



Mel Carnahan, Governor • Stephen M. Mahfood, Director

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF ENVIRONMENTAL QUALITY

P.O. Box 176 Jefferson City, MO 65102-0176

AUG 31 2000

Mr. Dennis Grams
Regional Administrator
U.S. EPA, Region VII
901 North Fifth Street
Kansas City, KS 66101

Dear Mr. Grams:

The Missouri Air Conservation Commission (MACC) has recently revised or promulgated the following regulation(s) and the Missouri Section 111(d) State Plan for Municipal Solid Waste Landfills. The following is enclosed for your review:

10 CSR 10-5.490 Municipal Solid Waste Landfills

This rule amendment amends, corrects errors and clarifies regulatory text to comply with recent amendments to subpart Cc of 40 CFR part 60.

10 CSR 10-6.310 Restriction of Emissions from Municipal Solid Waste Landfills

This rule amendment amends, corrects errors and clarifies regulatory text to comply with recent amendments to subpart Cc of 40 CFR part 60.

The MACC adopted the enclosed rule action(s) on March 30, 2000, and adopted the revised state plan on July 27, 2000, after considering comments received at public hearing. The commission has full legal authority to develop rules pursuant to Section 643.050 of the Missouri Air Conservation Law. The state followed all applicable administrative procedures in proposing and adopting the rule action(s). Enclosed are the required submittal elements.

The Missouri Department of Natural Resources requests that the Environmental Protection Agency approve this plan action for existing municipal solid waste landfills pursuant to section 111(d) of the Clean Air Act.

Mr. Dennis Grams

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Thank you for your attention to this matter. If you have any questions regarding this submittal, please contact James L. Kavanaugh, Air Pollution Control Program at (573) 751-4817.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Original signed by Roger D. Randolph

Roger D. Randolph
Director

RDR:pfma

Enclosures:

Copy of rule published in CSR
Copy of commission signature page certifying MACC adoption
Copy of technical support documentation for rule (if applicable)
Copies of public hearing newspaper notices
Copy of public hearing transcript introductory statement
Copy of MO Reg order of rulemaking with comments/responses

c: MACC



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DEPARTMENT OF NATURAL RESOURCES

DIVISION OF ENVIRONMENTAL QUALITY

P.O. Box 176 Jefferson City, MO 65102-0176

MEMORANDUM

DATE: August 23, 2000

TO: Roger D. Randolph, Director
Air Pollution Control Program 

FROM: James L. Kavanaugh, Chief
Planning Section 

SUBJECT: Request for Signature on a Revision Submittal for the Missouri State Implementation Plan (SIP)

The attached letter submits to the United States Environmental Protection Agency (EPA) Region VII, a proposed revision to the Missouri SIP. This proposed revision to the SIP applies to the entire state of Missouri and is an update to amend regulations for consistency with federal emission guidelines.

The letter submits two rules, 10 CSR 10-5.490 and 10 CSR 10-6.310, and the Missouri Section 111 (d) State Plan for Municipal Solid Waste Landfills to the EPA for approval. The State Plan is being revised since it contains these two rules as its enforcement mechanism.

The attached proposed SIP revision meets the completeness criteria defined by EPA.

JLK:pfma

Attachment

effective May 28, 1995. Amended: Filed May 1, 1996, effective Dec. 30, 1996. Amended: Filed June 15, 1998, effective Jan. 30, 1999.

*Original authority 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 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 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 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 megagrams 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 wellhead 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:

$$M_{NMOC} = \sum_{i=1}^n 2 k L_o M_i (e^{-kt_i}) (C_{NMOC}) (3.6 \times 10^{-9})$$

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:

$$M_{NMOC} = 2L_o R (e^{-kt} - e^{-kt'}) (C_{NMOC}) (3.6 \times 10^{-9})$$

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 x 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_0 kinetic factors shall be those published in the most recent *Compilation of Air Pollution 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:

$$Q_m = 2L_0 R (e^{-kt} - e^{-k^*t})$$

where,

Q_m = maximum expected gas generation flow rate, cubic meters per year
 L_0 = 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:

$$Q_m = \sum_{i=1}^n 2k L_0 M_i (e^{-k_i t_i})$$

where,

Q_m = maximum expected gas generation flow rate, cubic meters per year
 k = methane generation rate constant, year⁻¹
 L_0 = 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;

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.(I) 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 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 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 un-

availability 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 organ-

ic 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:



determination in accordance with sections (8) and (9) and this section. Any proposed change in the mitigation measures is subject to the reporting requirements of section (5) and the public participation requirements of section (6).

(F) Written commitments to mitigation measures must be obtained prior to a positive conformity determination and such commitments must be fulfilled.

(G) After this rule is approved by EPA as an implementation plan revision, any agreements, including mitigation measures, necessary for a conformity determination will be both state and federally enforceable. Enforceability through the applicable implementation plan will apply to all persons who agree to mitigate direct and indirect emissions associated with a federal action for a conformity determination.

(11) Savings Provision. The federal conformity rules under 40 CFR part 51 subpart W, in addition to any existing applicable state requirements, establish the conformity criteria and procedures necessary to meet the requirements of Clean Air Act section 176(c) until such time as this rule is approved by EPA as an implementation plan revision. Following EPA approval of this rule as a revision to the applicable implementation plan (or a portion thereof), the approved (or approved portion of the) state criteria and procedures will govern conformity determinations and the federal conformity regulations contained in 40 CFR part 93 will apply only for the portion, if any, of the state's conformity provisions that is not approved by EPA. In addition, any previously applicable implementation plan requirements relating to conformity remain enforceable until the state revises its applicable implementation plan to specifically remove them and that revision is approved by EPA.

AUTHORITY: section 643.050, RSMo (1994). * Original rule filed Oct. 4, 1994, effective May 28, 1995. Amended: Filed Jan. 30, 1996, effective Sept. 30, 1996.

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

10 CSR 10-6.310 Restriction of Emissions from Municipal Solid Waste Landfills

PURPOSE: This rule requires owners of municipal solid waste landfills to report their landfill's design capacity and non-methane organic compound (NMOC) emissions. Landfills having design capacities of 2.5 million cubic meters or greater and NMOC

emission rates of 50 megagrams or greater shall design, install and operate a gas collection and control system.

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 rule applies to each municipal solid waste (MSW) landfill for which construction, reconstruction or modification was commenced before May 30, 1991, and has accepted waste at any time since November 8, 1987, or has additional design capacity available for future waste deposition. Landfills for which construction, reconstruction or modification was commenced on May 30, 1991 or after, are covered under the Environmental Protection Agency's New Source Performance Standard for Municipal Solid Waste Landfills.

(B) Physical or operational changes made to an existing MSW landfill solely to comply with this rule are not considered construction, reconstruction, or modification for the purposes of this rule.

(C) MSW landfills covered by 10 CSR 10-5.490 are exempt from this rule.

(D) 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 megagrams 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.

(E) 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. Definitions of certain terms specified in this rule may be found in 10 CSR 10-6.020. Additional definitions are as follows:

(A) Active collection system—A gas collection system that uses gas mover equipment;

(B) Active landfill—A landfill in which solid waste is being placed or a landfill that is planned to accept waste in the future;

(C) Closed landfill—A landfill in which solid waste is no longer being placed, and in which no additional solid wastes will be placed without first filing a notification of modification as prescribed under 40 Code of Federal Regulations (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.

(D) Closure—That point in time when a landfill becomes a closed landfill;

(E) Commercial solid waste—All types of solid waste generated by stores, offices, restaurants, warehouses, and other nonmanufacturing activities, excluding residential and industrial wastes;

(F) Controlled landfill—Any landfill at which collection and control systems are required under this rule as a result of the non-methane organic compounds emission rate. The landfill is considered controlled if a collection and control system design plan is submitted in compliance with subparagraph (3)(B)2.A. of this rule;

(G) Design capacity—The maximum amount of solid waste a landfill can accept, as indicated in terms of volume or mass in the most recent construction or operating permit issued by the state or local 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;

(H) Disposal facility—All contiguous land and structures, other appurtenances, and improvements on the land used for the disposal of solid waste;

(I) Emission rate cutoff—The threshold annual emission rate to which a landfill compares its estimated emission rate to determine if control under the regulation is required;

(J) Enclosed combustor—An enclosed fire-box which maintains a relatively constant limited peak temperature generally using a limited supply of combustion air. An enclosed flare is considered an enclosed combustor;

(K) Flare—An open combustor without enclosure or shroud;

(L) Gas mover equipment—The equipment (that is, fan, blower, compressor) used to transport landfill gas through the header system;

(M) 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);

(N) Industrial solid waste—Solid waste generated by manufacturing or industrial processes that is not a hazardous waste regulated under Subtitle C of the Resource Conservation and Recovery Act, 40 CFR parts 264 and 265 (incorporated by reference). Such waste may include, but is not limited to, waste resulting from the following manufacturing processes: electric power generation; fertilizer/agricultural chemicals; food and related products/by-products; inorganic chemicals; iron and steel manufacturing; leather and leather products; nonferrous metals manufacturing/foundries; organic chemicals; plastics and resins manufacturing; pulp and paper industry; rubber and miscellaneous plastic products; stone, glass, clay, and concrete products; textile manufacturing; transportation equipment; and water treatment. This term does not include mining waste or oil and gas waste;

(O) Interior well—Any well or similar collection component located inside the perimeter of the landfill waste. A perimeter well located outside the landfilled waste is not an interior well;

(P) Landfill—An area of land or an excavation in which wastes are placed for permanent disposal, and that is not a land application unit, surface impoundment, injection well, or waste pile as those terms are defined under 40 CFR part 257.2 (incorporated by reference);

(Q) 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;

(R) 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;

(S) 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, 40 CFR part 257.2 (incorporated by reference) 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;

(T) Municipal solid waste landfill emissions or MSW landfill emissions—Gas generated by the decomposition of organic waste deposited in an MSW landfill or derived from the evolution of organic compounds in the waste;

(U) NMOC—Nonmethane organic compounds, as measured according to the provisions of section (5) of this rule;

(V) Nondegradable waste—Any waste that does not decompose through chemical breakdown or microbiological activity. Examples are, but are not limited to, concrete, municipal waste combustor ash, and metals;

(W) 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;

(X) Sludge—Any solid, semisolid, or liquid waste generated from a municipal, commercial, or industrial wastewater treatment plant, water supply treatment plant, or air pollution control facility, exclusive of the treated effluent from a wastewater treatment plant;

(Y) Solid waste—Any garbage, sludge from a wastewater treatment plant, water sup-

ply 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);

(Z) 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; and

(AA) 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) Standards for Air Emissions from Municipal Solid Waste Landfills.

(A) Each owner or operator of an MSW landfill having a design capacity less than two and one-half (2.5) million megagrams by mass or two and one-half (2.5) million cubic meters by volume shall submit an initial design capacity report to the director as provided in subsection (8)(A) of this rule. 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. For purposes of part 70 permitting under 10 CSR 10-6.065, a landfill with a design capacity less than two and one-half (2.5) million megagrams or two and one-half (2.5) million cubic meters does not require an operating permit under 40 CFR part 70. 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 to the director an amended design capacity report, as provided for in paragraph (8)(A)3. of this rule, when there is any increase in the design capacity of a landfill subject to the provisions of this rule, whether the increase results 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 any increase in the maximum design capacity of a landfill exempted from the provisions of subsection (3)(B) through section (10) of this rule on the basis of the design capacity exemption in subsection (3)(A) of this rule, results in a revised maximum design capacity equal to or greater than two and one-half (2.5) million megagrams and two and one-half (2.5) 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 two and one-half (2.5) million megagrams and two and one-half (2.5) million cubic meters, shall either comply with paragraph (3)(B)2. of this rule or calculate an NMOC emission rate for the landfill using the procedures specified in section (5) of this rule. The NMOC emission rate shall be recalculated annually, except as provided in subparagraph (8)(B)1.B. of this rule. The owner or operator of an MSW landfill subject to this 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 is subject to part 70 permitting requirements. When a landfill is closed, and either never needed control or meets the conditions for control system removal specified in subparagraph (3)(B)2.E. of this rule, a part 70 operating permit is no longer required.

1. If the calculated NMOC emission rate is less than fifty (50) megagrams per year, the owner or operator shall—

A. Submit an annual emission report to the director, except as provided for in subparagraph (8)(B)1.B. of this rule; and

B. Recalculate the NMOC emission rate annually using the procedures specified in paragraph (5)(A)1. of this rule until such time as the calculated NMOC emission rate is equal to or greater than fifty (50) megagrams per year, or the landfill is closed.

(I) If the NMOC emission rate, upon recalculation required in subparagraph (3)(B)1.B. of this rule is equal to or greater than fifty (50) 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 as provided for in subsection (8)(D) of this rule.

2. If the calculated NMOC emission rate is equal to or greater than fifty (50)

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. 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 as described in the plan 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 operational standards, test methods, procedures, compliance measures, monitoring, record keeping or reporting provisions of sections (4) through (9) 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 in section (10) of this rule or include a demonstration to the director's satisfaction, such that human health and safety is protected, of the sufficiency of the alternative provisions to section (10) of this rule.

(IV) The director shall review the information submitted under parts (3)(B)2.A.(I), (II) and (III) of this rule and either approve it, disapprove it, or request that additional information be submitted. Because of the many site-specific factors involved with landfill gas system design, alternative systems may be necessary. A wide variety of system designs are possible, such as vertical wells, combination horizontal and vertical collection systems, or horizontal trenches only, leachate collection components, and passive systems;

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 fifty (50) megagrams per year, unless Tier 2 or Tier 3 sampling under section (5) of this rule demonstrates that the emission rate is less than fifty (50) megagrams per year, as specified in paragraph (8)(C)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 over the intended use period of the gas control or treatment system equipment;

(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—

I. Five (5) years or more if active; or

II. 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 specified in 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. The liners shall be installed as required under 40 CFR part 258.40 (incorporated by reference);

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 parts per million by volume (20 ppmv), 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 using the test methods specified in subsection (5)(D) of this rule.

(a) If a boiler or process heater is used as the control device, the landfill gas stream shall be introduced into the flame zone.

(b) The control device shall be operated within the parameter ranges established during the initial or most recent performance test. The operating parameters to be monitored are specified in section (7) of this rule; or

(III) A system that routes the collected gas to a treatment system that processes the collected gas for subsequent sale or use. All emissions from any atmospheric vent from the gas treatment system shall be subject to the requirements of part (3)(B)2.C.(I) or (II) of this rule;

D. Operate the collection and control device installed to comply with this rule in



accordance with the provisions of sections (4), (6) and (7) of this rule;

E. The collection and control system may be capped or removed provided that all the conditions of parts (3)(B)2.E.(I), (II) and (III) of this rule are met—

(I) The landfill shall be no longer accepting solid waste and be permanently closed under the requirements of 40 CFR part 258.60 (incorporated by reference). A closure report shall be submitted to the director as provided in subsection (8)(D) of this rule;

(II) The collection and control system shall have been in operation a minimum of fifteen (15) years; and

(III) Following the procedures specified in subsection (5)(B) of this rule, the calculated NMOC gas produced by the landfill shall be less than fifty (50) 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

F. 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 fifty (50) megagrams per year.

(4) Operational Standards for Collection and Control Systems. Each owner or operator of an MSW landfill gas collection and control system used to comply with the provisions of subparagraph (3)(B)2.B. of this rule shall—

(A) Operate the collection system such that gas is collected from each area, cell, or group of cells in the MSW landfill in which solid waste has been in place for—

1. Five (5) years or more if active; or
2. Two (2) years or more if closed or at final grade;

(B) Operate the collection system with negative pressure at each well head except under the following conditions:

1. 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 paragraph (8)(F)1. of this rule;

2. Use of a geomembrane or synthetic cover. The owner or operator shall develop acceptable pressure limits in the design plan; and

3. 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;

(C) Operate each interior wellhead 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.

1. The nitrogen level shall be determined using Method 3C of Appendix A, 40 CFR part 60 (incorporated by reference), unless an alternative test method is established as allowed by subparagraph (3)(B)2.A. of this rule.

2. Unless an alternative test method is established as allowed by subparagraph (3)(B)2.A. of this rule, the oxygen shall be determined by an oxygen meter using Method 3A of Appendix A, 40 CFR Part 60 (incorporated by reference), except that—

A. The span shall be set so that the regulatory limit is between twenty and fifty percent (20%–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 ($\pm 10\%$);

(D) Operate the collection system so that the methane concentration is less than five hundred (500) parts per million above background 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;

(E) 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;

(F) Operate the control or treatment system at all times when the collected gas is routed to the system; and

(G) If monitoring demonstrates that the operational requirements in subsection (4)(B), (C), or (D) of this rule are not met, corrective action shall be taken as specified in paragraph (3)(A)3. through 5. or subsection (6)(C) of this rule. If corrective actions are taken as specified in section (6) of this rule, the monitored exceedance is not a violation of the operational requirements in this section.

