average combustion chamber temperature of the afterburner or the average temperature upstream and downstream of the catalyst bed for a catalytic afterburner, measured continuously and averaged over the same time period as the performance test;

2. If using a flare to comply with section (3) of this rule, continuous records of the flare pilot flame monitoring and records of all periods of operations during which the pilot flame is absent; or

3. If using any of the following as a control device, the following records:

A. Where a scrubber is used, the exit specific gravity or alternative parameter which is a measure of the degree of absorbing liquid saturation, if approved by the department, and the average exit temperature of the absorbing liquid, measured continuously and averaged over the same time period as the performance test both measured while the vent stream is routed normally;

B. Where a condenser is used, the average exit or product side temperature measured continuously and averaged over the same time period as the performance test while the vent stream is routed normally;

C. Where a carbon adsorber is used, the total steam mass flow measured continuously and averaged over the same time period as the performance test full carbon bed cycle, temperature of the carbon bed after regeneration and within fifteen (15) minutes after completion of any cooling cycle(s), and duration of the carbon bed steaming cycle all measured while the vent stream is routed normally; or

D. As an alternative to subparagraphs (4)(C)3.A., (4)(C)3.B. or (4)(C)3.C. of this rule, at a minimum, records indicating the concentration level or reading indicated by the VOC monitoring device at the outlet of the scrubber, condenser or carbon adsorber, measured continuously and averaged over the same time period as the performance test while the vent stream is routed normally.

(D) Every owner or operator of a single unit operation claiming a vent stream concentration exemption level shall maintain records to indicate the vent stream concentration is less than or equal to five hundred (500) ppmv, and shall notify the department in writing if the vent stream concentration at any time equals or exceeds five hundred (500) ppmv, within sixty (60) days after such event. Such notification shall include a copy of all records of such event.



(E) An owner or operator of a batch process operation subject to the control requirements of section (3) of this rule may maintain alternative records other than those listed in subsection (4)(C) of this rule. Any alternative record keeping shall be approved by the department and shall be contained in the source's operating permit as federally enforceable permit conditions.

(F) Notwithstanding subsections (4)(A) through (4)(E) of this rule, any owner or operator of a batch process operation which uses either a scrubber, shell and tube condenser using nonrefrigerated cooling media, or other control device meeting the criteria of subsection (3)(D) of this rule, is required to monitor compliance with the requirements on and after the earlier to occur of the date such device is replaced for any reason or May 1, 2002.

(G) The owner or operator of a *de minimis* single unit operation or batch process train exempt from the control requirements of section (3) of this rule shall notify the department in writing if the uncontrolled total annual mass emissions from such *de minimis* single unit operation or batch process train exceed the threshold in paragraph (1)(C)1. or (1)(C)2. of this rule, respectively, within sixty (60) days after the event occurs. Such notification shall include a copy of all records of such event.

(H) Every owner or operator of a batch process operation required to keep records under this rule section shall maintain such records on-site for at least five (5) years and shall make all such records available to the department immediately upon request.

(I) Monitoring Requirements.

1. Every owner or operator using an afterburner to comply with section (3) of this rule shall install, calibrate, maintain and operate, according to manufacturer's specifications, temperature monitoring devices with an accuracy of plus or minus one percent ($\pm 1\%$) of the temperature being measured expressed in degrees Celsius, equipped with continuous recorders.

A. Where a catalytic afterburner is used, temperature monitoring devices shall be installed in the gas stream immediately before and after the catalyst bed.

B. Where an afterburner other than a catalytic afterburner is used, a temperature monitoring device shall be installed in the combustion chamber.

2. Every owner or operator using a flare to comply with section (3) of this rule, shall install, calibrate, maintain and operate, according to manufacturer's specifications, a heat sensing device, such as an ultraviolet beam sensor or thermocouple, at the pilot light to indicate continuous presence of a flame.

3. Every owner or operator using a scrubber to comply with section (3) of this rule shall install, calibrate, maintain, and operate, according to manufacturer's specifications, the following:

A. A temperature monitoring device for scrubbant liquid having an accuracy of plus or minus one percent ($\pm 1\%$) of the temperature being monitored expressed in degrees Celsius and a specific gravity device for scrubbant liquid, each equipped with a continuous recorder; or

B. A VOC monitoring device used to indicate the concentration of VOC exiting the control device based on a detection principle such as infrared, photoionization or thermal conductivity, each equipped with a continuous recorder.

4. Every owner or operator using a condenser to comply with section (3) of this rule shall install, calibrate, maintain, and operate, according to manufacturer's specifications, the following:

A. A condenser exit temperature monitoring device equipped with a continuous recorder and having an accuracy of plus or minus one percent ($\pm 1\%$) of the temperature being monitored expressed in degrees Celsius; or

B. A VOC monitoring device used to indicate the concentration of VOC such as infrared, photoionization or thermal conductivity, each equipped with a continuous recorder.

5. Every owner or operator using a carbon adsorber to comply with this rule shall install, calibrate, maintain, and operate, according to the manufacturer's specifications, the following equipment:

A. An integrating regeneration stream flow monitoring device having an accuracy of plus or minus ten percent ($\pm 10\%$), and a carbon bed temperature monitoring device having an accuracy of plus or minus one percent ($\pm 1\%$) of the temperature being monitored expressed in degrees Celsius, both equipped with a continuous recorder; or

B. A VOC monitoring device used to indicate the concentration level of VOC exiting such device based on a detection principle such as infrared, photoionization or thermal conductivity, each equipped with a continuous recorder.

