

Electronic Filing: Received, Clerk's Office 05/27/2026 P.C. #19

From: [McGill, Richard](#)
To: [Brown, Don](#)
Cc: [Paruchuri, Anupama](#); [Bilbruck, Shannon O.](#)
Subject: FW: Review of PCB document -35-220
Date: Wednesday, May 27, 2026 3:46:15 PM
Attachments: [35-220NT-P Agency 4.14.26.docx](#)
[35-220NT-P JCAR 4.14.26.docx](#)
[35-220RG-P Agency 4.14.26.docx](#)
[35-220RG-P JCAR 4.14.26.docx](#)
[image001.png](#)

Good afternoon, Mr. Clerk,

Please docket as a public comment in R18-21 this email, including its attachments, sent from JCAR's Melissa Shipley to the Board's Shannon Bilbruck.

Thank you.

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From: Shipley, Melissa A. <MelissaS@ilga.gov>
Sent: Wednesday, May 27, 2026 3:07 PM
To: Bilbruck, Shannon O. <Shannon.O.Bilbruck@Illinois.gov>
Cc: EXT eadministrativecode, ILSOS <eadministrativecode@ilsos.gov>; Schultz, Kimberly A. <KimberlyS@ilga.gov>; Bockewitz, Chrystal <crystalb@ilga.gov>
Subject: [External] Review of PCB document -35-220

Hi Shannon

JCAR has completed predraft technical review of the attached rulemaking for 35-220. The goal of this technical review is to ensure the drafts contain accurate background text, comply with the SOS Style manual (subsection labeling, spacing and indenting), and use consistent capitalization and punctuation.

We would appreciate a review of these documents prior to filing to correct any items flagged. We also noticed that from time to time subsection headers have inconsistent punctuation (period v. no punctuation). Using one punctuation style in these instances would be preferred.

Thank you for the chance to comment prior to filing.

Melissa Shipley
Joint Committee on Administrative Rules
700 Stratton Building
Springfield, IL 62706

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NOTICE OF PROPOSED AMENDMENTS

- 1) Heading of the Part: Nonmethane Organic Compounds
- 2) Code Citation: 35 Ill. Adm. Code 220
- 3)

<u>Section Numbers:</u>	<u>Proposed Actions:</u>
220.100	Amendment
220.110	Amendment
220.120	Amendment
220.200	Amendment
220.210	Amendment
220.220	Amendment
220.230	Amendment
220.240	Amendment
220.250	Amendment
220.260	Amendment
220.270	Amendment
220.280	Amendment
220.290	Amendment
- 4) Statutory Authority: Implementing and authorized by Sections 4, 9.1, 27, and 28.5 of the Environmental Protection Act [415 ILCS 5/4, 9.1, 27, 28.5].
- 5) A Complete Description of the Subjects and Issues Involved: Subtitle B of the Board's rules addresses air pollution and includes permitting provisions, emissions standards and limitations, and monitoring requirements. Part 220 establishes emission control requirements for municipal solid waste landfills under the Clean Air Act.

This rulemaking originated with a proposal by the Illinois Environmental Protection Agency (IEPA). IEPA cited Executive Order 2016-13, which directed agencies to review their rules to identify provisions that are outdated, repetitive, confusing, or unnecessary and then revise or repeal them as appropriate. At that time, the Board had begun its own review with the same general purposes.

The Board throughout Part 220 proposed numerous revisions, including primarily matters of concision. The Board also proposed amendments such as updating statutory references, simplifying cross references, making the forms of temperatures more consistent with one another, and using "must" to be more clearly mandatory.

The Board intends that the amendments are non-substantive in nature.