(5) Test Methods and Procedures.

(A) NMOC Emission Rate Calculation.

1. The landfill owner or operator shall calculate the NMOC emission rate using either the equation provided in subparagraph (5)(A)1.A. of this rule or the equation provided in subparagraph (5)(A)1.B. 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 , one hundred seventy (170) cubic meters per megagram for L_o , and four thousand (4,000) parts per million by volume as hexane for the C_{NMOC} . 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.

A. The following equation shall be used if the actual year-to-year solid waste acceptance rate is known. The mass of non-degradable 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 the documentation of the nature and amount of such wastes is maintained.

$$M_{NMOC} = \sum_{i=1}^n 2 k L_o M_i (e^{-ki}) (C_{NMOC}) (3.6 \times 10^{-9})$$

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

B. The following equation shall be used if the actual year-to-year solid waste acceptance rate is unknown. The mass of non-degradable solid waste may be subtracted from the average annual acceptance rate when calculating a value for R, if the documentation provisions of paragraph (9)(D)2. of this rule are followed.

$$M_{\text{NMOC}} = 2 L_o R (e^{-kt} - e^{-kt'}) / (C_{\text{NMOC}})(3.6 \times 10^{-9})$$

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

t = age of landfill, years

C_{NMOC} = concentration of NMOC, parts per million by volume as hexane

c = time since closure, years. For active landfill $c = 0$ and $e^{-kc} = 1$

3.6×10^{-9} = conversion factor

2. Tier 1. The owner or operator shall compare the calculated NMOC mass emission rate to the standard of fifty (50) megagrams per year.

A. If the NMOC emission rate calculated in paragraph (5)(A)1. of this rule is less than fifty (50) megagrams per year, then the

landfill owner shall submit an emission rate report as provided in paragraph (8)(B)1. of this rule, and shall recalculate the NMOC mass emission rate annually as required under paragraph (3)(B)1. of this rule.

B. If the calculated NMOC emission rate is equal to or greater than fifty (50) 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 paragraph (5)(A)3. of this rule.

3. Tier 2. The landfill 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 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 should be located to avoid known areas of nondegradable 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 (incorporated by reference). 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, Volume I: Stationary Point and Area Sources* (AP-42), available from the Government Printing Office. 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.

A. The landfill owner or operator shall recalculate the NMOC mass emission rate using the equations provided in subparagraph (5)(A)1.A. or B. of this rule and using the average NMOC concentration from the collected samples instead of the default value in the equation provided in paragraph (5)(A)1. of this rule.

B. If the resulting mass emission rate calculated using the site-specific NMOC concentration is equal to or greater than fifty (50) 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 paragraph (5)(A)4. of this rule.

C. If the resulting NMOC mass emission rate is less than fifty (50) megagrams per year, the owner or operator shall submit a periodic estimate of the emission rate report as provided in paragraph (8)(B)1. of this rule and retest the site-specific NMOC concentration every five (5) years using the methods specified in this section.

4. 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 (incorporated by reference). The landfill owner or operator shall estimate the NMOC mass emission rate using equations in subparagraph (5)(A)1.A. or B. of this rule and using a site-specific methane generation rate constant k , and the site-specific NMOC concentration as determined in paragraph (5)(A)3. of this rule instead of the default values provided in paragraph (5)(A)1. of this rule. The landfill owner or operator shall compare the resulting NMOC mass emission rate to the standard of fifty (50) megagrams per year.

A. 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 fifty (50) megagrams per year, the owner or operator shall comply with paragraph (3)(B)2. of this rule.

B. If the NMOC mass emission rate is less than fifty (50) megagrams per year, then the owner or operator shall submit a periodic emission rate report as provided in paragraph (8)(B)1. of this rule and shall recalculate the NMOC mass emission rate annually, as provided in paragraph (8)(B)1. of this rule using the equations in paragraph (5)(A)1. of this rule and using the site-specific methane generation rate constant and NMOC concentration obtained in paragraph (5)(A)3. of this rule. The calculation of the methane generation rate constant is performed only once, and the value obtained from this test shall be used in all subsequent annual NMOC emission rate calculations.

5. The owner or operator may use other methods to determine the NMOC concentration or a site-specific k as an alternative to the methods required in paragraphs (5)(A)3. and 4. of this rule if the method has been approved by the director.

6. The owner or operator may recalculate the NMOC mass emission rate using AP-42 values instead of the default values provided in paragraph (5)(A)1. of this rule as an alternative to the methods required in paragraph (5)(A)3. or 4. of this rule.

(B) After the installation of a collection and control system in compliance with section (6) 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.E. 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.

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. 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 as provided in part (3)(B)2.A.(II) of this rule.

(C) The owner or operator of each MSW landfill subject to the provisions of this rule shall estimate the NMOC emission rate for comparison to the prevention of significant deterioration (PSD) major source and significance levels in 40 CFR part 51.166 or 52.21 (incorporated by reference) 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 (5)(B).

(D) 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 (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

(6) Compliance Provisions.

(A) Except as provided in part (3)(B)2.A.(II) of this rule, the specified methods in paragraphs (6)(A)1. through (6)(A)6. of this rule shall be used to determine whether the gas collection system is in compliance with subparagraph (3)(B)2.B. of this rule.

1. For the purposes of calculating the maximum expected gas generation flow rate from the landfill to determine compliance with subpart (3)(B)2.B.(I)(a) of this rule, one (1) of the following equations shall be used. The k and L_0 kinetic factors should 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 by the director. If k has been determined as specified in paragraph (5)(A)4. of this rule, the value of k determined from the test shall be used. 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.

A. For sites with unknown year-to-year solid waste acceptance rate—

$$Q_m = 2L_0 R (e^{-kt} - e^{-k(t-c)})$$

where,

Q_m = maximum expected gas generation flow rate, cubic meters per year

L_0 = methane generation potential, cubic meters per megagram solid waste

R = average annual acceptance rate, megagrams per year

k = methane generation rate constant, year⁻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

c = time since closure, years (for an active landfill $c = 0$ and $e^{-kc} = 1$)

B. For sites with known year-to-year solid waste acceptance rate—

$$Q_m = \sum_{i=1}^n 2k L_0 M_i (e^{-kt_i})$$

where,

Q_m = maximum expected gas generation flow rate, cubic meters per year

k = methane generation rate constant, year⁻¹

L_0 = 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. If a collection and control system has been installed, actual flow data may be used to project the maximum expected gas generation flow rate instead of, or in conjunction with, the equations in subparagraphs (6)(A)1.A. and B. of this rule. If the landfill is still accepting waste, the actual measured flow data will not equal the maximum expected gas generation rate, so calculations using the equations in subparagraphs (6)(A)1.A. or B. of this rule or other methods shall be used to predict the maximum expected gas generation rate over the intended period of use of the gas control system equipment.

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 sufficient to meet all operational and performance standards.

3. For the purpose 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, except for the three (3) conditions allowed under subsection (4)(B) of this rule. 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. Any attempted corrective measure shall not cause exceedances of other operational or performance standards. An alternative timeline for correcting the exceedance may be submitted to the director for approval.

4. Owners or operators are not required to expand the system as required in paragraphs (6)(A)3. of this rule during the first one hundred eighty (180) days after gas collection system start-up.

5. For the purpose of identifying whether excess air infiltration into the landfill is occurring, the owner or operator shall monitor each well monthly for temperature and nitrogen or oxygen as provided in subsection (4)(C) of this rule. If a well exceeds one (1) of these operating parameters, action shall be initiated to correct the exceedance within five (5) calendar days. If correction of the exceedance cannot be achieved 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 exceedance. Any attempted corrective measure shall not cause exceedances of other operational or performance standards. An alternative timeline for correcting the exceedance may be submitted to the director for approval.

6. An owner or operator seeking to demonstrate compliance with subpart (3)(B)2.B.(I)(d) of this rule through the use of a collection system not conforming to the specifications provided in section (10) of this rule shall provide information satisfactory to the director as specified in part (3)(B)2.A.(III) of this rule demonstrating that off-site migration is being controlled.

(B) For purposes of compliance with subsection (4)(A) of this rule, each owner or operator of a controlled landfill shall place each well or design component as specified in the approved design plan as provided in subparagraph (3)(B)2.A. of this rule. Each well shall be installed no later than sixty (60) days

of the date in which the initial solid waste has been in place for a period of—

1. Five (5) years or more if active; or
2. Two (2) years or more if closed or at final grade.

(C) The following procedures shall be used for compliance with the surface methane operational standard as provided in subsection (4)(D) of this rule:

1. 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 along a pattern that traverses the landfill at thirty (30)-meter intervals (or a site-specific established spacing) for each collection area on a quarterly basis using an organic vapor analyzer, flame ionization detector, or other portable monitor meeting the specifications provided in subsection (6)(D) of this rule;

2. 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;

3. Surface emission monitoring shall be performed in accordance with section 4.3.1 of Method 21 of Appendix A, 40 CFR part 60 (incorporated by reference), except that the probe inlet shall be placed within five to ten centimeters (5–10 cm) of the ground. Monitoring shall be performed during typical meteorological conditions;

4. Any reading of five hundred (500) parts per million (ppm) or more above background at any location shall be recorded as a monitored exceedance and the actions specified in subparagraphs (6)(C)4.A. through E. of this rule shall be taken. As long as the specified actions are taken, the exceedance is not a violation of the operational requirements of subsection (4)(D) of this rule.

A. The location of each monitored 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 and the location shall be remonitored within ten (10) calendar days of detecting the exceedance.

C. If the remonitoring of the location shows a second exceedance, additional corrective action shall be taken and the location shall be monitored again within ten (10) days of the second exceedance. If the remonitoring shows a third exceedance for the same location, the action specified in subparagraph (6)(C)4.E. of this rule shall be taken, and no further monitoring of that location is required until the action specified in subparagraph (6)(C)4.E. of this rule has been taken.

D. Any location that initially showed an exceedance but has a methane concentration less than five hundred (500) ppm methane above background at the ten (10)-day remonitoring specified in subparagraph (6)(C)4.B. or C. of this rule shall be remonitored one (1) month from the initial exceedance. If the one (1)-month remonitoring shows a concentration less than five hundred (500) ppm above background, no further monitoring of that location is required until the next quarterly monitoring period. If the one (1)-month remonitoring shows an exceedance, the actions specified in subparagraph (6)(C)4.C. or E. of this rule shall be taken.

E. For any location where monitored methane concentration equals or exceeds five hundred (500) ppm above background 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 timeline for installation may be submitted to the director for approval; and

5. The owner or operator shall implement a program to monitor for cover integrity and implement cover repairs as necessary on a monthly basis.

(D) Each owner or operator seeking to comply with the provisions in subsection (6)(C) of this rule shall comply with the following instrumentation specifications and procedures for surface emission monitoring devices:

1. The portable analyzer shall meet the instrument specifications provided in section 3 of Method 21, except that “methane” shall replace all references to VOC;

2. The calibration gas shall be methane, diluted to a nominal concentration of five hundred (500) ppm in air;

3. To meet the performance evaluation requirements in section 3.1.3 of Method 21, the instrument evaluation procedures of section 4.4 of Method 21 shall be used; and

4. The calibration procedures provided in section 4.2 of Method 21 shall be followed immediately before commencing a surface monitoring survey.

(E) The provisions of this rule apply at all times, except during periods of start-up, shutdown, or malfunction, provided that the duration of start-up, shutdown, or malfunction shall not exceed five (5) days for collection systems and shall not exceed one (1) hour for treatment or control devices.

(7) Monitoring of Operations. Except as provided in part (3)(B)2.A.(II) of this rule—

(A) Each owner or operator seeking to comply with part (3)(B)2.B.(I) 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 as provided in paragraph (6)(A)3. of this rule; and

2. Monitor nitrogen or oxygen concentration in the landfill gas on a monthly basis as provided in paragraph (6)(A)5. of this rule; and

3. Monitor temperature of the landfill gas on a monthly basis as provided in paragraph (6)(A)5. of this rule;

(B) Each owner or operator seeking to comply with subparagraph (3)(B)2.C. of this rule using an enclosed combustor 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 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. 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 that the gas flow is not diverted through the bypass line;

(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. 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 that the gas flow is not diverted through the bypass line;

(D) Each owner or operator seeking to demonstrate compliance with subparagraph (3)(B)2.C. of this rule using a device other than an open flare or an enclosed combustor shall provide information satisfactory to the director as provided in part (3)(B)2.A.(II) of this rule 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. The director may specify additional appropriate monitoring procedures to insure that human health and safety is protected;

(E) Each owner or operator seeking to install a collection system that does not meet the specifications in section (10) of this rule or seeking to monitor alternative parameters to those required by sections (4) through (7) of this rule shall provide information satisfactory to the director as provided in parts (3)(B)2.A.(II) and (III) of this rule describing the design and operation of the collection system, the operating parameters that would indicate proper performance, and appropriate monitoring procedures. The director may specify additional appropriate monitoring procedures to insure that human health and safety is protected; or

(F) Each owner or operator seeking to demonstrate compliance with subsection (6)(C) of this rule, shall monitor surface concentrations of methane according to the instrument specifications and procedures provided in subsection (6)(D) of this rule. Any closed landfill that has no monitored exceedances of the operational standard in three (3) consecutive quarterly monitoring periods may skip to annual monitoring. Any methane reading of five hundred (500) ppm or more above background detected during the annual monitoring returns the frequency for that landfill to quarterly monitoring.

(8) Reporting Requirements. Except as provided in part (3)(B)2.A.(II) of this rule—

(A) Each owner or operator subject to the requirements of this rule shall submit an initial design capacity report to the director.

1. The initial design capacity report shall be submitted within ninety (90) days of the rule effective date.

2. The initial design capacity report shall contain the following information:

A. 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 provisions of the state or local construction or operating permit; and

B. The maximum design capacity of the landfill. Where the maximum design capacity is specified in the state or local construction 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 state, local agency, or director may request other reasonable information as may be necessary to verify the maximum design capacity of the landfill.

3. An amended design capacity report shall be submitted to the director providing notification of any increase in the design capacity of the landfill, whether the increase results from an increase in the permitted area or depth of the landfill, a change in the operating procedures, or any other means which results in an increase in the maximum design capacity of the landfill above two and one-half (2.5) million megagrams and two and one-half (2.5) million cubic meters. The amended design capacity report shall be submitted within ninety (90) days of the issuance of an amended construction or operating permit, or the placement of waste in additional land, or the change in operating procedures which will result in an increase in maximum design capacity, whichever occurs first;

(B) Each owner or operator subject to the requirements of this rule shall submit an NMOC emission rate report to the director initially and annually thereafter, except as provided for in subparagraph (8)(B)3. of this rule. The director may request such additional information as may be necessary to verify the reported NMOC emission rate.

1. The NMOC emission rate report shall contain an annual or five (5)-year estimate of the NMOC emission rate calculated using the formula and procedures provided in subsection (5)(A) or (B) of this rule, as applicable.

A. The initial NMOC emission rate report shall be submitted within ninety (90) days of the rule reflective date and may be combined with the initial design capacity report required in subsection (8)(A) of this rule. Subsequent NMOC emission rate reports shall be submitted annually thereafter, except as provided for in subparagraph (8)(B)1.B. and paragraph (8)(B)3. of this rule.

B. If the estimated NMOC emission rate as reported in the annual report to the director is less than fifty (50) megagrams per year in each of the next five (5) consecutive years, the owner or operator may elect to submit an estimate of the NMOC emission rate for the next five (5)-year period in lieu of the annual report. This estimate shall include the current amount of solid waste-in-place and the estimated waste acceptance rate for each year of the five (5) years for which an NMOC emission rate is estimated. All data and calculations upon which this estimate is based shall be provided to the director. This estimate shall be revised at least once every five (5) years. If the actual waste acceptance rate exceeds the estimated waste acceptance rate in any year reported in the five (5)-year estimate, a revised five (5)-year estimate shall be submitted to the director. The revised estimate shall cover the five (5)-year period beginning with the year in which the actual waste acceptance rate exceeded the estimated waste acceptance rate.

2. The NMOC emission rate report shall include all the data, calculations, sample reports and measurements used to estimate the annual or five (5)-year emissions.