6. Every owner or operator using a boiler or process heater with a design heat input capacity less than forty-four (44) megawatts to comply with section (3) of this rule shall install, calibrate, maintain, and operate, according to the manufacturer's specifications, a temperature monitoring device in the firebox with an accuracy of plus or minus one percent ($\pm 1\%$) of the temperature being measured expressed in degrees Celsius, equipped with a continuous recorder. Any boiler or process heater in which all process vent streams are introduced with primary fuel is exempt from this requirement.

7. The owner or operator of a process vent shall be permitted to monitor by an alternative method or may monitor parameters other than those listed in paragraphs (4)(I)1. through (4)(I)6. of this rule, if approved by the department. Such alternative method or parameters shall be contained in the source's operating permit as federally enforceable permit conditions.

8. Notwithstanding paragraphs (4)(I)1. through (4)(I)7. of this rule, sources using a scrubber, shell and tube condenser using a nonrefrigerated cooling media, or other control device meeting the criteria of subsection (3)(D) of this rule, are required to monitor compliance with the requirements of this rule on and after the earlier to occur of the date such device is replaced for any reason or May 1, 2002.

(5) Test Methods.

(A) Upon the department's request, the owner or operator of a batch process operation shall conduct testing to demonstrate compliance with section (3) of this rule. The owner or operator shall, at its own expense, conduct such tests in accordance with the applicable test methods and procedures specified in subsections (5)(D), (5)(E), and (5)(F) of this rule.

(B) Notwithstanding subsection (5)(A) of this rule, flares and process boilers used to comply with control requirements of section (3) of this rule shall be exempt from performance testing requirements.

(C) When a flare is used to comply with the control requirements of section (3) of this rule, the flare shall comply with the requirements of 40 CFR 60.18.

(D) The owner or operator of a batch process operation that is exempt from the control requirements of section (3) of this rule shall demonstrate, upon the department's request, the absence of oversized gas moving equipment in any manifold. Gas moving equipment shall be considered oversized if it exceeds the maximum requirements of the



exhaust flow rate by more than thirty percent (30%).

(E) For the purpose of demonstrating compliance with the control requirements in section (3) of this rule, the batch process operation shall be run at representative operating conditions and flow rates during any performance test.

(F) The following methods in 40 CFR 60, Appendix A, which are hereby incorporated by reference, shall be used to demonstrate compliance with the reduction efficiency requirement in section (3) of this rule:

1. Method 1 or 1A, as appropriate, for selection of the sampling sites if the flow measuring device is not a rotameter. The control device inlet sampling site for determination of vent stream VOC composition reduction efficiency shall be prior to the control device and after the control device;

2. Method 2, 2A, 2C, 2D, 2F, 2G or 2H as appropriate, for determination of gas stream volumetric flow rate flow measurements, which shall be taken continuously. No traverse is necessary when the flow measuring device is an ultrasonic probe; and

3. Method 25A or Method 18, if applicable, to determine the concentration of VOC in the control device inlet and outlet, where—

A. The sampling time for each run shall be as follows:

(I) For batch cycles less than eight (8) hours in length, appropriate operating parameters shall be recorded at a minimum of fifteen (15)-minute intervals during the batched period;

(II) For batch cycles of eight (8) hours and greater in length, the owner or operator may either test in accordance with the test procedures defined in part (5)(F)3.A.(I) of this rule or the owner or operator may elect to perform tests, pursuant to either Method 25A or Method 18, only during those portions of each emission event which profiles a representative sample occurring within the batch cycle. For each emission event of less than four (4) hours in duration, the owner or operator shall test continuously over the entire emission event as in part (5)(F)3.A.(I) of this rule. For each emission event of greater than four (4) hours in duration, the owner or operator shall elect either to perform a minimum of three (3) one-hour test runs during the emission event or shall test continuously over the entire emission event within each single unit operation in the batch process train. The owner or operator shall define the total batch process by all its intrinsic emission events. To demonstrate that the portion of the emission event to be tested profiles a representative sample occurring within the batch cycle, the owner or operator

electing to rely on this option shall develop an emission profile for each entire emission event. Such emission profile shall be based upon either process knowledge or test data collected. Examples of information that could constitute process knowledge include, but are not limited to, calculations based on material balances, duration, emission levels, constituents, reactants, byproducts and process stoichiometry. Previous test results may be used provided such results are still relevant to the current process vent stream conditions; or

(III) For purposes of paragraph (5)(F)3. of this rule, the term “emission event” shall be defined as a discrete period of venting that is associated with a single unit operation. For example, a displacement of vapor resulting from the charging of a single unit operation with VOC will result in a discrete emission event that will last through the duration of the charge and will have an average flow rate equal to the rate of the charge. The expulsion of expanded single unit operation vapor space when the vessel is heated is also an emission event. Both of these examples of emission events and others may occur in the same single unit operation during the course of the batch cycle. If the flow rate measurement for any emission event is zero (0), in accordance with paragraph (5)(F)2. of this rule, then such event is not an emission event for purposes of this rule section;

B. Calculate the mass emission rate (MER_i) into the control device as follows:

$$MER_i = C_i Q_i$$

where:

C_i = concentration into the control device; and

Q_i = flow rate into the control device;

C. Calculate the mass emission rate (MER_o) out of the control device as follows:

$$MER_o = C_o Q_o$$

where:

C_o = concentration out of the control device; and

Q_o = flow rate out of the control device; and

D. Calculate the total overall control device efficiency (η) as follows:

$$\eta = (MER_i - MER_o) / MER_i$$

(G) Upon request by the department to conduct testing, an owner or operator of a batch process operation which has installed a scrubber, a shell and tube condenser using a nonrefrigerated cooling media, or any other control device which meets the criteria of subsection (3)(D) of this rule, shall demonstrate that such device achieves the control efficiency applicable within section (3) of this

rule upon the earlier to occur of the date the device is replaced or May 1, 2002.