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- 6) Published studies or reports, and sources of underlying data, used to compose this rulemaking: No
- 7) Will this proposed rulemaking replace an emergency rule currently in effect? No
- 8) Does this rulemaking contain an automatic repeal date? No
- 9) Do these proposed amendments contain incorporations by reference? No
- 10) Are there any proposed rulemakings pending on this Part? No
- 11) Statement of Statewide Policy Objectives: This proposed amendment does not create or enlarge a state mandate as defined in Section 3(b) of the State Mandates Act [30 ILCS 805/3].
- 12) Time, Place, and Manner in which interested persons may comment on this proposed rulemaking: The Board will accept written public comments on this proposal for a period of at least 45 days after the date of publication in the Illinois Register. Public comments should refer to Docket R18-21 and be filed electronically through the Clerk's Office On-Line (COOL) on the Board's website at <https://pcb.illinois.gov/>. Public comments may be addressed to:

Clerk's Office
Illinois Pollution Control Board
60 East Van Buren Street, Suite 630
Chicago, IL 60605

312-814-3461
don.brown@illinois.gov

Interested persons may download copies of the Board's opinions and orders in R18-21 from the Board's Web site at <https://pcb.illinois.gov/> and may also request copies by calling the Clerk's office at 312-814-3620.

- 13) Initial Regulatory Flexibility Analysis:
- A) Description of the type of small businesses, not for profit corporations or small municipalities subject to the proposed rule amendment: None

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- B) Description of the proposed reporting, bookkeeping and other procedures required for compliance with the rule amendment: None
- C) Description of the types of professional skills necessary for compliance: None
- 14) Small Business Economic Impact Analysis: Because the Board proposes non-substantive amendments as described above in (5), it does not reasonably foresee adverse economic impacts such as loss of revenue or increased expenses on small businesses.
- 15) Regulatory Agenda on which this rulemaking was summarized: This rule was not included on either of the two most recent agendas, although it had been included on the July 2018 agenda (42 Ill. Reg. 13328 (July 6, 2018)).
- 16) Any other information or justification for the proposed amendment that the agency believes would be helpful to the public regarding the proposed amendment. For example, a discussion or analysis of the benefits the proposed amendment is projected to have on the Illinois public, consumers, investors or other similar groups. See (5).

The full text of the Proposed Amendments begins on the next page:

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NOTICE OF PROPOSED AMENDMENTS

TITLE 35: ENVIRONMENTAL PROTECTION

SUBTITLE B: AIR POLLUTION

CHAPTER I: POLLUTION CONTROL BOARD

SUBCHAPTER c: EMISSION STANDARDS AND LIMITATIONS FOR STATIONARY SOURCES

PART 220

NONMETHANE ORGANIC COMPOUNDS

SUBPART A: GENERAL PROVISIONS

Section

220.100	Purpose
220.110	Definitions
220.120	Abbreviations
220.130	Incorporations by Reference

SUBPART B: MSW LANDFILLS

Section

220.200	Applicability
220.210	Compliance Requirements and Schedule
220.220	Gas Collection System Requirements
220.230	Gas Control System Requirements
220.240	Compliance Procedures for Gas Collection Systems
220.250	Operational Standards for Collection and Control Systems
220.260	Test Methods and Procedures
220.270	Monitoring of Operations
220.280	Reporting Requirements
220.290	Recordkeeping Requirements

AUTHORITY: Implementing and authorized by Sections 4, 9.1, 27, and 28.5 of the Illinois Environmental Protection Act [415 ILCS 5/4, 9.1, 27, and 28.5].

SOURCE: Adopted in R98-28 at 22 Ill. Reg. 11790, effective July 31, 1998; amended in R18-21 at 50 Ill. Reg. _____, effective _____.

SUBPART A: GENERAL PROVISIONS

Section 220.100 Purpose

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This Part contains emission control requirements for municipal solid waste (MSW) landfills in ~~compliance accordance~~ with ~~Sectionsection~~ 111(d) and subpart B of the Clean Air Act.