3. Each owner or operator subject to the requirements of this rule is exempted from the requirements of paragraphs (8)(B)1. and 2. of this rule after the installation of a collection and control system in compliance with paragraph (3)(B)2. of this rule, during such time as the collection and control system is in operation and in compliance with sections (4) and (6) of this rule;

(C) Each owner or operator subject to the provisions of 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 first report, required under subsection (8)(B) of this rule, in which the emission rate exceeds fifty (50) 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 in paragraph (5)(A)3. of this rule and the resulting rate is less than fifty (50) 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 fifty (50) 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 fifty (50) 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 paragraph (5)(A)4. of this rule, and the resulting NMOC emission rate is less than fifty (50) Mg/yr, 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 based on the provisions of paragraph (5)(A)4. of this rule and the resulting site-specific methane generation rate constant (k) shall be submitted to the director within one (1) year of the first calculated emission rate exceeding fifty (50) megagrams per year;

(D) Each owner or operator of a controlled landfill shall submit a closure report to the director within thirty (30) days of waste acceptance cessation. The director may request additional information as may be necessary to verify that permanent closure has taken place in accordance with the requirements of 40 CFR part 258.60 (incorporated by reference). If a closure report has been submitted to the director, no additional wastes may be placed into the landfill without filing a notification of modification as described under 40 CFR part 60.7(a)(4) (incorporated by reference);

(E) 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.

1. The equipment removal report shall contain all of the following items:

A. A copy of the closure report submitted in accordance with subsection (8)(D) of this rule;

B. A copy of the initial performance test report demonstrating that the fifteen (15)-year minimum control period has expired; and

C. Dated copies of three (3) successive NMOC emission rate reports demonstrating that the landfill is no longer producing fifty (50) megagrams or greater of NMOC per year.

2. The director may request such additional information as may be necessary to verify that all of the conditions for removal in subparagraph (3)(B)2.E. of this rule have been met;

(F) 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 (8)(F)1. through 6. of this rule. The initial annual report shall be submitted within one hundred eighty (180) days of installation and start-up of the collection and control system, and shall include the initial performance test report required under 40 CFR part 60.8 (incorporated by reference). For enclosed combustion devices and flares, reportable exceedances are defined under subsection (9)(C) of this rule.

1. Value and length of time for exceedance of applicable parameters monitored under subsections (7)(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 as specified under section (7) of this rule.

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 (500) ppm methane concentration as provided in subsection (4)(D) 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 pursuant to paragraph (6)(A)3., subsection (6)(B), and paragraph (6)(C)4. of this rule; and

(G) 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 required under 40 CFR part 60.8 (incorporated by reference):

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.

(9) Record Keeping Requirements. Except as provided in part (3)(B)2.A.(II) of this rule—

(A) Each owner or operator of an MSW landfill subject to the provisions of subsection (3)(B) of this rule shall keep for at least five (5) years up-to-date, readily accessible, on-site records of the design capacity report which triggered subsection (3)(B) of this rule, the current amount of solid waste in place, and the year-by-year waste acceptance rate. Records may be maintained off-site if they are retrievable within four (4) hours. A longer period is acceptable if records are needed for an unresolved enforcement action. Either paper copy or electronic formats are acceptable;

(B) Each owner or operator of a controlled landfill shall keep up-to-date, readily accessible records for the life of the control equipment of the data listed in paragraphs (9)(B)1. through 4. of this rule as measured during the initial performance test or compliance determination. Records of subsequent tests or monitoring shall be maintained for a minimum of five (5) years. Records of the control device vendor specifications shall be maintained until removal.

1. Where an owner or operator subject to the provisions of this rule seeks to demonstrate compliance with subparagraph (3)(B)2.B. of this rule—

A. The maximum expected gas generation flow rate as calculated in paragraph (6)(A)1. of this rule. The owner or operator may use another method to determine the maximum gas generation flow rate, if the method has been approved by the director; and

B. The density of wells, horizontal collectors, surface collectors, or other gas extraction devices determined using the procedures specified in paragraph (10)(A)1. of this rule.

2. Where an owner or operator subject to the provisions of this rule seeks to demonstrate compliance with subparagraph (3)(B)2.C. of this rule through use of an enclosed combustion device other than a boiler or process heater with a design heat input capacity greater than forty-four (44) megawatts—

A. The average combustion temperature measured at least every fifteen (15) minutes and averaged over the same time period of the performance test; and

B. The percent reduction of NMOC determined as specified in part (3)(B)2.C.(II) of this rule achieved by the control device.

3. Where an owner or operator subject to the provisions of this rule seeks to demonstrate compliance with subpart (3)(B)2.C.(II)(a) of this rule through use of a boiler or process heater of any size—a description of the location at which the collected gas vent stream is introduced into the boiler or process heater over the same time period of the performance testing.

4. Where an owner or operator subject to the provisions of this rule seeks to demonstrate compliance with part (3)(B)2.C.(I) of this rule through use of an open flare, the flare type (that is, steam-assisted, air-assisted, or nonassisted), all visible emission readings, heat content determination, flow rate or bypass flow rate measurements, and exit velocity determinations made during the performance test as specified in 40 CFR part 60.18 (incorporated by reference); continuous records of the flare pilot flame or flare flame monitoring and records of all periods of operations during which the pilot flame of the flare flame is absent;

(C) Each owner or operator of a controlled landfill subject to the provisions of this rule shall keep for five (5) years up-to-date, readily accessible continuous records of the equipment operating parameters specified to be monitored in section (7) of this rule as well as up-to-date, readily accessible records for periods of operation during which the parameter boundaries established during the most recent performance test are exceeded.

1. The following constitute exceedances that shall be recorded and reported under subsection (8)(F) of this rule:

A. For enclosed combustors except for boilers and process heaters with design heat input capacity of forty-four (44) megawatts (150 million British thermal units per hour) or greater, all three (3)-hour peri-

ods of operation during which the average combustion temperature was more than twenty-eight degrees Celsius (28°C) below the average combustion temperature during the most recent performance test at which compliance with subparagraph (3)(B)2.C. of this rule was determined; and

B. For boilers or process heaters, whenever there is a change in the location at which the vent stream is introduced into the flame zone as required under subparagraph (9)(B)3.A. of this rule.

2. Each owner or operator subject to the provisions of this rule shall keep up-to-date, readily accessible continuous records of the indication of flow to the control device or the indication of bypass flow or records of monthly inspections of car-seals or lock-and-key configurations used to seal bypass lines, specified under section (7) of this rule.

3. Each owner or operator subject to the provisions of this rule who uses a boiler or process heater with a design heat input capacity of forty-four (44) megawatts or greater to comply with subparagraph (3)(B)2.C. of this rule shall keep an up-to-date, readily accessible record of all periods of operation of the boiler or process heater. (Examples of such records could include records of steam use, fuel use, or monitoring data collected pursuant to other state or local regulatory requirements.)

4. Each owner or operator seeking to comply with the provisions of this rule by use of an open flare shall keep up-to-date, readily accessible continuous records of the flame or flare pilot flame monitoring specified under subsection (7)(C) of this rule, and up-to-date, readily accessible records of all periods of operation in which the flame or flare pilot flame is absent;

(D) Each owner or operator subject to the provisions of this rule shall keep for the life of the collection system an up-to-date, readily accessible plot map showing each existing and planned collector in the system and providing a unique identification location label for each collector.

1. Each owner or operator subject to the provisions of this rule shall keep up-to-date, readily accessible records of the installation date and location of all newly installed collectors as specified under subsection (6)(B) of this rule.

2. Each owner or operator subject to the provisions of this rule shall keep readily accessible documentation of the nature, date of deposition, amount, and location of asbestos-containing or nondegradable waste excluded from collection as provided in subparagraph (10)(A)3.A. of this rule as well as

any nonproductive areas excluded from collection as provided in subparagraph (10)(A)3.B. of this rule;

(E) Each owner or operator subject to the provisions of this rule shall keep for at least five (5) years up-to-date, readily accessible records of all collection and control system exceedances of the operational standards in section (4) of this rule, the reading in the subsequent month whether or not the second reading is an exceedance, and the location of each exceedance; and

(F) 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 two and one-half (2.5) million megagrams or two and one-half (2.5) 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.

(10) Specifications for Active Collection Systems.

(A) Each owner or operator seeking to comply with subparagraph (3)(B)2.A. of this rule shall site active collection wells, horizontal collectors, surface collectors, or other extraction devices at a sufficient density throughout all gas producing areas using the following procedures unless alternative procedures have been approved by the director as provided in parts (3)(B)2.A.(III) and (IV) of this rule:

1. The collection devices within the interior and along the perimeter areas shall be certified to achieve comprehensive control of surface gas emissions by a professional engineer. The following issues shall be addressed in the design: depths of refuse, refuse gas generation rates and flow characteristics, cover properties, gas system expandability, leachate and condensate management, accessibility, compatibility with filling operations, integration with closure end use, air intrusion control, corrosion resistance, fill settlement, and resistance to the refuse decomposition heat;

2. The sufficient density of gas collection devices determined in paragraph (10)(A)1. of this rule shall address landfill gas migration issues and augmentation of the collection system through the use of active or passive systems at the landfill perimeter or exterior; and

3. The placement of gas collection devices determined in paragraph (10)(A)1. of

this rule shall control all gas producing areas, except as provided by subparagraphs (10)(A)3.A. and B. of this rule.

A. Any segregated area of asbestos or nondegradable material may be excluded from collection if documentation is provided as specified under subsection (9)(D). of this rule. The documentation shall provide the nature, date of deposition, location and amount of asbestos or nondegradable material deposited in the area, and shall be provided to the director upon request.

B. Any nonproductive area of the landfill may be excluded from control, provided that the total of all excluded areas can be shown to contribute less than one percent (1%) of the total amount of NMOC emissions from the landfill. The amount, location, and age of the material shall be documented and provided to the director upon request. A separate NMOC emissions estimate shall be made for each section proposed for exclusion, and the sum of all such sections shall be compared to the NMOC emissions estimate for the entire landfill. Emissions from each section shall be computed using the following equation:

$$Q_i = 2 k L_o M_i (e^{-kt_i}) (C_{NMOC}) (3.6 \times 10^{-9})$$

- where,
- Q_i = NMOC emission rate from the i^{th} section, 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 the degradable solid waste in the i^{th} section, megagram
 - t_i = age of the solid waste in the i^{th} section, years
 - C_{NMOC} = concentration of non-methane organic compounds, parts per million by volume
 - 3.6×10^{-9} = conversion factor

The values for k , and C_{NMOC} determined in field testing shall be used, if field testing has been performed in determining the NMOC emission rate or the radii of influence (the distance from the well center to a point in the landfill where the pressure gradient applied by the blower or compressor approaches zero). If field testing has not been performed, the default values for k , L_o and C_{NMOC} provided in paragraph (5)(A)1. of this rule or the alternative values from (5)(A)5. of this rule shall be used. The mass of nondegradable

solid waste contained within the given section may be subtracted from the total mass of the section when estimating emissions provided the nature, location, age, and amount of the nondegradable material is documented as provided in subparagraph (10)(A)3.A. of this rule.

(B) Each owner or operator seeking to comply with part (3)(B)2.A.(I) of this rule shall construct the gas collection devices using the following equipment or procedures:

1. The landfill gas extraction components shall be constructed of polyvinyl chloride (PVC), high density polyethylene (HDPE) pipe, fiberglass, stainless steel, or other nonporous corrosion resistant material of suitable dimensions to—convey projected amounts of gases; withstand installation, static, and settlement forces; and withstand planned overburden or traffic loads. The collection system shall extend as necessary to comply with emission and migration standards established in this rule. Collection devices such as wells and horizontal collectors shall be perforated to allow gas entry without head loss sufficient to impair performance across the intended extent of control. Perforations shall be situated with regard to the need to prevent excessive air infiltration;

2. Vertical wells shall be placed so as not to endanger underlying liners and shall address the occurrence of water within the landfill. Holes and trenches constructed for piped wells and horizontal collectors shall be of sufficient cross-section so as to allow for their proper construction and completion including, for example, centering of pipes and placement of gravel backfill. Collection devices shall be designed so as not to allow indirect short circuiting of air into the cover or refuse into the collection system or gas into the air. Any gravel used around pipe perforations should be of a dimension so as not to penetrate or block perforations; and

3. Collection devices may be connected to the collection header pipes below or above the landfill surface. The connector assembly shall include a positive closing throttle valve, any necessary seals and couplings, access couplings and at least one (1) sampling port. The collection devices shall be constructed of PVC, HDPE, fiberglass, stainless steel, or other nonporous material of suitable thickness.

(C) Each owner or operator seeking to comply with part (3)(B)2.A.(I) of this rule shall convey the landfill gas to a control system in compliance with subparagraph (3)(B)2.C. of this rule through the collection header pipe(s). The gas mover equipment shall be sized to handle the maximum gas generation flow rate expected over the intended use period of the gas moving equipment using the following procedures:

1. For existing collection systems, the flow data shall be used to project the maximum flow rate. If no flow data exists, the procedures in paragraph (10)(C)2. of this rule shall be used; and

2. For new collection systems, the maximum flow rate shall be in accordance with paragraph (6)(A)1. of this rule.

AUTHORITY: section 643.050, RSMo Supp. 1998. Original rule filed Jan. 14, 1997, effective Sept. 30, 1997. Amended: Filed Oct. 7, 1999, effective July 30, 2000.*

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

10 CSR 10-6.320 Sales Tax Exemption

PURPOSE: This rule sets forth the criteria used by the commission to determine eligibility for sales tax exemption for items purchased or leased for the purpose of preventing, abating or monitoring air pollution in accordance with section 144.030, RSMo.

(1) Applicability.

(A) Machinery, equipment, appliances and devices purchased or leased and used solely for the purpose of preventing, abating or monitoring air pollution, and materials and supplies solely required for the installation, construction or reconstruction of such machinery, equipment, appliances and devices shall be eligible for sales tax exemption if so certified by the director.

(B) The applicant shall only request sales tax exemption for those machinery, equipment, appliances and devices for which sales tax would be charged.

(2) Definitions.

(A) Air pollution—The presence in the ambient air of one (1) or more air contaminants in quantities, or characteristics and of a duration which directly and proximately cause or contribute to injury to human, plant or animal life or health, or to property or which unreasonably interferes with the enjoyment of life or use of property.

(B) Definitions for other terms used in this rule may be found in 10 CSR 10-6.020(2).

(3) General Provisions.

(A) The following criteria shall be used to evaluate applications for sales tax exemption:

1. The machinery, equipment, appliance and device removes or captures air pollutants from a system or process, or it monitors the levels of the pollutant; and its function within the system or process is limited to removing, capturing, or monitoring air pollution;

2. The machinery, equipment, appliance and device is a portion or all of a system or process pretreating air prior to its discharge into the atmosphere; and

3. Materials and supplies if they are required for the installation, construction or reconstruction of items in subsection (1)(A) and will not be used for other functions.

(B) Sales tax exemption applications for air pollution machinery and material shall be submitted on forms provided by the department. There is a maximum two (2)-year time limit from date of purchase on applications.

(C) The department will review the application and approve, partially approve, or deny the sales tax exemption request. If approved or partially approved, the department will notify the Missouri Department of Revenue which will forward a State of Missouri Exemption from Missouri Sales and Use Tax on Purchases certificate to the applicant. If the application is denied, the department shall send written notice to the applicant. Applicants who are denied a sales tax exemption shall have a period of thirty (30) days from the issuance of the notice of denial to appeal such denial to the Missouri Air Conservation Commission, P.O. Box 176, Jefferson City, MO 65102-0176. An additional three (3) days will be added for mail time for a total of thirty-three (33) days from the denial issuance.

(4) Reporting and Record Keeping (not applicable).

(5) Test Methods (not applicable).

AUTHORITY: section 643.050, RSMo Supp. 1996. Original rule filed Dec. 13, 1996, effective July 30, 1997.*

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

10 CSR 10-6.330 Restriction of Emissions From Batch-Type Charcoal Kilns

PURPOSE: This regulation establishes emission limits for batch-type charcoal kilns based on operational parameters that reflect the Best Available Control Technology (BACT) for this industry as of August 20, 1997.

(1) Applicability.

(A) This regulation applies to all batch-type charcoal kilns throughout the entire state of Missouri.

(B) In the event that other rules in the *Code of State Regulations* are also applicable to

batch-type charcoal kilns, the more stringent rule requirement shall apply.

(2) Definitions.