(H) The owner or operator of a batch process operation may propose an alternative test method or procedures to demonstrate compliance with the control requirements in section (3) of this rule. Such method or procedures shall be approved by the department.

(I) In the absence of a request by the department to conduct performance testing in accordance with the provisions of this rule section, a source may demonstrate compliance by the use of engineering estimates or process stoichiometry.

AUTHORITY: section 643.050, RSMo Supp. 1998. Original rule filed July 15, 1999, effective Feb. 29, 2000.*

**Original authority: 643.050, RSMo 1965, amended 1972, 1992, 1993, 1995.*

10 CSR 10-5.550 Control of Volatile Organic Compound Emissions From Reactor Processes and Distillation Operations Processes in the Synthetic Organic Chemical Manufacturing Industry

PURPOSE: This rule limits volatile organic compound emissions from reactor processes and distillation operations.

PUBLISHER'S NOTE: The secretary of state has determined that the publication of the entire text of the material which is incorporated by reference as a portion of this rule would be unduly cumbersome or expensive. Therefore, the material which is so incorporated is on file with the agency who filed this rule, and with the Office of the Secretary of State. Any interested person may view this material at either agency's headquarters or the same will be made available at the Office of the Secretary of State at a cost not to exceed actual cost of copy reproduction. The entire text of the rule is printed here. This note refers only to the incorporated by reference material.

(1) Applicability.

(A) The provisions of this rule apply to any vent stream originating from a process unit in which a reactor process or distillation operations is located.

(B) Exemptions from the provisions of this rule are as follows:

1. Any reactor process or distillation operation that is designed and operated in a batch mode is not subject to the provisions of this rule;

2. Any reactor process or distillation operation that is part of a polymer manufacturing operation is not subject to the provisions of this rule;



3. Any reactor process or distillation operation operating in a process unit with a total design capacity of less than one (1) gigagram (1,100 tons) per year for all chemicals produced within that unit is not subject to the provisions of this rule except for the reporting and record keeping requirements listed in subsection (4)(D) of this rule; and

4. Any vent stream for a reactor process or distillation operation with a flow rate less than 0.0085 standard cubic meter per minute or a total volatile organic compound (VOC) concentration less than five hundred (500) parts per million by volume is not subject to the provisions of this rule except for the performance testing requirement listed in subparagraph (3)(B)3.B., paragraph (3)(B)9. and the reporting and record keeping requirements listed in subsection (4)(C) of this rule.

(C) In the event that other rules in Title 10 Division 10 of the *Code of State Regulations* are also applicable to reactor processes and distillation operation processes in the chemical manufacturing industry, the more stringent rule shall apply.

(2) Definitions.

(A) Batch mode—A noncontinuous operation or process in which a discrete quantity or batch of feed is charged into a process unit and distilled or reacted at one time.

(B) Boiler—Any enclosed combustion device that extracts useful energy in the form of steam.

(C) By compound—By individual stream components, not carbon equivalents.

(D) Continuous recorder—A data recording device recording an instantaneous data value at least once every fifteen (15) minutes.

(E) Distillation operation—An operation separating one (1) or more feed stream(s) into two (2) or more exit stream(s), each exit stream having component concentration different from those in the feed stream(s). The separation is achieved by the redistribution of the components between the liquid- and vapor-phase as they approach equilibrium within the distillation unit.

(F) Distillation unit—A device or vessel in which distillation operations occur, including all associated internals (such as trays or packing) and accessories (such as reboiler, condenser, vacuum pump, stream jet, etc.), plus any associated recovery system.

(G) Flame zone—The portion of the combustion chamber in a boiler occupied by the flame envelope.

(H) Flow indicator—A device that indicates whether gas flow is present in a vent stream.

(I) Halogenated vent stream—Any vent stream determined to have a total concentra-

tion of halogen atoms (by volume) contained in organic compounds of two hundred (200) parts per million by volume or greater determined by Method 18 of 40 CFR part 60, Appendix A, or other test or data validated by Method 301 or 40 CFR part 63, Appendix A, or by engineering assessment or process knowledge that no halogenated organic compounds are present. For example, one hundred fifty (150) parts per million by volume of ethylene dichloride would contain three hundred (300) parts per million by volume of total halogen atoms.

(J) Incinerator—Any enclosed combustion device that is used for destroying organic compounds. Auxiliary fuel may be used to heat waste gas to combustion temperatures. Any energy recovery section present is not physically formed into one section; rather, the energy recovery system is a separate section following the combustion section and the two are joined by ducting or connections that carry fuel gas.

(K) Primary fuel—The fuel that provides the principal heat input to the device. To be considered primary, the fuel must be able to sustain operation without the addition of other fuels.

(L) Process heater—A device that transfers heat liberated by burning fuel to fluids contained in tubes, including all fluids except water that is heated to produce steam.

(M) Process unit—Equipment assembled and connected by pipes or ducts to produce, as intermediates or final products, one or more SOCOMI chemicals (see Appendix A of Control of Volatile Organic Compound Emissions from Reactor Processes and Distillation Operations Processes in the Synthetic Organic Chemical Manufacturing Industry, EPA-450/4-91-031, incorporated by reference). A process unit can operate independently if supplied with sufficient feed or raw materials and sufficient product storage facilities.