(Source: Amended at 50 Ill. Reg. _____, effective _____)

Section 220.110 Definitions

The definitions in this Section apply only to ~~the provisions of~~ this Part. Unless otherwise defined ~~in this Section or herein and unless~~ a different meaning of a term is clear from its context, the ~~definitions of terms used in this Part shall have the~~ definitions in meanings specified by 35 Ill. Adm. Code 201.102, 211, and 810.103.

"Active collection system" means a gas collection system that uses gas mover equipment.

"Active landfill" means a landfill in which solid waste is being placed or a landfill that is planning to accept waste in the future.

"Commercial waste" means all types of solid waste generated by stores, offices, restaurants, warehouses, and other nonmanufacturing activities, excluding household and industrial wastes.

"Controlled landfill" means any landfill at which collection and control systems are required under this Part ~~because as a result~~ of the NMOC emission rate. The landfill is considered controlled at the time an application for a construction permit for a collection and control system is submitted to the Agency in compliance with Sections 220.220 and 220.230 ~~of this Part~~.

"Design capacity" means the maximum amount of solid waste a landfill can accept, ~~as indicated~~ in terms of volume or mass, as specified in the permit(s) issued ~~under pursuant to~~ Section 21(d) of the Act for the source plus any in-place waste not accounted for in the permit(s). ~~If, if~~ no design capacity is specified in a permit, then the design capacity must ~~shall~~ be calculated using good engineering practices; or, if the landfill is closed ~~under pursuant to~~ the applicable regulations in 35 Ill. Adm. Code, Subtitle G, the actual capacity ~~specified~~ in the closure plan. 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 2.5 million Mg or 2.5 million m³, the calculation must include a site-specific density, which must be recalculated annually.

"Disposal facility" means all contiguous land and structures, and improvements on the

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land used for the disposal of solid waste. Portions of the disposal facility may be separated by access roads.

"Emission rate cutoff" means the threshold annual emission rate to which a landfill compares its estimated emission rate to determine if control under this Part is required.

"Enclosed combustor" means an enclosed firebox. Examples include, ~~but are not limited to,~~ an enclosed flare, a boiler, and an internal combustion engine.

"Flare" means an open combustor without enclosure or shroud.

"Gas mover equipment" means the equipment (i.e., fan, blower, compressor) used to transport landfill gas through the header system.

"Household waste" means any solid waste (including garbage, trash, and sanitary waste in septic tanks) derived from households (including single and multiple residences, hotels and motels, bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds, and day-use recreation areas). ~~(Section 3.89 of the Act)~~ [\[415\]](#) [\[LCS 5/3.230\]](#)

"Inactive landfill" means a landfill in which solid waste is no longer being placed, and that is no longer permitted to accept waste under Section 21 of the Act or has a federally enforceable permit condition prohibiting the acceptance of additional waste. If an inactive landfill is subsequently permitted to accept additional waste and additional solid waste is placed in the landfill, the landfill is no longer inactive.

"Industrial waste" means solid waste generated by manufacturing or industrial processes that is not a hazardous waste regulated under Subtitle C of RCRA, 40 CFR 264 and 265. ~~This~~ ~~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.

"Interior well" means any well or similar collection component located inside the perimeter of the landfill. A perimeter well located outside the landfilled waste is not an interior well.

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"Landfill" means 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, or an underground injection well. For ~~the purposes of~~ this Part, landfills include waste piles.

"Lateral expansion" means a horizontal expansion of the waste boundaries of an existing MSW landfill. A lateral expansion is not a modification for ~~the purposes of filing an amended design capacity report under pursuant to~~ Section 220.210(a) ~~of this Part~~, unless it results in an increase in the design capacity of the landfill.

"Modification" means an increase in the permitted volume design capacity of the landfill by either horizontal or vertical expansion.

"Municipal solid waste (MSW)" means household waste.

"Municipal solid waste (MSW) landfill" means an entire disposal facility or landfill in a contiguous geographical space where household waste is placed in or on land. An MSW landfill may also receive other types of 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 or operated.

"Municipal solid waste (MSW) landfill emissions" means gas generated by decomposition of organic waste deposited in an MSW landfill or derived from the evolution of organic compounds in the waste.