(A) "Batch-type charcoal kiln"—Charcoal kilns that manufacture charcoal with a batch process rather than a continuous process. The batch-type charcoal kiln process typically includes loading wood, sealing the kiln, igniting the wood and controlled burning of the wood to produce charcoal which is unloaded.

(B) "Burn cycle"—The burn cycle for a charcoal kiln begins at the time that a batch of wood is initially lit and ends when the burn for that batch is completed and the kiln is sealed. The burn cycle does not include cool down time.

(C) "Charcoal kiln"—Any closed structure used to produce charcoal by controlled burning (pyrolysis) of wood. Retorts and furnaces used for charcoal production are not charcoal kilns.

(D) "Charcoal kiln control system"—A combination of an emission control device and connected charcoal kiln(s).

(E) "Emission control device"—Any device used to reduce contaminant emissions into the air. Thermal oxidizers or afterburners are often used on charcoal kilns for burning exhaust gases to reduce particulate matter, carbon monoxide and volatile organic compound emissions.

(F) "Fill capacity"—The maximum amount of wood that can be properly loaded into a charcoal kiln prior to the burn cycle.

(G) "Opacity"—The extent to which airborne material obstructs the transmission of incident light and obscures the visual background. Opacity is stated as a percentage of light obstructed and can be measured by a continuous opacity monitoring system or a trained observer. An opacity of one hundred percent (100%) represents a condition in which no light is transmitted and the background is completely obscured.

(H) "Particulate matter"—Particulate matter emissions from charcoal kilns and charcoal kiln control systems shall consist of all particulate matter including condensibles.

(I) "Residence time"—Period of time in which gas in a thermal oxidizer, incinerator or afterburner is exposed to heat and oxygen at a specified temperature in order to destroy pollutants present in the gas.

(J) "Treated wood"—Wood that has been subjected to a chemical process or application.

(K) 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.

Pursuant to 643.055 RSMo, the Missouri Air Conservation Commission has determined that this action is needed to have a U.S. Environmental Protection Agency approved State Implementation Plan.

10 CSR 10-5.490 (amendment) Municipal Solid Waste Landfills is hereby **AMENDED** by the Missouri Air Conservation Commission this 30th day of March, 2000.

Original signed by Commissioners:

David C. Zimmermann

, Chairperson

Michael R. Foresman

, Vice-Chairperson

Barry M Kayes

, Member

Frank D Beller

, Member

Joanne M. Collins

, Member

Harriet Beard

, Member

_____, Member

Pursuant to 643.055 RSMo, the Missouri Air Conservation Commission has determined that this action is needed to have a U.S. Environmental Protection Agency approved State Implementation Plan.

10 CSR 10-6.310 (amendment) Restriction of Emissions from Municipal Solid Waste Landfills is hereby **AMENDED** by the Missouri Air Conservation Commission this 30th day of March, 2000.

Original signed by Commissioners:

David C. Zimmermann

Chairperson

Michael R. Foresman

Vice-Chairperson

Barry M Kayes

Member

Frank D Beller

Member

Joanne M. Collins

Member

Harriet Beard

Member

Member

STATE OF MISSOURI,

ss.

AFFIDAVIT OF PUBLICATION

COUNTY OF ADAIR

I, Larry W. Freels, being duly sworn, according to law, state that I am one of the publishers of the Kirksville Daily Express and Daily News, a daily newspaper of general circulation in the County of Adair, where located, which has been admitted to the Post Office as second-class matter in the City of Kirksville, the city of publication, which newspaper has been published regularly and consecutively for a period of more than three years and has a list of bona fide subscribers voluntarily engaged as such who have paid or agreed to pay a stated price for a subscription for a definite period of time, and that such newspaper has complied with the provisions of Section 493.050 revised Statutes of Missouri, 1978. The affixed notice appeared in said newspaper as follows:

First Insertion Vol. 98/NO. 3 January 5, 2000
(Signed) [Signature], 20
Publisher

Subscribed and sworn to me this 6th day of January, 2000
[Signature]

My Commission Expires February 21, 2003

Pub. Fee, \$ 220.38

Received payment _____, 20____

**MISSOURI AIR CONSERVATION COMMISSION
WILL HOLD PUBLIC HEARING**

JEFFERSON CITY, MO--The Missouri Air Conservation Commission will hold a public hearing on Motor Vehicle Emissions Inspection and other issues on Tuesday, February 8, 2000. The Public Hearing will begin at 9:00 a.m. at the Ramada Inn, Hermitage Room, 1510 Jefferson Street, Jefferson City, MO. The commission will hear testimony related to the following rule actions.

- * 10 CSR 10-5.380 (amendment) Motor Vehicle Emissions Inspection
This action amends the rule to incorporate state legislation. Senate Bill 19, that was signed into law in July 1999. The amendment removes one of the penalties for the contractor applied when motorist wait an excessive amount of time for a test. The amendment also incorporates a transitional program leading up to the permanent enhanced inspection and maintenance program and incorporates inspection program options for Franklin County residents.
- * 10 CSR 10-5.490 (amendment) Municipal Solid Waste Landfills
This action amends, corrects errors, and clarifies regulatory text to comply with recent federal amendments to subpart 40 CFR part 60, subpart Cc.
- * 10 CSR 10-6.310 (amendment) Restriction of Emissions from Municipal Solid Waste Landfills.
This action amends, corrects errors and clarifies regulatory text to

The above documents will be available for review at the following locations: Missouri Department of Natural Resources, Air Pollution Control Program, 205 Jefferson St., Jefferson City, (573) 751-4817; Jefferson City Regional Office, 210 Hoover Drive, Jefferson City, (573) 751-2729; Kansas City Regional Office, 500 NE Colbern Road, Lee's Summit, (816) 554-4100; Northeast Regional Office, 1709 Prospect Drive, Macon, (660) 385-2129; Southeast Regional Office, 948 Lester Street, Poplar Bluff, (573) 840-9750; St. Louis Regional Office, 10805 Sunset Office Drive, St. Louis, (314) 301-7100; Southwest Regional Office, 2040 W. Woodland, Springfield, (417) 891-4300.

Persons with disabilities requiring special services or accommodations to attend the meeting can make arrangements by calling the division directly at (573) 751-7840, the department's toll free number at (800) 334-6946, or by writing two weeks in advance of the meeting to: Missouri Department of Natural Resources, Air Conservation Commission Secretary, P.O. Box 176, Jefferson City, MO 65102. Hearing impaired persons may contact the program through Relay Missouri, (800) 735-2966.

The commission holds public hearings under the provisions of chapter 643, RSMo. Citizens wishing to speak at the public hearing should notify the secretary to the Missouri Air Conservation Commission, Missouri Department of Natural Resources, Air Pollution Control Program, P.O. Box 176, Jefferson City, Missouri 65102-0176, or telephone (573) 751-7840. The department requests person intending to give verbal presentations also provide a written copy of their testimony to the commission secretary at the time of the public hearing. The department also will accept written comments for the record until 5 p.m. on February 15; please send two copies of written comments to Chief, Planning Section, Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102-0176.

Rule proposals considered at this hearing may be adopted by the Missouri Air Conservation Commission as provided for under authority of 643.050, RSMo. For more information or a complete meeting agenda, including rules being presented for adoption, contact the Department of Natural Resources Air Pollution Control Program at (573) 751-4817.

January 5, 2000

PUBLIC NOTICE

(Published in The St. Joseph News-Press Wednesday, 01/05/2000)
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This action amends the rule to incorporate state legislation, Senate Bill 19, that was signed into law in July 1999. The amendment removes one of the penalties for the contractor applied when motorists wait an excessive amount of time for a test. The amendment also incorporates a transitional program leading up to the permanent enhanced inspection and maintenance program and incorporates inspection program options for Franklin County residents.

10 CSR 10-5.490 (amendment) Municipal Solid Waste Landfills
This action amends, corrects errors, and clarifies regulatory text to comply with recent federal amendments, to subpart 40 CFR part 60, subpart Cc.

10 CSR 10-6.310 (amendment) Restriction of Emissions from Municipal Solid Waste Landfills

This action amends, corrects errors, and clarifies regulatory text to comply with recent federal amendments to subpart 40 CFR part 60, subpart Cc.

The above documents will be available for review at the following locations: Missouri Department of Natural Resources, Air Pollution Control Program, 205 Jefferson St., Jefferson City, (573) 751-4817; Jefferson City Regional Office, 210 Hoover Drive, Jefferson City, (573) 751-2729; Kansas City Regional Office, 500 NE Colbern Road, Lee's Summit, (816) 554-4100; Northeast Regional Office, 1709 Prospect Drive, Macon, (816) 385-2129; Southeast Regional Office, 948 Lester Street, Poplar Bluff, (573) 840-9750; St. Louis Regional Office, 10805 Sunset Office Drive, St. Louis, (314) 301-7100; Southwest Regional Office, 2040 W. Woodland, Springfield, (417) 891-4300.

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Rule proposals considered at this hearing may be adopted by the Missouri Air Conservation Commission as provided for under authority of 643.050 RSMo. For more information or a complete meeting agenda, including rules being presented for adoption, contact the Department of Natural Resources' Air Pollution Control Program at (573) 751-4817.

Melma Aordwin

10th January X 2000

ESTHER IONES
Notary Public-Missouri Seal
STATE OF MISSOURI
Buchanan County

AFFIDAVIT OF PUBLICATION

STATE OF MISSOURI)
 County of Boone) ss.

I, Randy Trumbull being duly sworn according to law state that I am one of the publishers of the Columbia Daily Tribune, a daily newspaper of general circulation in the County of Boone where located; which has been admitted to the Post Office as second class matter in the City of Columbia, Missouri, the city of publication; which newspaper has been published regularly and consecutively for a period of three years and has a list of bona fide subscribers voluntarily engaged as such who have paid or agreed to pay a stated price for a subscription for a definite period of time, and that such newspaper has complied with the provision of Section 493.050, Revised Statutes of Missouri, 1949. The affixed notice appeared in said newspaper on the following consecutive issues:

1st Insertion,	<u>January 2</u>	20	00
2nd Insertion,		20	
3rd Insertion,		20	
4th Insertion,		20	
5th Insertion,		20	
6th Insertion,		20	
7th Insertion,		20	
8th Insertion,		20	
9th Insertion,		20	
10th Insertion,		20	
11th Insertion,		20	
12th Insertion,		20	
13th Insertion,		20	
14th Insertion,		20	
15th Insertion,		20	
16th Insertion,		20	
17th Insertion,		20	
18th Insertion,		20	
19th Insertion,		20	
20th Insertion,		20	
21st Insertion,		20	

PRINTERS FEE 87-00
 TRIBUNE PUBLISHING COMPANY

By Randy Trumbull
 18th

Subscribed and sworn to before me this 18th day of January, 2000

[Signature]
 Notary Public

My Commission Expires May 20, 2002

This action amends, corrects errors, and clarifies regulatory text to comply with recent federal amendments to subpart 40 CFR part 60, subpart Cc.

The above documents will be available for review at the following locations: Missouri Department of Natural Resources, Air Pollution Control Program, 205 Jefferson St., Jefferson City, (573) 751-4817; Jefferson City Regional Office, 210 Hoover Drive, Jefferson City, (573) 751-2729; Kansas City Regional Office, 500 NE Colbern Road, Lee's Summit, (816) 554-4100; Northeast Regional Office, 1709 Prospect Drive, Macon, (816) 385-2129; Southeast Regional Office, 948 Lester Street, Poplar Bluff, (573) 840-9750; St. Louis Regional Office, 10805 Sunset Office Drive, St. Louis (314) 301-7100; Southwest Regional Office, 2040 W. Woodland, Springfield, (417) 891-4300.

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INSERTION DATE: January 2, 2000.

MISSOURI AIR CONSERVATION COMMISSION WILL HOLD PUBLIC HEARING

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- 10 CSR 10-5.380 (amendment) Motor Vehicle Emissions Inspection

This action amends the rule to incorporate state legislation, Senate Bill 19, that was signed into law in July 1999. The amendment removes one of the penalties for the contractor applied when motorists wait an excessive amount of time for a test. The amendment also incorporates a transitional program leading up to the permanent enhanced inspection and maintenance program and incorporates inspection program options for Franklin County residents.

- 10 CSR 10-5.490 (amendment) Municipal Solid Waste Landfills

This action amends, corrects errors, and clarifies regulatory text to comply with recent federal amendments to subpart 40 CFR part 60, subpart Cc.

- 10 CSR 10-6.310 (amendment) Restriction of Emissions from Municipal Solid Waste Landfills

RYAN W. PARKS
 Notary Public - Notary Seal
 STATE OF MISSOURI
 Boone County

ST. LOUIS POST-DISPATCH

PULITZER INC.

AFFIDAVIT OF PUBLICATION

A01TRD8325042 1231

DEP. OF NAT RESOURCES
P.O. BOX 176
JEFFERSON CITY MO 65102

THE ATTACHED ADVERTISEMENT WAS PUBLISHED IN THE ST. LOUIS POST-DISPATCH IN CLASSIFICATION 9000, 1 TIME, STARTING ON DECEMBER 31, 1999 AND ENDING ON DECEMBER 31, 1999.

MISSOURI AIR CONSERVATION COMMISSION WILL HOLD PUBLIC HEARING

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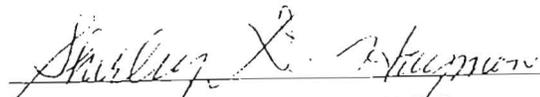
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JAN


CUSTOMER SERVICE MANAGER

SWORN TO AND SUBSCRIBED BEFORE ME,
THIS 3 DAY OF JANUARY, 2000.

PATRICIA CARLISLE
Notary Public - Notary Seal
STATE OF MISSOURI

ST. LOUIS COUNTY
My Commission Expires June 25, 2001

NOTARY PUBLIC, CITY OF ST. LOUIS

AFFIDAVIT CHARGE \$ 5.00 EACH

MISSOURI AIR CONSERVATION
COMMISSION WILL HOLD PUBLIC
HEARING

AFFIDAVIT OF PUBLICATION

JEFFERSON CITY, MO -- The Missouri Air Conservation Commission will hold a public hearing on Motor Vehicle Emissions Inspection and other issues on Tuesday, February 8, 2000. The Public Hearing will begin at 9 a.m. at the Ramada Inn, Hermitage Room, 1510 Jefferson Street, Jefferson City, MO. The commission will hear testimony related to the following rule actions.

STATE OF MISSOURI
COUNTY OF BUTLER) ss.

I, Don Schrieber, being duly sworn according to law, state that I am PUBLISHER of the DAILY AMERICAN REPUBLIC, a daily newspaper of general circulation in the Counties of Butler, Ripley, Carter, Wayne, Stoddard, New Madrid, Pemiscot, which newspaper has been admitted to the Post Office as second class matter in City of Poplar Bluff, Missouri, the city of publication; which newspaper has been published regularly and consecutively for a period of three years and has a list of bona fide subscribers voluntarily engaged as such who have paid or agreed to pay a stated price for a subscription for a definite period of time and that said newspaper has complied with the provisions of Section 493.050, Revised Statutes of Missouri 1969. The affixed notice appeared in said newspaper in the following consecutive issues:

- 10 CSR 10-5.380 (amendment) Motor Vehicle Emissions Inspection
This action amends the rule to incorporate state legislation, Senate Bill 19, that was signed into law in July 1999. The amendment removes one of the penalties for the contractor applied when motorists wait an excessive amount of time for a test. The amendment also incorporates a transitional program leading up to the permanent enhanced inspection and maintenance program and incorporates inspection program options for Franklin County residents.
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- 10 CSR 10-6.310 (amendment) Restrictions of Emissions from Municipal Solid Waste Landfills
This action amends, corrects errors, and clarifies regulatory text to comply with recent federal amendments to subpart 40 CFR part 60, subpart Cc.