(N) Product—Any compound or SOCOMI chemical (see Appendix A of Control of Volatile Organic Compound Emissions from Reactor Processes and Distillation Operations Processes in the Synthetic Organic Chemical Manufacturing Industry, EPA-450/4-91-031, incorporated by reference) that is produced as that chemical for sales as a product, by-product, co-product, or intermediate or for use in the production of other chemicals or compounds.

(O) Reactor processes—Unit operations in which one (1) 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.

(P) Recovery device—An individual unit of equipment, such as an adsorber, carbon adsorber, or condenser, capable of and used for the purpose of recovering chemicals for use, reuse, or sale.

(Q) Recovery system—An individual recovery device or series of such devices applied to the same vent stream.

(R) Total organic compounds or “TOC”—Those compounds measured according to the procedures of Method 18 of 40 CFR part 60, Appendix A. For the purposes of measuring molar compositions as required in subparagraph (3)(B)3.D.; hourly emissions rate as required in subparagraph (3)(B)5.D. and paragraph (3)(B)2.; and TOC concentration as required in paragraph (4)(A)4. The definition of TOC excluded those compounds that the administrator designates as having negligible photochemical reactivity. The administrator has designated the following organic compounds negligibly reactive: methane; ethane; 1,1,1-trichloroethane; methylene chloride; trichlorofluoromethane; dichlorodifluoromethane; chlorodifluoromethane; trifluoromethane; trichlorotrifluoroethane; dichlorotetrafluoroethane; and chloropentafluoroethane.

(S) Total resource effectiveness index value or “TRE index value”—A measure of the supplemental total resource requirement per unit reduction of organic hazardous air pollutants associated with a process vent stream, based on vent stream flow rate, emission rate of volatile organic compound, net heating value, and corrosion properties (whether or not the vent stream contains halogenated compounds) as quantified by the given equations. The TRE index is a decision tool used to determine if the annual cost of controlling a given vent gas stream is acceptable when considering the emissions reduction achieved.

(T) Vent stream—Any gas stream discharge directly from a distillation operation or reactor process to the atmosphere or indirectly to the atmosphere after diversion through other process equipment. The vent stream excludes relief valve discharges and equipment leaks including, but not limited to, pumps, compressors, and valves.

(U) Definitions of certain terms specified in this rule, other than those specified in this rule section, may be found in 10 CSR 10-6.020.

(3) General Provisions.

(A) Control Requirements.

1. For individual vent streams within a process unit with a TRE index value less than or equal to one (1.0), the owner or operator shall—

A. Reduce emissions of TOC (less methane and ethane) by ninety-eight (98) weight-percent, or to twenty (20) parts per million by volume, on a dry basis corrected to three percent (3%) oxygen, whichever is less stringent. If a boiler or process heater is used to comply with this paragraph, then the vent stream shall be introduced into the flame zone of the boiler or process heater; or

B. Combust emissions in a flare. Flares used to comply with this paragraph shall comply with the requirements of 40 CFR 60.18. The flare operation requirement does not apply if a process, not subject to this rule, vents an emergency relief discharge into a common flare header and causes the flare servicing the process subject to this rule to be out of compliance with one or more of the provisions of the flare operation rule.

2. For each individual vent stream(s) within a process unit with a TRE index value greater than one (1.0), the owner or operator shall maintain vent stream parameters that result in a calculated total resource effectiveness greater than one (1.0) without the use of a volatile organic compound control device. The TRE index shall be calculated at the outlet of the final recovery device.

(B) Total Resource Effectiveness Determination, Performance Testing, and Exemption Testing.

1. For the purpose of demonstrating compliance with the TRE index value in paragraph (3)(A)2. of this rule, engineering assessment may be used to determine process vent stream flow rate, net heating value, and TOC emission rate for the representative operating condition expected to yield the lowest TRE index value.

A. If the TRE value calculated using such engineering assessment and the TRE equation in subparagraph (3)(B)6.A. of this rule is greater than four (4.0), then it is not recommended that the owner or operator perform the measures specified in paragraph (3)(B)5. of this rule.

B. If the TRE value calculated using such engineering assessment and the TRE equation in subparagraph (3)(B)6.A. of this rule is less than or equal to four (4.0), then it is recommended that the owner or operator perform the measurements specified in paragraph (3)(B)5. of this rule.

C. Engineering assessment includes, but is not limited to, the following:

(I) Previous test results proved the test is representative of current operating practices at the process unit;

(II) Bench-scale or pilot-scale test data representative of the process under representative operating conditions;

(III) Maximum flow rate specified or implied within a permit limit applicable to the process vent;

(IV) Design analysis based on accepted chemical engineering principles, measurable process parameters, or physical or chemical laws or properties. Examples for analytical methods include, but are not limited to:

(a) Use of material balances based on process stoichiometry to estimate maximum VOC concentration;

(b) Estimation of maximum flow rate based on physical equipment design such as pump or blower capacities;

(c) Estimation of TOC concentrations based on saturation conditions; and

(d) Estimation of maximum expected net heating value based on the stream concentration of each organic compound, or, alternatively, as if all TOC in the stream were the compound with the highest heating value; and

(V) All data, assumptions, and procedures used in the engineering assessment shall be documented.

2. For the purpose of demonstrating compliance with the control requirements of this rule, the process unit shall be run at representative operating conditions and flow rates during any performance test.