"Nondegradable waste" means any waste that does not decompose through chemical breakdown or microbiological activity. Examples include, ~~but are not limited to,~~ concrete, municipal waste combustor ash, and metals.

"Nonmethane organic compounds (NMOC)" means nonmethane organic compounds, as measured according to ~~the provisions of~~ Section 220.260 ~~of this Part~~.

"Passive collection system" means a gas collection system that uses solely positive pressure within the landfill to move the gas rather than using gas mover equipment.

"Putrescible waste" means a solid waste that contains organic matter capable of being decomposed by microorganisms ~~so as~~ to cause a malodor, gases, or other offensive conditions, or which is capable of providing food for birds and vectors. Putrescible wastes may form a contaminated leachate from microbiological degradation, chemical processes, and physical processes. Putrescible waste includes, ~~but is not limited to,~~

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garbage, offal, dead animals, general household waste, and commercial waste. All solid wastes that do not meet the definitions of inert or chemical wastes ~~must shall~~ be considered putrescible wastes.

"Sludge" means 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. ~~This term excludes, exclusive of~~ the treated effluent from a wastewater treatment plant.

"Solid waste" means a waste that is defined as an inert waste, ~~as a~~ putrescible waste, ~~as a~~ chemical waste, or ~~as a~~ special waste, and which is also not defined as a hazardous waste ~~underpursuant to~~ 35 Ill. Adm. Code 721.

"Sufficient density" means 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 Part.

"Sufficient extraction rate" means 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 ~~because as a result~~ of expansion or excess surface emissions, for the life of the blower.

(Source: Amended at 50 Ill. Reg. _____, effective _____)

Section 220.120 Abbreviations

Act	Illinois Environmental Protection Act
Agency	Illinois Environmental Protection Agency
Board	Illinois Pollution Control Board
	°C degrees Celsius or centigrade
cm	centimeters
CAAPP	Clean Air Act Permit Program
°F	degrees Fahrenheit
hr	hours
m	meters
m ³	cubic meters
Mg	megagrams
MMbtu	million British thermal units
MSW	municipal solid waste

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MW	megawatt; 1 million watts
NMOC	nonmethane organic compounds
NO_xNO_x	nitrogen oxides
ppm	parts per million
ppmv	parts per million by volume
RCRA	Resource Conservation and Recovery Act
SIP	State Implementation Plan
USEPA	United States Environmental Protection Agency
VOC	volatile organic compounds
VOM	volatile organic material
yr	years

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(Source: Amended at 50 Ill. Reg. _____, effective _____)

SUBPART B: MSW LANDFILLS

Section 220.200 Applicability

- a) Except as provided in subsection (b) ~~of this Section~~, an owner or operator of an MSW landfill for which construction or modification commenced before May 30, 1991, is subject to ~~the requirements of~~ this Subpart if the landfill has accepted waste at any time since November 8, 1987, or has additional design capacity available for future waste deposition.
- b) Any MSW landfill that commenced construction, reconstruction, or modification on or after May 30, 1991, is subject to ~~the requirements of~~ 40 CFR 60, Subpart WWW, in lieu of ~~the requirements of~~ this Part.

(Source: Amended at 50 Ill. Reg. _____, effective _____)

Section 220.210 Compliance Requirements and Schedule

- a) Each owner or operator of an MSW landfill ~~with having~~ a design capacity less than 2.5 million Mg by mass or 2.5 million m³ by volume ~~must shall~~ submit an initial design capacity report to the Agency ~~under as provided in~~ Section 220.280(a) ~~of this Subpart~~. The owner or operator may calculate design capacity in either Mg or m³ ~~to compare for comparison~~ with the exemption values. Any density conversions ~~must shall~~ be documented and submitted with the report. If the landfill is subsequently modified, then the owner or operator ~~must shall~~ submit to the Agency an amended design capacity report ~~under as provided for in~~ Section

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220.280(a)(3) ~~of this Subpart~~. Submittal of an initial design capacity report and, if applicable, an amended design capacity report ~~must shall~~ fulfill the requirements of this Subpart. ~~Under Pursuant to~~ Section 220.200(b) ~~of this Subpart~~, modification of an MSW landfill will subject it to ~~the requirements of~~ 40 CFR 60, Subpart WWW.