1st	Insertion	Vol. 132	No. N	7 day of Jan 2000
2nd	Insertion	Vol. 132	No. N	day of
3rd	Insertion	Vol. 132	No. N	day of
4th	Insertion	Vol. 132	No. N	day of
5th	Insertion	Vol. 132	No. N	day of
6th	Insertion	Vol. 132	No. N	day of
7th	Insertion	Vol. 132	No. N	day of
8th	Insertion	Vol. 132	No. N	day of
9th	Insertion	Vol. 132	No. N	day of
10th	Insertion	Vol. 132	No. N	day of

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Don Schrieber
PUBLISHER

Subscribed and sworn to before me this 7 day of Jan 2000
\$200
Joseph L. Kewsey
Notary Public
My commission expires 10-27-2000
123-11

Persons with disabilities requiring special services or accommodations to attend the meeting can make arrangements by calling the division directly at (573) 751-7840, the department's toll free number at (800) 334-6946, or by writing two weeks in advance of the meeting to: Missouri Department of Natural Resources, Air Conservation Commission Secretary, P.O. Box 176, Jefferson City, MO 65102. Hearing impaired persons may contact the program through Relay Missouri, (800) 735-2966.

the commission secretary at the time of the public hearing. The department also will accept written comments for the record until 5:00 p.m. on February 15; please send two copies of written comments to Chief, Planning Section, Air Pollution Control Program, P. O. Box 176, Jefferson City, MO 65102-0176.

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AFFIDAVIT OF PUBLICATION

THE KANSAS CITY STAR COMPANY, publishers of THE KANSAS CITY STAR, a newspaper published in the City of Kansas City, County of Jackson, State of Missouri, confirms that the notice and/or advertisement of

MO DEPT OF NATURAL RESOURCES
DIV OF ENVIR QUALITY
PO BOX 176
JEFFERSON CITY MO 65102
20810838

7518430

a true copy of which is hereto attached, was duly published in the above said newspaper

FOR THE PERIOD OF 1 Day (s)

COMMENCING January 2,2000

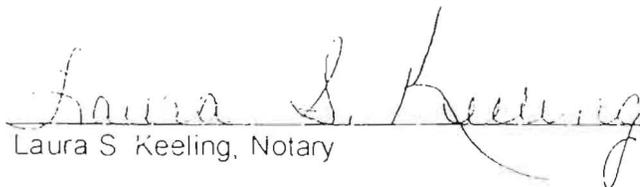
ENDING January 2,2000

STAR EDITION (S) 1/2/

STAR PAPER (S) 107

VOLUME #120

Subscribed and sworn to before me, this Friday 31 December, 1999
I certify that I was duly qualified as a Notary Public for the State of Missouri, commissioned in Jackson County, Missouri. My commission expires August 18, 2002


Laura S. Keeling, Notary

Commission Will Hold Public Hearing
JEFFERSON CITY, MO
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10 CSR 10-5.400 (amendment) Municipal Solid Waste Landfills
This action amends corrects errors, and clarifies regulatory text to comply with recent federal amendments to subpart 40 CFR part 60, subpart C.

10 CSR 10-6.310 (amendment) Restriction of Emissions from Municipal Solid Waste Landfills
This action amends, corrects errors and clarifies regulatory text to comply with recent federal amendments to subpart 40 CFR part 60, subpart C.

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Rule Proposals considered at this hearing may be adopted by the Missouri Air Conservation Commission as provided for under authority of 643.050, RSMo.

SPRINGFIELD
NEWS-LEADER

651 Boonville • MPO Box 798
Springfield, Missouri 65801
Telephone (417) 836-1100

DNR

January 5, 2000

**MISSOURI AIR CONSERVATION
COMMISSION WILL HOLD
PUBLIC HEARING**

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*10 CSR 10-5.490 (amendment) Municipal Solid Waste Landfills

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*10 CSR 10-6.310 (amendment) Restriction of Emissions from Municipal Solid Waste Landfills

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PROOF OF PUBLICATION

STATE OF MISSOURI
County of Greene

I, Marsha Burnett of Springfield, Missouri, of lawful age, do upon my oath state that I am the Legal Clerk of the News-Leader, and that I am duly authorized to and do make this affidavit for and on behalf of the News-Leader, a newspaper published daily in the City of Springfield, Greene County, Missouri; that the public advertisement, notice or order of publication, a true copy of which is hereto attached, was published in said newspaper 1 times upon the following dates:

- First publication on Wednesday, January 5, 2000.
- Second publication on _____
- Third publication on _____
- Fourth publication on _____
- Fifth publication on _____
- Last publication on _____

I do further state under oath that said newspaper has been admitted to the Post Office as second class matter; that it is a newspaper of general circulation in the City of Springfield, Missouri; that it has been published regularly and consecutively for a period of more than three years; that it has a list of bona fide subscribers voluntarily engaged as such; who have paid or agreed to pay a stated price for a subscription for a definite period of time, and that said newspaper has complied with the provisions of Section 14968 Revised Statutes of Missouri, 1939, relating to "Public Advertisements."

Marsha Burnett

18th Day of Jan, 2000

Renee Swaters

Notary Public in and for Greene County, Missouri

Subscribed and sworn to before me this
My commission expires

RENEE SWATERS
NOTARY PUBLIC STATE OF MISSOURI
POLK COUNTY
MY COMMISSION EXP. JUNE 23, 2002



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BEFORE THE
MISSOURI AIR CONSERVATION COMMISSION MEETING
STATE OF MISSOURI

February 8, 2000
Ramada Inn
Roanoke Room
1510 Jefferson Street
Jefferson City, Missouri

BEFORE: Andy Farmer, Commissioner
Joanne Collins, Commissioner
Barry Kayes, Commissioner
David Zimmerman, Chair
Harriot Beard, Commissioner
Frank Beller, Commissioner

COPY
Associated Court Reporters, Inc.
Jefferson City, MO (873) 636-7551

REPORTED BY:

Melinda Adolphson
ASSOCIATED COURT REPORTERS, INC.
714 West High Street
Jefferson City, Missouri 65102

1 that can be a reason that a cop can pull you
2 over -- or I mean, get pulled over for something
3 else and that can also be added on.

4 COMMISSIONER KAYES: And then when you get
5 it inspected, you replace --

6 MR. VITZTHUM: Right. You replace the
7 extension sticker with a regular sticker.

8 CHAIR ZIMMERMAN: Are there any other
9 questions? I see none. I close the hearing,
10 public hearing -- okay. We'll move on. 10 CSR
11 10-5.490, Municipal solid waste landfills, Paul
12 Myers, and he's also going to cover 10 CSR
13 10-6.310, Restrictions of emissions from municipal
14 solid waste landfills.

15 (WITNESS SWORN.)

16 MR. MYERS: Good morning, Commissioners.
17 My name is Paul Myers, and I work as an
18 Environmental Specialist with the Air Pollution
19 Control Program at 205 Jefferson Street in
20 Jefferson City. Today I will be presenting
21 testimony for amendments to two rules concerning
22 landfills. And with the Commissioners' permission,
23 since the rules and changes are similar, I would
24 like to speak to both rules with one presentation.

25 The two rules to be amended are 5.490 and

1 6.310. Both rules apply to landfills emitting
2 non-methane organic compounds or NMOCs. And both
3 rules require gas collection and control equipment
4 if NMOC gaseous emissions exceed certain levels.

5 Rule 5.490 applies to the St. Louis area
6 landfills, and Rule 6.310 applies to all other
7 landfills in the State. Both rules are based upon
8 the Environmental Protection Agency's emission
9 guidelines for landfills. Rule 5.490 was filed in
10 May of 1996 based on a draft version of EPA's
11 emission guidelines, and Rule 6.310 was filed in
12 January 1997 after EPA had finalized the emission
13 guidelines.

14 And as a result there are a few changes in
15 5.490 that are not seen in 6.310. These changes
16 are due to differences between the draft and the
17 final version of the emission guidelines.

18 The Air Program is taking this action to
19 maintain compliance with changes in EPA's emission
20 guidelines for municipal solid waste landfills
21 found in 40 CFR part 60, subpart Cc. EPA's
22 emission guidelines were originally promulgated in
23 1996. EPA has since amended subpart Cc twice. Once
24 in June of 1998 and again in February of 1999.

25 The 1998 amendment functioned primarily to

1 clarify regulatory text and correct errors. The
2 amendment revised the wording of the applicability
3 section and related definitions to clarify the
4 designation of affected facilities, which are
5 subject to federal NSPS and which are subject to
6 state regulations.

7 Compliance states title 5 permitting
8 requirements, monitoring and recordkeeping were
9 among other areas revised. Other changes are to
10 correct typographical and cross-referencing
11 errors. The 1999 amendment corrected an omission
12 to the definition of modification and provided
13 additional guidelines for when designed capacity
14 and NMOC emission reports are due on existing
15 facilities.

16 In both rules the applicability section is
17 being amended to include language on title 5 permit
18 requirements that were originally omitted from
19 EPA's emission guidelines. Landfills having design
20 capacities greater than or equal to 2.5 million
21 megagrams and 2.5 million cubic meters are required
22 to obtain title 5 permits regardless of the current
23 emissions.

24 This is based on the assumption that
25 emissions from such a landfill would eventually

1 exceed the emission limit. Landfills subject to
2 title 5 permits as a result of these rules are
3 required to file title 5 applications within 12
4 months following the design capacity reports
5 showing them above the 2.5 million megagram or
6 cubic meter size. When the landfill closes, the
7 title permit requirement is no longer needed.

8 Definitions for "Closed landfill" and
9 "Design capacity" are being amended. For closed
10 landfill a reference to Section 258.60 is being
11 deleted and a reference to 40 CFR part 60.7 is
12 being added. The reference to Section 258.60
13 turned out to be not appropriate for all the
14 landfills. Designed capacity is to be determined
15 by the most recent permit issued in cases where the
16 landfill has multiple permits. It also allows for
17 the permit to describe design capacity on a
18 volumetric or a mass basis.

19 The terms "Modification" and "Solid waste"
20 are being added to the definition section. The
21 definition of modification is specific to landfills
22 since landfill emissions are based on the amount
23 and character of the waste, rather than the
24 production method or physical and operational
25 changes to equipment that is common to other

1 industries.

2 Existing landfills, subject to these two
3 rules that make an operational change but do not
4 increase the horizontal or vertical dimension of
5 the landfill, will continue to be subject to the
6 state rules and not to the federal NSPS. This
7 allows the landfill to change the cover thickness,
8 compaction practices or moisture content of the
9 waste without being subject to a new regulation.

10 The term "Solid waste" is being added to
11 Rule 5.490 to match the federal emission
12 guidelines. This term was not included when the
13 rule was first promulgated.

14 In Section 3 of both rules language is
15 being added to clarify compliance deadlines for
16 control equipment. Landfill compliance with
17 emission standards shall be tied into the first
18 report of NMOC emissions equaling or exceeding NMOC
19 emission limit.

20 Landfills will be required to install
21 controls no later than 30 months after the first
22 report of NMOC emissions exceeding the limit. As a
23 result, the confusing language that talks about
24 submittal of the design plan and compliance can be
25 deleted.

1 In the test methods section of each rule,
2 it is clarified that there are two equations
3 available to calculate the NMOC emission rates if
4 year-to-year solid waste acceptance is known. That
5 was the original intent of the rule but this wasn't
6 made clear within the body of the rule. In
7 addition, a methane generation rate constant K is
8 being added for geographical areas with low
9 precipitation. Areas with low precipitation
10 experience slower decomposition of their waste and
11 consequently reduced gas production.

12 There are a number of other additions and
13 deletions of rule language to comply with EPA's
14 amendments. These can be found in nearly all
15 sections of the rule. The intent of these changes
16 is to clarify the rule requirements and in no case
17 are the changes considered major.

18 There are also a number of places where
19 the language "of this rule" is being added. This
20 language is added not as a result of EPA's
21 amendments but to further clarify the numerous
22 cross-references found within the rule.

23 The fiscal note for these amendments
24 indicates the cost of public and private entities
25 will not exceed \$500. The only new requirement on

1 landfills as a result of these amendments is the
2 title 5 permit requirement for landfills affected
3 by Rule 5.490 for the St. Louis area.

4 However, since landfills in the St. Louis
5 area seem to fall into one of three categories:
6 Either being closed, too small to trigger a title 5
7 permit or is subject to federal NSPS, it does not
8 appear that any landfill will have to get a
9 title 5 permit as a result of this particular
10 amendment. All other changes are meant to clarify
11 existing rule requirements and ~~oppose~~ ^{impose} little to no
12 additional cost.

13 Both of these rules are subject to review
14 and approval by EPA under Section 111 D of the
15 Clean Air Act. Therefore if the Commission
16 ultimately adopts these rule actions, they will be
17 submitted to the US EPA for review and to replace
18 the current rules in the 111 D plan. This
19 concludes my testimony.

20 CHAIR ZIMMERMAN: Are there any
21 questions? I see no further questions. I will now
22 close the public hearing then.

23 (PUBLIC HEARING WAS CONCLUDED.)

24

25

sticker that temporarily replaces the emission sticker for up to six (6) months.

2. The owner of a vehicle that has not received a clean screen notice and who cannot obtain an emission inspection during the transitional period may submit an emission extension certificate, in lieu of an emission inspection certificate, to the Missouri Department of Revenue in order to register the vehicle only during the transitional period. Owners of such vehicles who do not receive an emission extension certificate by mail may obtain one from the Department of Revenue at the time the vehicle is registered during the transitional period.

3. The emission extension certificate shall contain the certificate's expiration date.

4. The emission extension sticker shall be affixed on the inside of the vehicle's front windshield in the lower left hand corner. Previous emission inspection stickers affixed to the windshield shall be removed. Stickers are valid for six (6) calendar months.

5. The owner shall have their subject vehicle emission inspected prior to the emission extension sticker expiring.

6. The emission inspection sticker that replaces the emission extension sticker shall be valid until the subject vehicle's next required emission inspection.

7. No emission inspection fee is required for the emission extension certificate and emission extension sticker.

8. The automobile dealer may sell the vehicle with prior inspection and approval. The automobile dealer shall disclose, in writing, prior to sale, whether the vehicle obtained approval by meeting the emissions standards established pursuant to sections 643.300 to 643.355, RSMo or by obtaining a waiver pursuant to section 643.335, RSMo. A vehicle sold pursuant to this subsection by a licensed motor vehicle dealer shall be inspected and approved within the one hundred twenty (120) days immediately preceding the date of sale, and, for the purpose of registration of such vehicle, such inspection shall be considered timely.

9. The automobile dealer may sell the vehicle without prior inspection and approval. The automobile dealer shall disclose conspicuously on the sales contract and bill of sale that the purchaser has the option to return the vehicle that fails an emission inspection within ten (10) days, provided that the vehicle has no more than one thousand (1,000) additional miles since the time of sale. The automobile dealer shall inform the purchaser about emission inspecting the vehicle.

10. The automobile dealer shall either repair the returned vehicle and provide an emissions certificate and sticker within five (5) working days or enter into any mutually acceptable agreement with the purchaser.

11. The emission inspection for automobile dealers and used vehicle purchasers shall be the idle test. The emission standards for all subject vehicles:

Model Year	CO (%)	HC (PPM)
1971-1974	7.0	700
1975-1979	6.0	600
1980	3.0	300
1981 and later	1.2	220

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

ORDER OF RULEMAKING

By the authority vested in the Missouri Air Conservation Commission under section 643.050, RSMo Supp. 1999, the commission amends a rule as follows:

10 CSR 10-5.490 is amended.

A notice of proposed rulemaking containing the text of the proposed amendment was published in the *Missouri Register* on November 15, 1999 (24 MoReg 2680-2686). Those sections with changes are reprinted here. This proposed amendment becomes effective thirty days after publication in the *Code of State Regulations*.

SUMMARY OF COMMENTS: The Missouri Department of Natural Resources (MDNR) received comments from three entities, which include the U.S. Environmental Protection Agency (EPA), Burns and McDonnell and the National Solid Wastes Management Association (NSWMA). One entity supported the amendments and the other two supported the amendments with changes.

COMMENT: The EPA supports the revisions as necessary to be consistent with revisions made to the related federal rule. The proposed rule revisions accurately and completely reflect the revisions necessary to be consistent with the federal requirements. Therefore, we have no adverse or critical comments.

RESPONSE: No changes were made to the text as a result of this comment.

COMMENT: The NSWMA made comments on two sections of the rule: section (1) Applicability and section (3) General Provisions. The comment on section (1) raises the concern that landfills not located in the St. Louis noncompliance area will not have to get an operating permit. The comment on section (3) is that the requirements are more stringent than federal requirements. This is because landfills having design capacities equal to or greater than 1.0 million megagrams or 1.0 million cubic meters are being required to comply with the emission guidelines intended for landfills having design capacities equal to or greater than 2.5 million megagrams or cubic meters. The NSWMA recommends that the Commission not implement these rules until it has thoroughly reviewed the federal requirements and ensured that any adopted rules in Missouri are consistent with the federal requirements.