3. The following methods in 40 CFR part 60, Appendix A, shall be used to demonstrate compliance with the emission limit or percent reduction efficiency requirement listed in subparagraph (3)(A)1.A. of this rule:

A. Method 1 or 1A, as appropriate, for selection of the sampling sites. The control device inlet sampling site for determination of vent stream molar composition or TOC (less methane and ethane) reduction efficiency shall be located after the last recovery device but prior to the inlet of the control device, prior to any dilution of the process vent stream, and prior to release to the atmosphere;

B. Method 2, 2A, 2C, or 2D, as appropriate, for determination of gas stream volumetric flow rate;

C. The emission rate correction factor, integrated sampling, and analysis procedure of Method 3 to determine the oxygen concentration (%O_{2d}) for the purpose of determining compliance with the twenty (20) parts per million by volume limit. The sampling site shall be the same as that of the TOC samples, and samples shall be taken during the same time that the TOC samples are taken. The TOC concentration corrected to three percent (3%) oxygen (C_c) shall be computed using the following equation:

$$C_c = C_{\text{TOC}} \times \left(\frac{17.9}{20.9 - \%O_{2d}} \right)$$

where:

C_c = Concentration of TOC (minus methane and ethane) corrected to three percent (3%) O₂, dry basis, parts per million by volume;

C_{TOC} = Concentration of TOC (minus methane and ethane), dry basis, parts per million by volume; and

%O_{2d} = Concentration of oxygen, dry basis, percent by volume;

D. Method 18 to determine the concentration of TOC (less methane and ethane) at the outlet of the control device when determining compliance with the twenty (20) parts per million by volume limit, or at both the control device inlet and outlet when the reduction efficiency of the control device is to be determined.

(I) The minimum sampling time for each run shall be one (1) hour in which either an integrated sample or four (4) grab samples shall be taken. If grab sampling is used then the samples shall be taken at fifteen (15)-minute intervals.

(II) The emission reduction (R) of TOC (less methane and ethane) shall be determined using the following equation:

$$R = \frac{E_i - E_o}{E_i} \times 100$$

where:

R = Emission reduction, percent by weight.

E_i = Mass rate of TOC (minus methane and ethane) entering the control device, kilogram TOC per hour.

E_o = Mass rate of TOC (minus methane and ethane) discharged to the atmosphere, kilogram TOC per hour.

(III) The mass rates of TOC (E_i, E_o) shall be computed using the following equations:

$$E_i = K_2 \left(\sum_{j=1}^n C_{ij} M_{ij} \right) Q_i$$

; and

$$E_o = K_2 \left(\sum_{j=1}^n C_{oj} M_{oj} \right) Q_o$$

where:

C_{ij}, C_{oj} = Concentration of sample component "j" of the gas stream at the inlet and outlet of the control device, respectively, dry basis, parts per million by volume;

M_{ij}, M_{oj} = Molecular weight of sample component "j" of the gas stream at the inlet



and outlet of the control device, respectively, grams per gram-mole;

Q_i, Q_o = Flow rate of gas stream at the inlet and outlet of the control device, respectively, dry standard cubic meters per minute; K_2 = 2.494×10^{-6} (liters per minute) (gram-mole per standard cubic meter)(kilogram per gram)(minute per hour), where standard temperature for (gram-mole per standard cubic meter) is twenty degrees Celsius (20°C); and n = Number of components in the sample.

(IV) The TOC concentration (C_{TOC}) is the sum of the individual components and shall be computed for each run using the following equation:

$$C_{TOC} = \sum_{j=1}^n C_j$$

where:

C_{TOC} = Concentration of TOC (minus methane and ethane), dry basis, parts per million by volume;

C_j = Concentration of sample component "j", dry basis, parts per million by volume; and

n = Number of components in the sample; and

E. When a boiler or process heater with a design heat input capacity of forty-four (44) megawatts or greater, or a boiler or process heater into which the process vent stream is introduced with the primary fuel, is used to comply with the control requirements, an initial performance test is not required.

4. When a flare is used to comply with the control requirements of this rule, the flare shall comply with the requirements of 40 CFR part 60.18.

5. The following test methods shall be used to determine compliance with the TRE index value:

A. Method 1 or 1A, as appropriate, for selection of the sampling site.

(I) The sampling site for the vent stream molar composition determination and flow rate prescribed in subparagraph (3)(B)5.B. and subparagraph (3)(B)5.C. of this rule shall be, except for the situations outlined in part (3)(B)5.A.(II) of this rule, after the final recovery device, if a recovery system is present, prior to the inlet of any control device, and prior to any post-reactor or post-distillation unit introduction of halogenated compounds into the process vent stream. No traverse site selection method is

needed for vents smaller than ten (10) centimeters in diameter.

(II) If any gas stream other than the reactor or distillation vent stream is normally conducted through the final recovery device—

(a) The sampling site for vent stream flow rate and molar composition shall be prior to the final recovery device and prior to the point at which any nonreactor or nondistillation stream or stream from a non-affected reactor or distillation unit is introduced. Method 18 shall be used to measure organic compound concentrations at this site;

(b) The efficiency of the final recovery device shall be determined by measuring the organic compound concentrations using Method 18 at the inlet to the final recovery device after the introduction of all vent streams and at the outlet of the final recovery device; and

(c) The efficiency of the final recovery device determined according to subpart (3)(B)5.A.(II)(b) of this rule shall be applied to the organic compound concentrations measured according to subpart (3)(B)5.A.(II)(a) of this rule to determine the concentrations of organic compounds from the final recovery device attributable to the reactor or distillation vent stream. The resulting organic compound concentrations are then used to perform the calculations outlined in subparagraph (3)(B)5.D. of this rule;