- b) An owner or operator of an MSW landfill ~~with having~~ a design capacity equal to or greater than 2.5 million Mg and 2.5 million m³ ~~must shall~~ submit an initial design capacity report and initial ~~emission~~ emissions rate report to the Agency ~~under, as provided in~~ Section 220.280(a) and (b) ~~of this Subpart~~, and comply with either subsection (c) or (d) ~~of this Section~~.
- c) For MSW landfills with an NMOC ~~emission~~ emissions rate less than 50 Mg/yr, the owner or operator ~~must shall~~:
 - 1) Submit an emission rate report ~~under, as provided by~~ Section 220.280(b) ~~of this Subpart~~, to the Agency; and
 - 2) Recalculate the NMOC emission rate using the procedures ~~specified in~~ Section 220.260(a) ~~of this Subpart~~ until ~~such time as~~ the calculated NMOC emission rate is equal to or greater than 50 Mg/yr, at which time ~~the provisions of~~ subsection (d) ~~will of this Section shall~~ apply, or the landfill is inactive.
- d) For MSW landfills with emissions equal to or greater than 50 Mg/yr, calculated ~~under pursuant to~~ Section 220.260(a) ~~of this Subpart~~, within 30 months after the date when the first annual NMOC emission rate report equals or exceeds 50 Mg/yr, an owner or operator ~~must shall~~:
 - 1) Install and operate:
 - A) A gas collection and control system meeting the gas collection system and control requirements of Sections 220.220 and 220.230 ~~of this Subpart~~; or
 - B) An alternate gas collection and control system using alternate procedures for gas collection and control, determining compliance, monitoring, operation, testing, recordkeeping, or reporting instead of those ~~provided for~~ in this Subpart, as approved by the Agency or Board ~~and, as~~ meeting the requirements in Section 220.220(d) or

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(e), or Section 220.230(d) or (e) ~~of this Subpart~~. ~~The Such~~ alternate system ~~is shall~~ be effective only when included in a federally enforceable permit or approved as a SIP revision.

- 2) Certify compliance: Within ~~six~~6 months ~~after~~ of initial startup or upon change in method of compliance, or by October 31, 2001, whichever is later, the owner or operator of an MSW landfill subject to ~~the control requirements of~~ this Subpart must certify compliance with ~~the requirements of~~ this Subpart by submitting to the Agency ~~the following~~:
 - A) A description of the gas collection and control system used;
 - B) The date the system was installed; and
 - C) A demonstration that the control system meets the requirements of Section 220.230 ~~of this Subpart~~:
 - i) For active collection systems: the reduction efficiency or ppmv must be established by a performance test using the test methods required ~~underpursuant to~~ Section 220.260(d) ~~of this Subpart~~; or
 - ii) For open flares: compliance with ~~the requirements of~~ 40 CFR 60.18, incorporated by reference in Section 220.130 ~~of this Part~~, must be established.

(Source: Amended at 50 Ill. Reg. _____, effective _____)

Section 220.220 Gas Collection System Requirements

- a) Each owner or operator of an MSW landfill ~~with~~having a design capacity equal to or greater than 2.5 million Mg and 2.5 million m³, and a calculated NMOC emission rate equal to or greater than 50 Mg/yr, must install and operate a gas collection system that meets the requirements of either subsection (b), (c), (d), or (e) ~~of this Section~~ and:
 - 1) Handles maximum expected gas flow rate from the entire area of the MSW landfill that warrants control ~~underpursuant to~~ subsection (b)(1)(D) ~~of this Section~~ for the period required in Section 220.250(h) ~~of this Subpart~~, as calculated ~~underpursuant to~~ Section 220.240(a) ~~of this~~