RESPONSE: Regarding the comment on applicability the MDNR feels that rule 10 CSR 10-5.490 and its companion rule 10 CSR 10-6.310 make it clear that any Missouri landfill above 2.5 million megagrams and cubic meters is required to obtain a Title V operating permit. On the second comment the MDNR is aware that the requirements for landfills in the general provisions section are more stringent than federal requirements in that smaller design capacity landfills may be required to install gas collection and control systems. In nonattainment areas, such as St. Louis, the Commission has the power to promulgate regulations more stringent than federal requirements to bring the area into attainment. The landfill rule and the controls it requires have a positive effect on reducing volatile organic compound (VOC) emissions coming from landfills. For that reason the applicability section requires smaller landfills than required in federal emission guidelines to control emissions. No changes were made to the rule text as a result of this comment.

COMMENT: Burns and McDonnell commented that subparagraph (3)(B)2.C. has been revised in the first sentence by deleting the word a and adding the phrase one of the following. The problem with the revised wording is that landfills utilizing energy recovery do not route all the collected gas to one of the following control systems. Such landfill will flare excess gas and burn the other gas in an energy recovery device like a boiler or internal combustion engine. We suggest that you add the phrase one or more of the following to the first sentence of subparagraph (3)(B)2.C.

RESPONSE AND EXPLANATION OF CHANGE: The MDNR consulted with the EPA regarding changing the text of the language in response to this comment and still maintaining compliance with federal emission guidelines. Both the MDNR and the EPA agree that such a change would not be considered less stringent than federal emission guidelines or change the intent. A change was made to the rule text as a result of this comment.

COMMENT: Burns and McDonnell commented that open flare is not defined in this regulation. Subparagraph (3)(B)2.C. does not appear to be equitable because only one of the three alternate control systems is required to have an initial performance test conducted. The MDNR has added the requirement that a control system designed and operated to reduce non-methane organic compounds (NMOC) must conduct an initial performance test with 180 days after the initial startup. However, there is no testing required for open flares or systems that route the gas for sale or use. Generally control systems designed and operated to reduce NMOCs will have been tested by the manufacturer that will guarantee the destruction efficiency when burning landfill gas at a specified temperature. These devices should not be required to conduct an initial performance test. The MDNR is issuing a rule with a disincentive to purchase higher priced control systems designed and known by testing to meet the desired efficiency. Does the MDNR want landfill operators to purchase equipment that cannot be tested such as an open flare? We recommend that the last sentence of part (3)(B)2.C.(II) be deleted in order to provide an incentive for the landfill operator to purchase equipment designed to control NMOCs.

RESPONSE AND EXPLANATION OF CHANGE: There should be a reference to federal regulation 40 CFR part 60.18 concerning flare design and operation in part (3)(B)2.C.(I). This reference was most likely not included in the original rule since it wasn't part of the draft federal emission guidelines. The final version of the emission guidelines does contain the reference. Rule 10 CSR 10-6.310, which was promulgated after the guidelines were finalized, does contain the reference. Flare is a defined term in this rule and matches the definition found in the federal emission guidelines. Open flare is not defined in the emission guidelines. A change was made to the rule text as a result of this comment.

COMMENT: Burns and McDonnell commented that the addition of the last sentence to Section (4)(A) that allows use of an alternate value for k in low precipitation areas should not be included in this regulation. There is no area of the state of Missouri that has an annual rainfall less than 25 inches. Adding a sentence to a regulation in Missouri that has no use is a waste of time and paper and causes confusion for the regulated community. It is true that different values for k should be allowed when calculating total NMOC emission rates, but the proposed sentence being added to Section (4)(A) is of no use.

RESPONSE: To maintain consistency with federal emission guidelines it is necessary to retain this language regarding an alternate value for k. No changes were made to the rule text as a result of this comment.

10 CSR 10-5.490 Municipal Solid Waste Landfills

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 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.

(3) General Provisions.

(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 sub-surface 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 wellhead 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.

Title 10—DEPARTMENT OF NATURAL RESOURCES
Division 10—Air Conservation Commission
Chapter 6—Air Quality Standards, Definitions,
Sampling and Reference Methods and Air Pollution
Control Regulations for the Entire State of Missouri

ORDER OF RULEMAKING

By the authority vested in the Missouri Air Conservation Commission under section 643.050, RSMo Supp. 1999, the commission amends a rule follows:

10 CSR 10-6.310 is amended

A notice of proposed rulemaking containing the text of the proposed amendment was published in the *Missouri Register* on November 15, 1999 (24 MoReg 2686-2695). Those sections with changes are reprinted here. This proposed amendment becomes effective thirty days after publication in the *Code of State Regulations*.

SUMMARY OF COMMENTS: The Missouri Department of Natural Resources (MDNR) received comments from three entities.

which include the U.S. Environmental Protection Agency (EPA), the National Solid Wastes Management Association (NSWMA) and Burns and McDonnell. Two entities supported the amendments and the other one supported the amendments with changes.

COMMENT: The EPA supports the revisions as necessary to be consistent with revisions made to the related federal rule. The proposed rule revisions accurately and completely reflect the revisions necessary to be consistent with the federal requirements. Therefore, we have no adverse or critical comments.

RESPONSE: No changes were made to the text as a result of this comment.

COMMENT: The NSWMA made reference to rule 10 CSR 10-6.310 in a comment letter on rule 10 CSR 10-5.490. However, no specific examples of changes needed to rule 10 CSR 10-6.310 were made in the comment letter.

RESPONSE: No changes were made to the text as a result of this comment.

COMMENT: Burns and McDonnell commented that subparagraph (3)(B)2.C. has been revised in the first sentence by deleting the word a and adding the phrase one of the following. The problem with the revised wording is that landfills utilizing energy recovery do not route all the collected gas to one of the following control systems. Such landfill will flare excess gas and burn the other gas in an energy recovery device like a boiler or internal combustion engine. We suggest that you add one or more of the following to the first sentence of subparagraph (3)(B)2.C.

RESPONSE AND EXPLANATION OF CHANGE: The MDNR consulted with the EPA regarding changing the text of the language in response to this comment and still maintaining compliance with federal emission guidelines. Both the MDNR and the EPA agree that such a change would not be considered less stringent than federal emission guidelines or change the intent. A change was made to the rule text as a result of this comment.

10 CSR 10-6.310 Restriction of Emissions From Municipal Solid Waste Landfills

(3) Standards for Air Emissions from Municipal Solid Waste Landfills.

(B) Each owner or operator of an MSW landfill having a design capacity equal to or greater than two and one-half (2.5) million megagrams and two and one-half (2.5) million cubic meters, shall either comply with paragraph (3)(B)2. of this rule or calculate an NMOC emission rate for the landfill using the procedures specified in section (5) of this rule. The NMOC emission rate shall be recalculated annually, except as provided in subparagraph (8)(B)1.B. of this rule. The owner or operator of an MSW landfill subject to this 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 is subject to part 70 permitting requirements. When a landfill is closed, and either never needed control or meets the conditions for control system removal specified in subparagraph (3)(B)2.E. of this rule, a part 70 operating permit is no longer required.

1. If the calculated NMOC emission rate is less than fifty (50) megagrams per year, the owner or operator shall—

A. Submit an annual emission report to the director, except as provided for in subparagraph (8)(B)1.B. of this rule; and

B. Recalculate the NMOC emission rate annually using the procedures specified in paragraph (5)(A)1. of this rule until such time as the calculated NMOC emission rate is equal to or greater than fifty (50) megagrams per year, or the landfill is closed.

(I) If the NMOC emission rate, upon recalculation required in subparagraph (3)(B)1.B. of this rule is equal to or greater than fifty (50) 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 as provided for in subsection (8)(D) of this rule.

2. If the calculated NMOC emission rate is equal to or greater than fifty (50) 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. 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 as described in the plan 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 operational standards, test methods, procedures, compliance measures, monitoring, record keeping or reporting provisions of sections (4) through (9) 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 in section (10) of this rule or include a demonstration to the director's satisfaction, such that human health and safety is protected, of the sufficiency of the alternative provisions to section (10) of this rule.

(IV) The director shall review the information submitted under parts (3)(B)2.A.(I), (II) and (III) of this rule and either approve it, disapprove it, or request that additional information be submitted. Because of the many site-specific factors involved with landfill gas system design, alternative systems may be necessary. A wide variety of system designs are possible, such as vertical wells, combination horizontal and vertical collection systems, or horizontal trenches only, leachate collection components, and passive systems;

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 fifty (50) megagrams per year, unless Tier 2 or Tier 3 sampling under section (5) of this rule demonstrates that the emission rate is less than fifty (50) megagrams per year, as specified in paragraph (8)(C)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 over the intended use period of the gas control or treatment system equipment;

(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—

I. Five (5) years or more if active; or

II. 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 sub-surface gas.

(II) A passive collection system shall—

(a) Comply with the provisions specified in 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. The liners shall be installed as required under 40 CFR part 258.40 (incorporated by reference);

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 parts per million by volume (20 ppmv), 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 using the test methods specified in subsection (5)(D) of this rule.

(a) If a boiler or process heater is used as the control device, the landfill gas stream shall be introduced into the flame zone.

(b) The control device shall be operated within the parameter ranges established during the initial or most recent performance test. The operating parameters to be monitored are specified in section (7) of this rule; or

(III) A system that routes the collected gas to a treatment system that processes the collected gas for subsequent sale or use. All emissions from any atmospheric vent from the gas treatment system shall be subject to the requirements of part (3)(B)2.C.(I) or (II) of this rule:

D. Operate the collection and control device installed to comply with this rule in accordance with the provisions of sections (4), (6) and (7) of this rule;

E. The collection and control system may be capped or removed provided that all the conditions of parts (3)(B)2.E.(I), (II) and (III) of this rule are met—

(I) The landfill shall be no longer accepting solid waste and be permanently closed under the requirements of 40 CFR part 258.60 (incorporated by reference). A closure report shall be submitted to the director as provided in subsection (8)(D) of this rule;

(II) The collection and control system shall have been in operation a minimum of fifteen (15) years; and

(III) Following the procedures specified in subsection (5)(B) of this rule, the calculated NMOC gas produced by the landfill shall be less than fifty (50) 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

F. 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 fifty (50) megagrams per year.

Title 11—DEPARTMENT OF PUBLIC SAFETY
Division 45—Missouri Gaming Commission
Chapter 10—Licensee's Responsibilities

ORDER OF RULEMAKING

By the authority vested in the Missouri Gaming Commission under sections 313.004, 313.052, 313.800 and 313.805, RSMo 1994, the commission adopts a rule as follows:

11 CSR 45-10.035 Licensee's Duty to Contact Commission Agent is adopted.

A notice of proposed rulemaking containing the text of the proposed rule was published in the *Missouri Register* on February 1, 2000 (25 MoReg 278). No changes have been made in the text of the proposed rule, so it is not reprinted here. This proposed rule becomes effective thirty days after publication in the *Code of State Regulations*.

SUMMARY OF COMMENTS: No comments were received.

Title 11—DEPARTMENT OF PUBLIC SAFETY
Division 45—Missouri Gaming Commission
Chapter 13—Hearings

ORDER OF RULEMAKING

By the authority vested in the Missouri Gaming Commission under sections 313.004, 313.052, 313.560, 313.800 and 313.805, RSMo 1994, the commission adopts a rule as follows:

11 CSR 45-13.055 Emergency Order Suspending License Privileges—Expedited Hearing is adopted.

A notice of proposed rulemaking containing the text of the proposed rule was published in the *Missouri Register* on February 1, 2000 (25 MoReg 278-281). No changes have been made in the text of the proposed rule, so it is not reprinted here. This proposed rule becomes effective thirty days after publication in the *Code of State Regulations*.

SUMMARY OF COMMENTS: No comments were received.

Title 12—DEPARTMENT OF REVENUE
Division 10—Director of Revenue
Chapter 25—Motor Vehicle Financial Responsibility

ORDER OF RULEMAKING

By the authority vested in the director of revenue under section 303.290, RSMo 1994, the director rescinds a rule as follows:

12 CSR 10-25.090 Fees Assessed for Failure to Surrender Drivers License or Registration Plates After Suspension is rescinded.

A notice of proposed rulemaking containing the proposed rescission was published in the *Missouri Register* on February 15, 2000 (25 MoReg 392). No changes have been made in the proposed rescission, so it is not reprinted here. This proposed rescission becomes effective thirty days after publication in the *Code of State Regulations*.

SUMMARY OF COMMENTS: No comments were received.

Title 12—DEPARTMENT OF REVENUE
Division 10—Director of Revenue
Chapter 103—Sales/Use Tax—Imposition of Tax

ORDER OF RULEMAKING

By the authority vested in the director of revenue under section 144.270, RSMo 1994, the director adopts a rule as follows:

12 CSR 10-103.200 Isolated or Occasional Sale is adopted.

A notice of proposed rulemaking containing the text of the proposed rule was published in the *Missouri Register* on February 1, 2000 (25 MoReg 292-293). No changes have been made in the text of the proposed rule, so it is not reprinted here. This proposed rule becomes effective thirty days after publication in the *Code of State Regulations*.

SUMMARY OF COMMENTS: No comments were received.

SECTION 111(d) STATE PLAN FOR IMPLEMENTING
THE MUNICIPAL SOLID WASTE LANDFILL
EMISSION GUIDELINES FOR MISSOURI

MISSOURI DEPARTMENT OF NATURAL RESOURCES
Division of Environmental Quality

Air Pollution Control Program
P.O. Box 176
Jefferson City, Missouri 65102
Telephone (573) 751-4817

December 19, 1997

Revised July 27, 2000

A. Introduction

On March 12, 1996 the Environmental Protection Agency (EPA) adopted New Source Performance Standards for Municipal Solid Waste Landfills (Title 40 CFR Part 60, subpart WWW) and Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills (Title 40 CFR Part 60, Subpart Cc). The Subpart Cc Emission Guidelines apply to existing municipal solid waste landfills. The Clean Air Act requires that the state regulatory agency implement the Emission Guidelines according to a state plan developed under Section 111(d) of the Clean Air Act. This state plan is to be submitted to EPA within nine months of EPA's adoption of the Emission Guidelines.

State plans must contain specific information and legal mechanisms necessary to implement the Emission Guidelines. The minimum requirements are listed below.

- Identification of enforceable state mechanisms selected by the state for implementing the Emission Guidelines;
- A demonstration of the state's legal authority to carry out the Section 111(d) State Plan as submitted;
- An inventory of Municipal Solid Waste (MSW) landfills in the state affected by the Emission Guidelines. This includes existing MSW landfills that have accepted waste since November 8, 1987, or have additional capacity for future waste deposition. An existing landfill may be active (currently accepting waste or having additional capacity available to accept waste) or closed (no longer accepting waste nor having available capacity for future waste deposition);
- An inventory of emission from MSW landfills in the state that are affected by the Emission Guidelines;
- Emission limitations for MSW landfills that are no less stringent than those in the Emission Guidelines;
- A state process for review and approval of site-specific gas collection and control system design plans;
- Compliance schedules, extending no later than 30 months after the effective date of the state emission standard, or 30 months after the date the annual NMOC emission rate exceeds 50 megagrams (Mg) per year, whichever is later;
- Testing, monitoring, recordkeeping, and reporting annual requirements;

- A record of public hearing(s) on the State Plan; and
- Provision for annual state progress reports to EPA on implementation of the State Plan.

States must adopt and submit a State Plan to EPA within nine months (December 12, 1996) after promulgation of the Emission Guidelines. EPA then has four months to approve or disapprove the State Plan. Plan approval or disapproval will be published in the Federal Register (FR). If a plan is disapproved, EPA will state the reasons for disapproval in the FR. If a state does not submit an approvable State Plan, EPA will adopt and implement a Federal Plan.

A draft version of Missouri's state plan entitled, Section 111(d) State Plan for Implementing the Municipal Solid Waste Landfill Emission Guidelines for Missouri, was submitted to EPA's Region VII office on December 12, 1999. The draft plan contained all the required components specified in the Emission Guidelines except that not all the rules had been adopted by the Missouri Air Conservation Commission. Missouri delayed submitting a final state plan until all rules developed as a result of the Emission Guidelines were adopted by the Missouri Air Conservation Commission and had become effective.

This document contains the final version of Missouri's State Plan to meet the requirements of the Emission Guidelines.

B. Identification of enforceable state mechanisms selected by the state for implementing the Emission Guidelines.

The state of Missouri will use state rules to meet the requirements of the Emission Guidelines. Rule 10 CSR 10-5.490 Municipal Solid Waste Landfills covers the St. Louis nonattainment area. The St. Louis nonattainment area includes the city of St. Louis and the counties of Franklin, Jefferson, St. Louis, and St. Charles. Rule 10 CSR 10-6.310 Restriction of Emissions from Municipal Solid Waste Landfills covers the remainder of the state. A copy of rule 10 CSR 10-5.490 and rule 10 CSR 10-6.310 can be found in Appendix A.