B. The molar composition of the vent stream shall be determined as follows:

(I) Method 18 to measure the concentration of organic compounds including those containing halogens; and

(II) ASTM D1946-77 to measure the concentration of carbon monoxide and hydrogen;

C. The volumetric flow rate shall be determined using Method 2, 2A, 2C, or 2D, as appropriate;

D. The emission rate of TOC (minus methane and ethane), (E_{TOC}), in the vent stream shall be calculated using the following equation:

$$E_{TOC} = K_2 \sum_{j=1}^n C_j M_j Q_s$$

where:

E_{TOC} = Emission rate of TOC (minus methane and ethane) in the sample, kilograms per hour;

K_2 = Constant, 2.494×10^{-6} (liters per parts per million)(gram-moles per standard cubic meter)(kilogram per gram)(minute per hour), where standard temperature for (gram-mole per standard cubic meter)(g-mole/scm) is twenty degrees Celsius (20°C);

C_j = Concentration of compound "j", on a dry basis, in parts per million as measured by Method 18, as indicated in subparagraph (3)(B)3.C. of this rule;

M_j = Molecular weight of sample "j", grams per gram-mole;

Q_s = Vent stream flow rate (standard cubic meters per minute) at a temperature of twenty degrees Celsius (20°C); and

n = Number of components in the sample;

E. The total process vent stream concentration (by volume) of compounds containing halogens (parts per million by volume, by compound) shall be summed from the individual concentrations of compounds containing halogens which were measured by Method 18; and

F. The net heating value of the vent stream shall be calculated using the equation:

$$H_T = K_1 \sum_{j=1}^n C_j H_j (1 - B_{ws})$$

where:

H_T = Net heating value of the sample (megajoule per standard cubic meter), where the net enthalpy per mole of vent stream is based on combustion at twenty-five degrees Celsius (25°C) and seven hundred sixty (760) millimeters of mercury, but the standard temperature for determining the volume corresponding to one mole is twenty degrees Celsius (20°C), as in the definition of Q_s (vent stream flow rate);

K_1 = Constant, 1.740×10^{-7} (parts per million)⁻¹ (gram-mole per standard cubic meter), (megajoule per kilocalorie), where standard temperature for (gram-mole per standard cubic meter) is twenty degrees Celsius (20°C);

B_{ws} = Water vapor content of the vent stream, proportion by volume: except that if the vent stream passes through a final stream jet and is not condensed, it shall be assumed that $B_{ws} = 0.023$ in order to correct to 2.3 percent moisture;

C_j = Concentration on a dry basis of compound "j" in parts per million, as measured for all organic compounds by Method 18 and measured for hydrogen and carbon monoxide by the American Society for Testing and Materials D1946-77;

H_j = Net heat of combustion of compound "j", kilocalorie per gram-mole, based on combustion at twenty-five degrees Celsius (25°C) and seven hundred sixty (760) millimeters of mercury. The heat of combustion of vent stream components shall be determined using ASTM D2382-76 if published values are not available or cannot be calculated; and

n = Number of components in the sample.



6. The Total Resource Effectiveness (TRE) index.

A. The TRE index value of the vent shall be calculated using the following equation:

$$TRE = \frac{1}{E_{TOC}} [a + b (Q_s) + c (H_T) + d (E_{TOC})]$$

where:

TRE = TRE index value;

E_{TOC} = Hourly emission rate of TOC (minus methane and ethane), (kilograms per hour) as calculated in subparagraph (3)(B)5.D. of this rule;

Q_s = Vent stream flow rate standard cubic meters per minute at a standard temperature of twenty degrees Celsius (20°C);

H_T = Vent stream net heating value (megajoules per standard cubic meter), as calculated in subparagraph (3)(B)5.F. of this rule; and

a,b,c,d = Coefficients presented in Table 1.

Table 1
Coefficients for Total Resource Effectiveness for Nonhalogenated and Halogenated Vent Streams

Type of Stream	Control Device Basis	Values of Coefficients			
		a	b	c	d
Nonhalogenated	Flare	2.129	0.183	-0.005	0.359
	Thermal incinerator 0 percent heat recovery	3.075	0.021	-0.037	0.018
	Thermal incinerator 70 Percent heat recovery	3.803	0.032	-0.042	0.007
Halogenated	Thermal incinerator and scrubber	5.470	0.181	-0.040	0.004

B. The owner or operator of a vent stream shall use the applicable coefficients in Table 1 to calculate the TRE index value based on a flare, a thermal incinerator with zero percent (0%) heat recovery, and a thermal incinerator with seventy percent (70%) heat recovery, and shall select the lowest TRE index value.

C. The owner or operator of a unit with a halogenated vent stream, determined as any stream with a total concentration of halogen atoms contained in organic compounds of two hundred (200) parts per million by volume or greater, shall use the applicable coefficients in Table 1 to calculate the total resource effectiveness index value based on a thermal incinerator and scrubber.

7. Each owner or operator of an affected facility seeking to comply with paragraph (3)(A)2. of this rule shall recalculate the flow rate and TOC concentration for that affected

facility whenever process changes are made. Examples of process changes include changes in production capacity, feedstock type, or catalyst type, or whenever there is replacement, removal, or addition of recovery equipment. The flow rate and VOC concentration shall be recalculated based on test data, or on best engineering estimates of the effects of the change to the recovery system.