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~~Subpart;~~

- 2) Collects 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:~~
 - A) ~~Five~~5 years or more, if active; or
 - B) ~~Two~~2 years or more if closed or at final grade;
- 3) Is designed to minimize off-site migration of subsurface gas;
- 4) Routes all the collected gas to a control system that complies with ~~the requirements in~~ Section 220.230 ~~of this Subpart~~; and
- 5) Collects and treats gas in ~~compliance accordance~~ with the applicable requirements of 35 Ill. Adm. Code, Subtitle G.

b) Active Collection Systems:

- 1) Active collection wells, horizontal collectors, surface collectors, or other extraction devices ~~must shall~~ be sited at a sufficient density throughout all gas producing areas using the following procedures:
 - A) The collection devices within the interior and along the perimeter areas ~~must shall~~ be designed to achieve comprehensive control of surface gas emissions.
 - B) The sites for gas collection devices, as determined in subsection (b)(1)(A) ~~of this Section, must shall~~ address landfill gas migration issues and augmentation of the collection system ~~withthrough the use of~~ active or passive systems at the landfill perimeter or exterior.
 - C) ~~The collection system must collect~~Collect gas at a sufficient extraction rate, as defined at Section 220.110 ~~of this Part~~.
 - D) The placement of gas collection devices, ~~as~~ determined in subsection (b)(1)(A), ~~must of this Section shall~~ control all gas producing areas, except as provided by this subsection (b)(1)(D).

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- i) Any segregated area of asbestos or nondegradable material may be excluded from collection, if documented ~~as provided~~ under Section 220.280(f)(3) ~~of this Subpart~~. The documentation ~~must shall~~ provide the nature, date of deposition, location, and amount of asbestos or nondegradable material deposited in the area, and ~~must shall~~ be provided to the Agency upon request.
- ii) Any nonproductive area of the landfill may be excluded from control ~~if provided that~~ the total of all excluded areas can be shown to contribute less than 1% ~~percent~~ of the total amount of NMOC emissions from the landfill. The amount, location, and age of the material ~~must shall~~ be documented and provided to the Agency upon request. A separate NMOC emissions estimate ~~must shall~~ be made for each section proposed for exclusion, and the sum of all ~~thesesuch~~ sections ~~must shall~~ be compared to the NMOC emissions estimate for the entire landfill, as calculated ~~underpursuant to~~ Section 220.260 ~~of this Subpart~~. Emissions from each section ~~must shall~~ be computed using the following equation:

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

where:

- Q_i = NMOC emission rate from the i^{th} section, Mg/yr
- k = methane generation rate constant, yr^{-1}
- L_o = methane generation potential, m^3 per Mg solid waste
- M_i = mass of degradable solid waste in the i^{th} section, Mg
- t_i = age of the solid waste in the i^{th} section, years
- C_{NMOC} = concentration of NMOC, ppmv
- 3.6×10^{-9} = conversion factor

The values for k and C_{NMOC} determined in field testing ~~must shall~~ be used, if field testing has been performed ~~to determine in determining~~ the NMOC emission rate or the

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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_0 , and C_{NMOC} provided in Section 220.260(a)(1) ~~must of this Subpart 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 ~~if, provided~~ the nature, location, age, and amount of the nondegradable material is documented.