C. Demonstration of legal authority.

The Air Conservation Commission of the State of Missouri is the air pollution control agency for the State of Missouri. The commission was created to maintain the purity of the air resources of the state to protect the health, general welfare and physical property of the people, maximum employment and the full industrial development of the state by preventing, abating and controlling air pollution by all practical and economically feasible methods. The commission, more commonly referred to as the Missouri Air Conservation Commission

(MACC), has the authority, pursuant to chapter 536, RSMo, to promulgate rules and regulations to establish standards and guidelines to ensure that the state of Missouri is in compliance with the provisions of the federal Clean Air Act. The specific powers and duties of the MACC are outlined in section 643.050, RSMo. A copy of sections 643.010 – 643.070, RSMo, can be found in Appendix B.

D. Inventory of Municipal Solid Waste (MSW) landfills in the state affected by the Emission Guidelines.

The Air Pollution Control Program (APCP) and the Solid Waste Management Program (SWMP) of the Missouri Department of Natural Resources compiled the following list (Table 1) of MSW landfills subject to the Emission Guidelines. This list includes existing MSW landfills that have accepted waste since November 8, 1987, or have additional capacity for future waste deposition. In addition, a chart showing the location and status of many of these landfills can be found in Appendix C.

E. Inventory of emissions from MSW landfills in Missouri.

Table 1 contains estimates of the 1997 Non-Methane Organic Compound (NMOC) emissions from MSW landfills in megagrams per year. The NMOC emissions were calculated using the most recent version of the Landfill Air Emissions Estimation Model (Beta release 4) using the best available data and most recent values found in AP-42. Model parameters used in creating reports were: methane generation rate (k) = 0.04/yr, methane generation potential (L_0) = 100 m³/Mg, and an NMOC concentration of 595 ppmv as hexane.

Information on actual yearly solid waste acceptance rates has been difficult to obtain. Data from the Solid Waste Management Program's quarterly tonnage fee report were used when available, but the data only goes back to year 1990. Data was converted from tons to megagrams. There is no departmental data on acceptance rate for landfills closed prior to 1990. Therefore, for closed landfills the models used the design capacity of the landfill divided by the number of years the landfill was operating to arrive at a yearly acceptance rate. The assumption is that landfills accepted waste at a constant rate until they had reached their design capacity. For landfills that had no record of their design capacity, the volume in acre feet was used with the refuse estimator function of the program to calculate the design capacity of the landfill. The yearly acceptance rate was then calculated as described above and used in the model to estimate NMOC emissions. While this method is not as accurate as having the actual yearly acceptance rates, it does provide values to use in the model to help estimate emissions. Landfills that operated before 1990 and are still operating present problems in estimating emissions. That state has no record of how much refuse was in place before tonnage fee records were kept. The landfills also do not have this information readily available. To arrive at a yearly acceptance rate before 1990, the average acceptance rate for the years 1990 to the present was used in some situations

where the acceptance rate was consistent from 1990 to 1997. In situations where the acceptance rate increased or decreased dramatically from year 1990 to year 1997, the acceptance rate for years prior to 1990 were based on year 1990 data. A copy of each existing landfills NMOC emission modeling report can be found in Appendix D.

The APCP has asked MSW landfills to supply up-to-date information to more accurately estimate NMOC emissions. Many landfills have supplied information on design capacity, but could not provide much information on yearly acceptance rates or refuse in place. Updates to the emission inventory will be performed during the annual progress reports as new information becomes available.

- F. Emission limitations shall be no less stringent than those in the Emission Guidelines.

The state has tried to mirror the emission limitations established in the New Source Performance Standard (NSPS) for MSW landfills in rule 10 CSR 10-6.310. Landfills having design capacities of two and a half (2.5) million megagrams by mass or greater and NMOC emissions of fifty (50) megagrams or greater shall install a gas collection and control system. MSW landfills in the St. Louis nonattainment area are covered by rule 10 CSR 10-5.490 which has more stringent emission limitations than the Emission Guidelines. For the St. Louis nonattainment area the design capacity level is one (1) million megagrams by mass and the NMOC emission limitation level is twenty-five (25) megagrams per year.

- G. A state process of review and approval of site-specific gas collection and control system design plans.

The APCP and SWMP will jointly review design plans for gas collection and control systems. A revised Memorandum of Understanding (MOU) between the SWMP and APCP was signed by both program directors agreeing to jointly review and approve landfill gas emission collection and control systems which are required as a result of the federal NSPS and Emission Guidelines. A copy of the MOU can be found in Appendix E.

- H. Compliance schedule.

The state rules establish the same compliance times as the NSPS. Floating dates are tied to the effective date of the respective rules. The rules require the design capacity report and NMOC emission report ninety (90) days after the rule effective date. Landfill owners have twelve (12) months to submit design plans for a gas collection and control system and thirty (30) months to get the system operational once their NMOC emissions equal or exceed the regulatory limit. The rule effective date for 10 CSR 10-5.490 is December 30, 1996. The rule effective

date for 10 CSR 10-6.310 is September 30, 1997. A compliance schedule table for when report, plan, etc., are due is presented below.

Rule	Design capacity report due	NMOC report due	Design plans due	Control system operational
10 CSR 10-5.490	March 30, 1997	March 30, 1997	March 30, 1998	September 30, 1998
10 CSR 10-6.310	December 30, 1997	December 30, 1997	December 30, 1998	June 30, 1999

I. Testing, monitoring, recordkeeping, and reporting requirements.

Each rule contains provisions for testing, monitoring, reporting, and recordkeeping. The provisions are the same as in the NSPS.

J. A record of public hearings held.

Documentation of the public hearing for the State Plan is included in appendix F. Rule 10 CSR 10-5.490 was presented for public hearing in July of 1996. A copy of the public hearing documentation for that rule can be found in Appendix G. Rule 10 CSR 10-6.310 was presented for public hearing in March of 1997. A copy of the public hearing documentation for that rule can be found in Appendix F.

Rules 10 CSR 10-5.490 and 10 CSR 10-6.310 were amended on March 30, 2000, to incorporate changes in the Emission Guidelines promulgated in the June 16, 1998, and February 24, 1999, Federal Register. Copies of the public hearing documentation for these rule actions on 10 CSR 10-6.310 and 10 CSR 10-5.490 can be found in Appendix F and G, respectively. Copies of the amended rules can be found in Appendix A. Documentation of the public hearing for the amended State Plan can be found in Appendix F.

K. Provisions for annual state progress reports to EPA on implementation of the State Plan.

The annual report will be incorporated into the reports required by 40 CFR section 51.321.

L. Use of AP-42 values for calculating emissions in rule 10-6.310.

In response to comments at the public hearing for rule 10 CSR 10-6.310 additional options for calculating NMOC emissions were added to the rule. The

rule allows owners to calculate their landfills NMOC emission using emission factors found in AP-42 as alternative to Tier 2 and Tier 3 methods. The MACC felt that such language was appropriate in the rule since EPA's emission factors used in the Tier 1 method were highly conservative and that other EPA approved emission factors were available (AP-42). Owners are still required to calculate NMOC emissions using Tier 1, but may use AP-42 emission factors for Tier 2 or Tier 3, if needed. At this time this provision does not appear to have any effect on the applicability of rule 10 CSR 10-6.310. Only four (4) landfills in the inventory have design capacities of 2.5 million cubic meters/megagrams or greater. Three of those landfills are in Franklin or St. Louis county which is covered by rule 10 CSR 10-5.490. Rule 10 CSR 10-5.490 does not allow for the substitution of AP-42 emission factors in calculating for Tier 2 or Tier 3 emissions. The other landfill (Southeast) is located in Jackson county. Southeast is of sufficient design capacity to exceed the estimated 50 megagrams emission limit using the lowest emission factors available in AP-42 (see model for Southeast landfill in Appendix D).

1 MR. PATRICK MUCK: I think I'll turn that
2 over to Roger.

3 Would you say that's well-known?

4 MR. ROGER RANDOLPH: I doubt that they
5 understand. I mean, if we get a chance to tell
6 people, and we usually do if there is a press release
7 that goes along with a large fine, then we say that it
8 will be payable to the school fund. That's always in
9 the settlement agreement, but so few people see that
10 information, I doubt that the average public person
11 knows that.

12 But I have never been accused of fining
13 someone so that we could bolster our coffers, on the
14 other hand. So the people who are being fined, I
15 think, understand that for the most part.

16 MR. PATRICK MUCK: Any other questions?

17 (No response.)

18 MR. PATRICK MUCK: Thank you.

19 CHAIRMAN ZIMMERMAN: Thank you.

20 All right. We'll move into the Municipal
21 Solid Waste Landfill Session 111(d) Plan. The
22 proposed revision to the 111(d) Plan will incorporate
23 recent amendments to Rules 10 CSR 10-5.490 and
24 10 CSR 10-6.310 that apply to municipal solid waste
25 landfills.

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Paul Myers.

(Witness sworn.)

MR. PAUL MYERS: Good morning,
Commissioners.

My name is Paul Myers, and I work as an
environmental specialist with the Air Pollution
Control Program. My address is 205 Jefferson Street
in Jefferson City.

I'm here this morning to present testimony
for amending the State's Municipal Solid Waste
Landfill Section 111(d) Plan, and this begins on
Page 83 of your Briefing Document.

The 111(d) Plan is named after the section
in the Federal Clean Air Act in which the EPA
promulgates emission guidelines for existing sources,
and the State is required to implement those
guidelines. The EPA first promulgated the landfill
emission guidelines back in March of 1996. The State
responded by developing and implementing the 111(d)
Plan in 1997.

One major component of the State's plan is
the two landfill regulations used to enforce the
requirements of the emission guidelines. Those rules
are 10 CSR 10-5.490 and 10 CSR 10-6.310. Rule 5.490
applies to the St. Louis area, and 6.310 applies to

1 the remainder of the state.

2 In June of 1998 and again in February of
3 1999, the EPA amended the emission guidelines to
4 clarify the requirements and to correct errors. The
5 State responded by amending Rule 5.490 and 6.310 to
6 maintain consistency with the emission guidelines.
7 The Commission adopted those rule amendments at our
8 March 30, 2000 meeting.

9 Since the rules have been amended, it's now
10 time to amend the State Plan to incorporate those
11 changes. In the State Plan, Section J, found on
12 Page 90 of the Briefing Document, new language is
13 being proposed to document the changes to both
14 landfill rules. The new language contains information
15 related to the reasons for the changes and the
16 amendment dates. In addition, copies of the amended
17 rules will be added to Appendix A of the 111(d) Plan.

18 In accordance with EPA requirements, the
19 State Plan must be made available for public comment
20 and be presented at public hearing. Following the
21 comment period, and if the -- and if adopted by the
22 Commission, it is our intent to submit the amended
23 State Plan to EPA for their approval.

24 This concludes my testimony.

25 CHAIRMAN ZIMMERMAN: Any questions?

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(No response.)

CHAIRMAN ZIMMERMAN: I see none. Thank you.
Any public comment?

(No response.)

CHAIRMAN ZIMMERMAN: I see none. That will
close the public hearing for today.

(THE PUBLIC HEARING WAS CONCLUDED.)

Pursuant to 643.055 RSMo, the Missouri Air Conservation Commission has determined that this action is needed to have a U.S. Environmental Protection Agency approved State Implementation Plan.

Municipal Solid Waste Landfill Section 111(d) Plan is hereby **REVISED** by the Missouri Air Conservation Commission this 29 day of July, 2000.

Original signed by Commissioners:

David C. Zimmermann

Chairperson

Michael R. Foresman

Vice-Chairperson

Harriet Beard

Member

Barry M Kayes

Member

Frank D Beller

Member

Joanne M. Collins

Member

Andy Farmer

Member

SPRINGFIELD NEWS-LEADER

651 Boonville • MPO Box 798
Springfield, Missouri 65801
Telephone (417) 836-1100

DNR Air Pollution Control

June 5, 2000

PROOF OF PUBLICATION

MISSOURI AIR
CONSERVATION COMMISSION
WILL HOLD
PUBLIC HEARING

JEFFERSON CITY, MO -- The Missouri Air Conservation Commission will hold a public hearing on Submission of Emission Data, Emission Fees and Process Information and other issues on Thursday, June 29, 2000. The Public Hearing will begin at 9 a.m. at the Ramada Inn, 1510 Jefferson Street, Jefferson City, MO. The commission will hear testimony related to the following rule actions.

* 10 CSR 10-6.110 (amendment) Submission of Emission Data, Emission Fees and Process Information

This proposed amendment will establish emission and service fees for Missouri facilities as required annually by 643.070 and 643.079, RSMo, and remove the forms from the end of the rule.
* Municipal Solid Waste Landfill Section 111(d) Plan

The proposed revision to the 111(d) plan will incorporate recent amendments to rules 10 CSR 10-5.490 and 10 CSR 10-6.310 that apply to municipal solid waste landfills.

The above documents will be available for review at the following locations: Missouri Department of Natural Resources, Air Pollution Control Program, 205 Jefferson St., Jefferson City, (573) 751-4817; Jefferson City Regional Office, 210 Hoover Drive, Jefferson City, (573) 751-2729; Kansas City Regional Office, 500 NE Colbern Road, Lee's Summit, (816) 554-4100; Northeast Regional Office, 1709 Prospect Drive, Macon, (816) 385-2129; Southeast Regional Office, 948 Lester Street, Poplar Bluff, (573) 840-9750; St. Louis Regional Office, 10805 Sunset Office Drive, St. Louis, (314) 301-7100; Southwest Regional Office, 2040 W. Woodland, Springfield, (417) 891-4300.

Persons with disabilities requiring special services or accommodations to attend the meeting can make arrangements by calling the division directly at (573) 751-7840, the department's toll free number at (800) 334-6946, or by writing two weeks in advance of the meeting to: Missouri Department of Natural Resources, Air Conservation Commission Secretary, P.O. Box 176, Jefferson City, MO 65102. Hearing impaired persons may contact the program through Relay Missouri, (800) 735-2966.

The commission holds public hearings under the provisions of chapter 643, RSMo. Citizens wishing to speak at the public hearing should notify the secretary to the Missouri Air Conservation Commission, Missouri Department of Natural Resources, Air Pollution Control Program, P.O. Box 176, Jefferson City, Missouri 65102-0176, or telephone (573) 751-7840. The department requests persons intending to give verbal presentations also provide a written copy of their testimony to the commission secretary at the time of the public hearing. The department also will accept written comments for the record until 5 p.m. on July 6, 2000; please send two copies of written comments to Chief, Planning Section, Air Pollution Control Program P.O. Box 176, Jefferson City, MO 65102-0176.

Rule proposals considered at this hearing may be adopted by the Missouri Air Conservation Commission as provided for under authority of 643.050, RSMo. For more information or a complete meeting agenda, including rules being presented for adoption, contact the Department of Natural Resources' Air Pollution Control Program at (573) 751-4817.

STATE OF MISSOURI
County of Greene

I, Marsha Burnett of Springfield, Missouri, of lawful age, do upon my oath state that I am the Legal Clerk of the News-Leader, and that I am duly authorized to and do make this affidavit for and on behalf of the News-Leader, a newspaper published daily in the City of Springfield, Greene County, Missouri; that the public advertisement, notice or order of publication, a true copy of which is hereto attached, was published in said newspaper 1 times upon the following dates:

- First publication on Sunday, May 28, 2000.
- Second publication on
- Third publication on
- Fourth publication on
- Fifth publication on
- Last publication on

I do further state under oath that said newspaper has been admitted to the Post Office as second class matter; that it is a newspaper of general circulation in the City of Springfield, Missouri; that it has been published regularly and consecutively for a period of more than three years; that it has a list of bona fide subscribers voluntarily engaged as such; who have paid or agreed to pay a stated price for a subscription for a definite period of time, and that said newspaper has complied with the provisions of Section 14968 Revised Statutes of Missouri, 1939, relating to "Public Advertisements."