8. Where the recalculated values yield a TRE index ≤ 1.0 , the owner or operator shall notify the state Air Pollution Control Program within one (1) week of the recalculation and shall conduct a performance test according to the methods and procedures required by subsection (3)(B) of this rule.

9. For the purpose of demonstrating that a process vent stream has a VOC concentration below five hundred (500) parts per million by volume, the following procedures shall be followed:

A. The sampling site shall be selected as specified in subparagraph (3)(B)3.A. of this rule;

B. Method 18 or Method 25A of 40 CFR part 60, Appendix A shall be used to measure concentration; alternatively, any other method or data that has been validated according to the protocol in Method 301 of 40 CFR part 63, Appendix A may be used.

(I) Where Method 18 is used, the following procedures shall be used to calculate parts per million by volume concentration:

(a) The minimum sampling time for each run shall be one (1) hour in which either an integrated sample or four (4) grab samples shall be taken. If grab sampling is used, then the samples shall be taken at approximately equal intervals in time, such as fifteen (15)-minute intervals during the run; and

(b) The concentration of TOC (minus methane and ethane) shall be calculated using Method 18 according to subparagraph (3)(B)3.D. of this rule.

(II) Where Method 25A is used, the following procedures shall be used to calculate parts per million by volume TOC concentration:

(a) Method 25A shall be used only if a single VOC is greater than fifty percent (50%) of total VOC, by volume, in the process vent stream;

(b) The process vent stream composition may be determined by either process knowledge, test data collected using an appropriate EPA method or a method of data collection validated according to the protocol in Method 301 of 40 CFR part 63, Appendix A. Examples of information that could constitute process knowledge include

calculations based on material balances, process stoichiometry, or previous test results provided the results are still relevant to the current process vent stream conditions;

(c) The VOC used as the calibration gas for Method 25A shall be the single VOC present at greater than fifty percent (50%) of the total VOC by volume;

(d) The span value for Method 25A shall be fifty (50) parts per million by volume;

(e) Use of Method 25A is acceptable if the response from the high-level calibration gas is at least twenty (20) times the standard deviation of the response from the zero calibration gas when the instrument is zeroed on the most sensitive scale; and

(f) The concentration of TOC shall be corrected to three percent (3%) oxygen using the procedures and equation in subparagraph (3)(B)3.C. of this rule; and

C. The owner or operator shall demonstrate that the concentration of TOC including methane and ethane measured by Method 25A is below two hundred fifty (250) parts per million by volume with VOC concentration below five hundred (500) parts per million by volume to qualify for the low concentration exclusion.

(C) Monitoring Requirements.

1. The owner or operator of an affected facility that uses an incinerator to seek to comply with the TOC emission limit specified under subparagraph (3)(A)1.A. of this rule shall install, calibrate, maintain, and operate according to manufacturer's specifications: a temperature monitoring device equipped with a continuous recorder and having a minimum accuracy of plus or minus one percent ($\pm 1\%$) of the temperature being measured expressed in degrees Celsius or plus or minus (\pm) 0.5°C, whichever is more accurate.

A. Where an incinerator other than a catalytic incinerator is used, a temperature monitoring device shall be installed in the firebox.

B. Where a catalytic incinerator is used, temperature monitoring devices shall be installed in the gas stream immediately before and after the catalyst bed.

2. The owner or operator of an affected facility that uses a flare to seek to comply with subparagraph (3)(A)1.B. of this rule shall install, calibrate, maintain, and operate according to manufacturer's specifications, a heat-sensing device, such as an ultraviolet beam sensor or thermocouple, at the pilot light to indicate continuous presence of a flame.

3. The owner or operator of an affected facility that uses a boiler or process heater

with a design heat input capacity less than forty-four (44) megawatts to seek to comply with subparagraph (3)(A)1.A. of this rule shall install, calibrate, maintain, and operate according to the manufacturer's specifications, a temperature monitoring device in the firebox. The monitoring device should be equipped with a continuous recorder and have a minimum accuracy of plus or minus one percent ($\pm 1\%$) of the temperature being measured expressed in degrees Celsius or plus or minus (\pm) 0.5°C , whichever is more accurate. Any boiler or process heater in which all vent streams are introduced with primary fuel is exempt from this requirement.

4. The owner or operator of an affected facility that seeks to demonstrate compliance with the total resource effectiveness index limit specified under paragraph (3)(A)2. of this rule shall install, calibrate, maintain, and operate according to manufacturer's specifications the following equipment:

A. Where an absorber is the final recovery device in the recovery system—

(I) A scrubbing liquid temperature monitor equipped with a continuous recorder; and

(II) Specific gravity monitor equipped with continuous recorders;

B. Where a condenser is the final recovery device in the recovery system, a condenser exit (product side) temperature monitoring device equipped with a continuous recorder and having a minimum accuracy of plus or minus one percent ($\pm 1\%$) of the temperature being monitored expressed in degrees Celsius or plus or minus (\pm) 0.5°C , whichever is more accurate;

C. Where a carbon adsorber is the final recovery device unit in the recovery system, in integrating regeneration stream flow monitoring device having a minimum accuracy of plus or minus ten percent ($\pm 10\%$), capable of recording the total regeneration stream mass flow for each regeneration cycle; and a carbon bed temperature monitoring device having a minimum accuracy of plus or minus one percent ($\pm 1\%$) of the temperature being monitored expressed in degrees Celsius or plus or minus (\pm) 0.5°C , whichever is more accurate, and capable of recording the carbon bed temperature after each regeneration and within fifteen (15) minutes of completing any cooling cycle; or

D. Where an absorber scrubs halogenated streams after an incinerator, boiler, or process heater, the following monitoring equipment is required for the scrubber—

(I) A pH monitoring device equipped with a continuous recorder; and

(II) Flow meters equipped with continuous recorders to be located at the scrubber influent for liquid flow and the scrubber inlet for gas stream flow.