- 2) The gas collection devices ~~must shall~~ be constructed using the following equipment or procedures:
 - A) The landfill gas extraction components ~~must 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 ~~must shall~~ extend as necessary to comply with emission and migration standards. Collection devices, such as wells and horizontal collectors, ~~must shall~~ be perforated to allow gas entry without head loss sufficient to impair performance across the intended extent of control. Perforations ~~must shall~~ be situated ~~with regard to the need~~ to prevent excessive air infiltration.
 - B) Vertical wells ~~must shall~~ be placed ~~without endangering so as not to endanger~~ underlying liners and ~~must shall~~ address the occurrence of water within the landfill. Holes and trenches constructed for piped wells and horizontal collectors ~~must shall~~ be of sufficient cross-section ~~so as~~ to allow for their proper construction and completion, including, for example, centering ~~of~~ pipes and ~~placing placement of~~ gravel backfill. Collection devices ~~must shall~~ be designed ~~so as~~ not to allow indirect short circuiting of air into the cover, refuse into the collection system, or gas into the air. Any gravel used around pipe perforations should be ~~of~~ a dimension ~~which does so as not to~~ penetrate or block perforations.
 - C) Collection devices may be connected to the collection header pipes

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

- 3) The landfill gas must shall be conveyed to a gas control system through the collection header pipe(s). The gas mover equipment must shall be sized to handle the maximum gas generation flow rate expected for the period of intended use under pursuant to Section 220.250(h) of this Subpart using the following procedures:

- A) For existing gas collection systems, the flow data must shall be used to project the maximum flow rate. If no flow data exists, the procedures in subsection (b)(3)(B) must of this Section shall be used.
- B) For new gas collection systems, the maximum flow rate must comply shall be in accordance with Section 220.240(a) of this Subpart.

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c) Passive Collection Systems:

- 1) A passive collection system must shall be installed with liners on the bottom and all sides in all areas in which gas is to be collected. The liners must shall meet all requirements specified in 35 Ill. Adm. Code 811.306.
- 2) The collection and control system must shall either conform with the specifications for active collection systems in subsection (a) of this Section or the owner or operator must obtain the Agency's approval for alternate provisions under as provided for in subsection (d) of this Section.

d) Alternate Collection Systems:

An owner or operator seeking to install an alternate gas collection system must shall demonstrate to the Agency that the such collection system is capable of capturing the maximum expected gas flow rate from the entire area of the MSW landfill, for the period required in Section 220.250(h) of this Subpart, as calculated under pursuant to Section 220.240(a) of this Subpart, and in an

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equivalent manner to ~~what that required by~~ this Section requires. Any alternate gas collection system must be approved by the Agency. ~~The Such~~ alternate will shall be effective only when included in a federally enforceable permit or approved as a SIP revision. The alternate must shall include any alternate procedures for collection, control, compliance, monitoring, operation, testing, reporting, and recordkeeping that are appropriate.

e) Alternate Emissions Standard:

~~Under Pursuant to~~ Section 28.1 of the Act [415 ILCS 5/28.1], and in compliance ~~accordance~~ with 35 Ill. Adm. Code 106.5-Subpart G, provisions for adjusted standards, adjusted standards for alternate emissions standards, or alternate emissions standards with an alternate compliance schedule will shall be granted by the Board, to the extent consistent with federal law. An owner or operator seeking an alternate emissions standard or an alternate emissions standard with an alternate compliance schedule must demonstrate to the Board that ~~with respect to the MSW landfill,~~ the control requirements for the MSW landfill meet one or more of the criteria listed in this subsection (e), ~~under pursuant to~~ 40 CFR 60.24(f). ~~The Any such~~ request must be approved by the Board. ~~The Such~~ alternate will shall be effective only when included in a federally enforceable permit or approved as a SIP revision. Any alternate must shall include any procedures for collection, control, compliance, monitoring, operation, testing, reporting, and recordkeeping that are appropriate and a demonstration that the control requirements, ~~as contained~~ in this Subpart, as they apply to the MSW landfill, meet one or more of the following criteria:

Commented [JS9]: See my comment regarding d) above.

- 1) Unreasonable cost of control resulting from plant age, location, or basic process design;
- 2) Physical impossibility of installing necessary control equipment; or
- 3) Other factors specific to the MSW landfill that support an alternate emissions standard or alternate emissions standard with final compliance date.