Marsha Burnett

Subscribed and sworn to before me this
My commission expires

6th

Day of

June

, 2000

Renee Swaters

Notary Public in and for Greene County, Missouri

RENEE SWATERS
NOTARY PUBLIC STATE OF MISSOURI
POLK COUNTY
MY COMMISSION EXP. JUNE 23, 2002



AFFIDAVIT OF PUBLICATION

STATE OF MISSOURI)
) SS.
 County of Boone)

I, Randy Trimble being duly sworn according to law, state that I am one of the publishers of the Columbia Daily Tribune, a daily newspaper of general circulation in the County of Boone where located; which has been admitted to the Post Office as second class matter in the City of Columbia, Missouri, the city of publication; which newspaper has been published regularly and consecutively for a period of three years and has a list of bona fide subscribers voluntarily engaged as such who have paid or agreed to pay a stated price for a subscription for a definite period of time, and that such newspaper has complied with the provision of Section 493.050, Revised Statutes of Missouri, 1949. The affixed notice appeared in said newspaper on the following consecutive issues:

1st Insertion, May 21	2,000
2nd Insertion,	2,000
3rd Insertion,	2,000
4th Insertion,	2,000
5th Insertion,	2,000
6th Insertion,	2,000
7th Insertion,	2,000
8th Insertion,	2,000
9th Insertion,	2,000
10th Insertion,	2,000
11th Insertion,	2,000
12th Insertion,	2,000
13th Insertion,	2,000
14th Insertion,	2,000
15th Insertion,	2,000
16th Insertion,	2,000
17th Insertion,	2,000
18th Insertion,	2,000
19th Insertion,	2,000
20th Insertion,	2,000
21st Insertion,	2,000
22nd Insertion,	2,000

PRINTERS FEE \$76.50

TRIBUNE PUBLISHING COMPANY

By Randy Trimble

Subscribed and sworn to before me this 23 day of May 2000

[Signature]
 Notary Public

My Commission Expires May 20, 2002

Natural Resources, Air Pollution Control Program, 205 Jefferson St., Jefferson City, (573) 751-4817; Jefferson City Regional Office, 210 Hoover Drive, Jefferson City, (573) 751-2729; Kansas City Regional Office, 500 NE Colbern Road, Lee's Summit; (816) 554-4100; Northeast Regional Office, 1709 Prospect Drive, Macon, (816) 385-2129; Southeast Regional Office, 948 Lester Street, Poplar Bluff, (573) 840-9750; St. Louis Regional Office, 10805 Sunset Office Drive, St. Louis (314) 301-7100; Southwest Regional Office, 2040 W. Woodland, Springfield, (417) 891-4300.

Persons with disabilities requiring special services or accommodations to attend the meeting can make arrangements by calling the division directly at (573) 751-7840, the department's toll free number at (800) 334-6946, or by writing two weeks in advance of the meeting to: Missouri Department of Natural Resources, Air Conservation Commission Secretary, PO Box 176, Jefferson City, MO 65102. Hearing impaired persons may contact the program through Relay Missouri, (800) 735-2966.

The commission holds public hearings under the provisions of chapter 643, RSMo. Citizens wishing to speak at the public hearing should notify the secretary to the Missouri Air Conservation Commission, Missouri Department of Natural Resources, Air Pollution Control Program, PO Box 176, Jefferson City, Missouri 65102-0176, or telephone (573) 751-7840. The department requests persons intending to give verbal presentations also provide a written copy of their testimony to the commission secretary at the time of the public hearing. The department also will accept written comments for the record until 5 p.m. on July 6, 2000; please send two copies of written comments to Chief, Planning Section, Air Pollution Control Program, PO Box 176, Jefferson City, MO 65102-0176.

Rule proposals considered at this hearing may be adopted by the Missouri Air Conservation Commission as provided for under authority of 643.050, RSMo. For more information or a complete meeting agenda, including rules being presented for adoption, contact the Department of Natural Resources' Air Pollution Control Program at (573) 751-4817.
 INSERTION DATE: May 21, 2000.

MISSOURI AIR CONSERVATION COMMISSION WILL HOLD PUBLIC HEARING

JEFFERSON CITY, MO- The Missouri Air Conservation Commission will hold a public hearing on Submission of Emission Data, Emission Fees, and Process Information and other issues on Thursday, June 29, 2000. The Public Hearing will begin at 9 a.m. at the Ramada Inn, 1510 Jefferson Street, Jefferson City, MO. The commission will hear testimony related to the following rule actions.

- 10 CSR 10-6.110 (amendment) Submission of Emission Data, Emission Fees and Process Information

This proposed amendment will establish emission and service fees for Missouri facilities as required annually by 643.070 and 643.079, RSMo and remove the forms from the end of the rule.

- Municipal Solid Waste Landfill Section 111(d) Plan

The proposed revision to the 111(d) plan will incorporate recent amendments to rules 10 CSR 10-5.490 and 10 CSR 10-6.310 that apply to municipal solid waste landfills.

The above documents will be available for review at the following locations: Missouri Department of

RYAN W. PARKS
 Notary Public - Notary Seal
 STATE OF MISSOURI
 Boone County

AFFIDAVIT OF PUBLICATION

713
NEWS PRESS

MO CENT NAT RESOUR
PO BOX 176
JEFFERSON CITY MO

(Published in the St. Joseph
News-Press Sunday, 05/28/00)
MISSOURI AIR
CONSERVATION COMMISSION
WILL HOLD PUBLIC HEARING

JEFFERSON CITY, MO—The Missouri Air Conservation Commission will hold a public hearing on Submission of Emission Data, Emission Fees and Process Information and other issues on Thursday, June 29, 2000. The Public Hearing will begin at 9 a.m. at the Ramada Inn, 1510 Jefferson Street, Jefferson City, MO. The commission will hear testimony related to the following rule actions:

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Municipal Solid Waste Landfill Section 111(d) Plan

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County of Lincoln
State of Missouri

I, Mark N. ...
take that ...
the St. ...
general ...
where located ...
Office as second class matter in the city of St. Joseph, the city of publication, which newspaper has been published regularly and consecutively for a period of three years and has a list of bona fide subscribers voluntarily engaged and who have paid or agreed to pay a stated price for a subscription for a definite period of time, and that such newspaper has complied with the provisions of Section 497.060 Revised Statutes of Missouri, 1949. The affidavit notice appeared in said newspaper on the following date:

department also will accept written comments for the record until 5 p.m. on July 6, 2000; please send two copies of written comments to Chief, Planning Section, Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102-0176.

Rule proposals considered at this hearing may be adopted by the Missouri Air Conservation Commission as provided for under authority of 643.050, RSMo. For more information or a complete meeting agenda, including rules being presented for adoption, contact the Department of Natural Resources' Air Pollution Control Program at (573) 751-4817.

PUBLISHED ON 05/28

TOTAL COST 243.00
FILED ON 05/31/00

AD SPACE 150 LINE

(Signed)

Subscribed and sworn to before me this 31st day of May 2000

ESTHER JONES
Notary Public-Notary Seal
STATE OF MISSOURI
Buchanan County

**MISSOURI AIR CONSERVATION
COMMISSION WILL HOLD PUBLIC
HEARING**

AFFIDAVIT OF PUBLICATION

JEFFERSON CITY, MO -- The Missouri Air Conservation Commission will hold a public hearing on Submission of Emission Data, Emission Fees and Process Information and other issues on Thursday, June 29, 2000. The Public Hearing will begin at 9 a.m. at the Ramada Inn, 1510 Jefferson Street, Jefferson City, MO. The commission will hear testimony related to the following rule actions.

- 10 CSR 10-6.110 (amendment) Submission of Emission Data, Emission Fees and Process Information.

This proposed amendment will establish emission and service fees for Missouri facilities as required annually by 643.070 and 643.079, RSMo and remove the forms from the end of the rule.

- Municipal Solid Waste Landfill Section 111(d) Plan

The proposed revision to the 111(d) plan will incorporate recent amendments to rules 10 CSR 10-5.490 and 10 CSR 10-6.310 that apply to municipal solid waste landfills.

The above documents will be available for review at the following locations: Missouri Department of Natural Resources, Air Pollution Control Program, 205 Jefferson St., Jefferson City, (573) 751-4817; Jefferson City Regional Office, 210 Hoover Drive, Jefferson City, (573) 751-2729; Kansas City Regional Office, 500 NE Colbern Road, Lee's Summit, (816) 554-4100; Northeast Regional Office, 1709 Prospect Drive, Macon, (816) 385-2129; Southeast Regional Office, 948 Lester Street, Poplar Bluff, (573) 840-9750; St. Louis Regional Office, 10805 Sunset Office Drive, St. Louis, (314) 301-7100; Southwest Regional Office, 2040 W. Woodland, Springfield, (417) 891-4300.

Persons with disabilities requiring special services or accommodations to attend the meeting can make arrangements by calling the division directly at (573) 751-7840, the department's toll free number at (800) 334-6946; or by writing two weeks in advance of the meeting to: Missouri Department of Natural Resources, Air Conservation Commission Secretary, P.O. Box 176, Jefferson City, MO 65102. Hearing impaired persons may contact the program through Relay Missouri, (800) 735-2966.

The commission holds public hearings under the provisions of chapter 643, RSMo. Citizens wishing to speak at the public hearing should notify the secretary to the Missouri Air Conservation Commission, Missouri Department of Natural Resources, Air Pollution Control Program, P.O. Box 176, Jefferson City, Missouri 65102-0176, or telephone (573) 751-7840. The department requests persons intending to give verbal presentations also provide a written copy of their testimony to the commission secretary at the time of the public hearing. The department also will accept written comments for the record until 5 p.m. on June 6, 2000; please send two copies of written comments to Chief, Planning Section, Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102-0176.

Rule proposals considered at this hearing may be adopted by the Missouri Air Conservation Commission as provided for under authority of 643.050, RSMo. For more information or a complete meeting agenda, including rules being presented for adoption, contact the Department of Natural Resources' Air Pollution Control Program at (573) 751-7840.

STATE OF MISSOURI)
COUNTY OF BUTLER) ss.

I, Don Schrieber, being duly sworn according to law, state that I am PUBLISHER of the DAILY AMERICAN REPUBLIC, a daily newspaper of general circulation in the counties of Butler, Ripley, Carter, Wayne, Stoddard, New Madrid and Pemiscot; which newspaper has been admitted to the Post Office as second class matter in City of Poplar Bluff, Missouri, the city of publication; which newspaper has been published regularly and consecutively for a period of three years and has a list of bona fide subscribers voluntarily engaged as such who have paid or agreed to pay a stated price for a subscription for a definite period of time and that such newspaper has complied with the provisions of Section 493.050, Revised Statutes of Missouri 1969. The affixed notice appeared in said newspaper in the following consecutive issues:

1st Insertion	Vol 132	No 112	19 day of May 2000
2nd Insertion	Vol	No	day of 20
3rd Insertion	Vol	No	day of 20
4th Insertion	Vol	No	day of 20
5th Insertion	Vol	No	day of 20
6th Insertion	Vol	No	day of 20
7th Insertion	Vol	No	day of 20
8th Insertion	Vol	No	day of 20
9th Insertion	Vol	No	day of 20
10th Insertion	Vol	No	day of 20

Don Schrieber

PUBLISHER

Subscribed and sworn to before me this 19 day of May

20 00

Maureen K. Hensley

NOTARY PUBLIC

My commission expires 10-27-2000

Publication Fee \$ 99.44

AFFIDAVIT OF PUBLICATION

THE KANSAS CITY STAR COMPANY, publishers of THE KANSAS CITY STAR, a newspaper published in the City of Kansas City, County of Jackson, State of Missouri, confirms that the notice and/or advertisement of

MO DEPT OF NATURAL RESOURCES
DIV OF ENVIR QUALITY
PO BOX 176
JEFFERSON CITY MO 65102
21056435

7518430

a true copy of which is hereto attached, was duly published in the above said newspaper

FOR THE PERIOD OF: 1 Day (s)

COMMENCING: May 19,2000

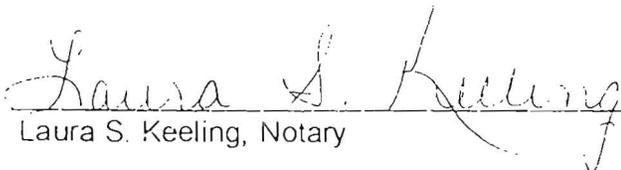
ENDING: May 19,2000

STAR EDITION (S): 5/19

STAR PAPER (S): 245

VOLUME: #120

Subscribed and sworn to before me, this Thursday, 18 May, 2000 .
I certify that I was duly qualified as a Notary Public for the State of Missouri, commissioned in Jackson County, Missouri. My commission expires August 18, 2002



Laura S. Keeling, Notary

MISSOURI AIR CONSERVATION COMMISSION WILL HOLD PUBLIC HEARING JEFFERSON CITY, MO . The Missouri Air Conservation Commission will hold a public hearing on Submission of Emission Data, Emission Fees and Process Information and other issues on Thursday, June 29, 2000. The Public Hearing will begin at 9 a.m. at the Ramada Inn, 1510 Jefferson Street, Jefferson City, MO. The commission will hear testimony related to the following rule actions.
* 10 CSR 10-6.110 (amendment) Submission of Emission Data, Emission Fees and Process Information This proposed amendment will establish emission and service fees for Missouri facilities as required annually by 643.070 and 643.075, RSMo, and remove the form from the end of the rule.
* Municipal Solid Waste Landfill Section 111(d) Plan The proposed rule revisor to 111(d) plan will incorporate recent amendments to rules 10 CSR 10-5.490 and 10 CSR 10-6.310 that apply to municipal solid waste landfills.
The above documents will be available for review at the following locations: Missouri Department of Natural Resources, Air Pollution Control Program, 205 Jefferson St, Jefferson City (573) 751-4817; Jefferson City Regional Office, 210 Hoover Drive, Jefferson City, (573) 751-2729; Kansas City Regional Office, 500 NE Colbern Road, Lee's Summit, (816) 554-4100; Northeast Regional Office, 1709 Prospect Drive, Macon, (816) 385-2129; Southeast Regional Office, 948 Lester Street, Poplar Bluff, (573) 840-9750; St. Louis Regional Office, 10805 Sunset Office Drive, St. Louis, (314) 301-7100; Southwest Regional Office, 2040 W. Woodland, Springfield, (417) 891-4300.
Persons with disabilities requiring special services or accommodations to attend the meeting can make arrangements by calling the division directly at (573) 751-7840, the department's toll free number at (800) 334-6946, or by writing two weeks in advance of the meeting to: Missouri Department of Natural Resources, Air Conservation Commission Secretary, P.O. Box 176, Jefferson City, MO 65102. Hearing impaired persons may contact the program through Relay Missouri, (800) 735-2966.
The commission holds public hearings under the provision of Chapter 643, RSMo. Citizens wishing to speak at the public hearing should notify the secretary to the Missouri Air Conservation Commission, Missouri Department of Natural Resources, Air Pollution Control Program, P.O. Box 176, Jefferson City, Missouri 65102-0176, or telephone (573) 751-7840. The department requests persons intending to give verbal presentations also provide a written copy of their testimony to the commission secretary at the time of the public hearing. The department also will accept written comments for the record until 5 p.m. on July 6, 2000; please send two copies of written comments to Chief, Planning, Section, Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102-0176.
Rule proposals considered at this hearing may be adopted by the Missouri Air Conservation Commission as provided for under authority of 643.050, RSMo. For more information or a complete meeting agenda, including rules being presented for adoption, contact the Department of Natural Resources' Air Pollution Control Program at (573) 751-4817.

STATE OF MISSOURI,

ss

AFFIDAVIT OF PUBLICATION

COUNTY OF ADAIR

I, Larry W. Frels, being duly sworn, depose and say that I am one of the publishers of the Kirksville Daily Express and Daily News, a daily newspaper having a circulation in the County of Adair, where publication has been admitted to the Post Office as second-class matter in the City of Kirksville, the city of publication, and newspapers have been published regularly and consecutively for a period of more than three years and that there are bona fide subscribers voluntarily engaged as such who have paid or agreed to pay a stated price for a subscription for a definite period of time, and that such newspaper has complied with the provisions of Section 493.050 revised Statutes of Missouri, 1979. The affidavits have appeared in said newspaper as follows:

First Insertion May 01, 2000 May 01
Signed [Signature]

Subscribed and sworn to before me this 01 day of May, 2000.

My Commission Expires February 21

Pub. Fee, \$ 207.57

Received payment 20

MISSOURI AIR CONSERVATION COMMISSION
WILL HOLD PUBLIC HEARING

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- Municipal Solid Waste Landfill Section 111(d) Plan. The proposed revision to the 111(d) plan will incorporate recent amendments to rules 10 CSR 10-6.490 and 10-6.310 that apply to municipal solid waste landfills.

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