5. The owner or operator of a process vent using a vent system that contains bypass lines that could divert a vent stream away from the combustion device used shall either—

A. Install, calibrate, maintain, and operate a flow indicator that provides a record of vent stream flow at least once every fifteen (15) minutes. The flow indicator shall be installed at the entrance to any bypass line that could divert the vent stream away from the combustion device to the atmosphere; or

B. Secure the bypass line valve in the closed position with a car-seal or a lock-and-key type configuration. A visual inspection of the seal or closure mechanism shall be performed at least once every month to ensure that the valve is maintained in the closed position and the vent stream is not diverted through the bypass line.

(4) Reporting and Record Keeping.

(A) Each reactor process or distillation operation subject to this rule shall keep records of the following parameters measured during a performance test or TRE determination required under subsection (3)(B) of this rule and required to be monitored under subsection (3)(C) of this rule.

1. Where an owner or operator subject to the provisions of this rule seeks to demonstrate compliance with subparagraph (3)(A)1.A. of this rule through the use of either a thermal or catalytic incinerator—

A. The average firebox temperature of the incinerator (or the average temperature upstream and downstream of the catalyst bed for a catalytic incinerator), measured at least every fifteen (15) minutes and averaged over the same time period of the performance testing; and

B. The percent reduction of TOC determined as specified in paragraph (3)(B)3. of this rule achieved by the incinerator, or the concentration of TOC (parts per million by volume, by compound) determined as specified in paragraph (3)(B)3. of this rule at the outlet of the control device on a dry basis corrected to three percent (3%) oxygen.

2. Where an owner or operator subject to the provisions of this rule seeks to demonstrate compliance with subparagraph (3)(A)1.A. of this rule through the use of a boiler or process heater and the boiler or process heater is not exempt from these requirements due to all vent streams being introduced with primary fuel—

A. A description of the location at which the vent stream is introduced into the boiler or process heater; and

B. The average combustion temperature of the boiler or process heater with a design heat input capacity of less than forty-four (44) megawatts measured at least every fifteen (15) minutes and averaged over the same time period of the performance test.

3. Where an owner or operator subject to the provisions of this rule seeks to demonstrate compliance with subparagraph (3)(A)1.B. of this rule through the use of a smokeless flare; flare design (i.e., steam-assisted, air-assisted, or nonassisted), all visible emission readings, heat content determinations, flow rate measurements, and exit velocity determinations made during the performance test, continuous records of the flare pilot flame monitoring, and records of all periods of operations during which the pilot flame is absent.

4. Where an owner or operator subject to the provisions of this rule seeks to demonstrate compliance with paragraph (3)(A)2. of this rule—

A. All measurements and calculations performed to determine the flow rate, and volatile organic compound concentration, heating value, and TRE index value of the vent stream; and

B. Records shall be kept of the following final recovery device parameters:

(I) Where an absorber is the final recovery device in the recovery system, the exit specific gravity (or alternative parameter which is a measure of the degree of absorbing liquid saturation, if approved, by the permitting authority), and average exit temperature of the absorbing liquid measured at least fifteen (15) minutes and averaged over the same time period of the performance testing (both measured while the vent stream is normally routed and constituted);

(II) Where a condenser is the final recovery device in the recovery system, the average exit (product side) temperature measured at least every fifteen (15) minutes and averaged over the same time period of the performance testing while the vent stream is routed and constituted normally; or

(III) Where a carbon adsorber is the final recovery device in the recovery system, the total stream mass or volumetric flow measured at least every fifteen (15) minutes and averaged over the same time period of the performance test (full carbon bed cycle), temperature of the carbon bed after regeneration (and within fifteen (15) minutes of completion of any cooling cycle(s)), and duration of the carbon bed steaming cycle (all measured



while the vent stream is routed and constituted normally).

5. As an alternative to subparagraphs (4)(A)4.A. or (4)(A)4.B. of this rule, the concentration level or reading indicated by the organics monitoring device at the outlet of the absorber, condenser, or carbon adsorber, measured at least every fifteen (15) minutes and averaged over the same time period as the performance testing while the vent stream is normally routed and constituted.

(B) Each reactor process or distillation operation seeking to comply with paragraph (3)(A)2. of this rule shall also keep records of the following information:

1. Any changes in production capacity, feedstock type, or catalyst type, or of any replacement, removal, and addition of recovery equipment or reactors and distillation units; and

2. Any recalculation of the flow rate, TOC concentration, or TRE value performed according to paragraph (3)(B)7. of this rule.

(C) Each reactor process or distillation operation seeking to comply with the flow rate or concentration exemption level in paragraph (1)(B)4. of this rule shall keep records to indicate that the stream flow rate is less than 0.0085 standard cubic meters per minute or the concentration is less than five hundred (500) parts per million by volume.

(D) Each reactor process or distillation operation seeking to comply with the production capacity exemption level of one (1) gigagram per year shall keep records of the design production capacity and changes in equipment or process operation that may affect design production capacity to the affected process unity.

(E) All records must be kept on-site for a period of five (5) years and made available to the department upon request.

(5) Test Methods. See section (3) of this rule for applicable test methods.

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**Original authority: 643.050, RSMo 1965, amended 1972, 1992, 1993, 1995.*