(Source: Amended at 50 Ill. Reg. _____, effective _____)

Section 220.230 Gas Control System Requirements

Each owner and operator of an MSW landfill subject to the control requirements of this Subpart

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must install and operate a gas collection system that routes all the collected gas to a gas control system that complies with ~~the requirements in~~ subsection (f) and either install a gas control system, as described in either subsection (a), (b), or (c) ~~of this Section~~, or obtain approval of and install an alternate gas control system ~~under pursuant to~~ subsection (d) or (e) ~~of this Section~~.

- a) An open flare designed and operated in ~~compliance accordance~~ with 40 CFR 60.18, incorporated by reference in Section 220.130 of this Part.
- b) A control system designed and operated to reduce NMOC by 98 weight-percent, or, when an enclosed combustion device is used for control, to either reduce NMOC by 98 weight-percent or reduce the outlet NMOC concentration to less than 20 ppmv, dry basis as hexane at ~~3% percent~~ oxygen. The reduction efficiency or ppmv must be established by an initial performance test required ~~under pursuant to~~ Section 220.210(d)(2), using the test methods required under Section 220.260(d) ~~of this Subpart~~:
 - 1) If a boiler or process heater is used as the control device, the landfill gas stream ~~must shall~~ be introduced into the flame zone.
 - 2) The control device ~~must 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 220.270 ~~of this Subpart~~. The initial performance test must be performed within ~~six 6~~ months after startup or by October 31, 2001, whichever is later.
- c) A treatment system that processes the collected gas for subsequent sale or use. All emissions from any atmospheric vent from the gas treatment system ~~are shall be~~ subject to ~~the requirements of~~ subsection (b) ~~of this Section~~.
- d) An alternate gas control system approved by the Agency. An owner or operator seeking to install an alternate gas control system ~~must shall~~ demonstrate to the Agency that ~~the such~~ collection system is capable of control equivalent to subsection (b) ~~of this Section~~. ~~The Such~~ alternate ~~will shall~~ be effective only when included in a federally enforceable permit or approved as a SIP revision. The alternate ~~must shall~~ include any alternate procedures for collection, control, compliance, monitoring, operation, testing, reporting, and recordkeeping that are appropriate.
- e) ~~Under Pursuant to~~ Section 28.1 of the Act [415 ILCS 5/28.1], and in ~~compliance accordance~~ with 35 Ill. Adm. Code 106.5-Subpart G, provisions for adjusted

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standards, adjusted standards for alternate emissions standards, or alternate emissions standards with an alternate compliance schedule ~~will shall~~ be granted by the Board, to the extent consistent with federal law. An owner or operator seeking an alternate emissions standard or an alternate emissions standard with an alternate compliance schedule must demonstrate to the Board that, ~~with respect to the MSW landfill,~~ the control requirements ~~for the MSW landfill~~ meet one or more of the criteria ~~listed~~ in this subsection (e), ~~underpursuant to~~ 40 CFR 60.24(f). ~~The~~ Any such request must be approved by the Board. ~~The~~ Such alternate ~~will shall~~ be effective only when included in a federally enforceable permit or approved as a SIP revision. Any alternate ~~must shall~~ include any procedures for collection, control, compliance, monitoring, operation, testing, reporting, and recordkeeping that are appropriate and a demonstration that the control requirements ~~as contained~~ in this Subpart, as they apply to the MSW landfill, meet one or more of the following criteria:

- 1) Unreasonable cost of control resulting from plant age, location, or basic process design;
 - 2) Physical impossibility of installing necessary control equipment; or
 - 3) Other factors specific to the MSW landfill that support an alternate emissions standard or alternate emissions standard with final compliance date.
- f) Gas control systems must be operated in ~~compliance accordance~~ with a permit issued ~~underpursuant to~~ the applicable requirements of 35 Ill. Adm. Code, Subtitle G.

(Source: Amended at 50 Ill. Reg. _____, effective _____)

Section 220.240 Compliance Procedures for Gas Collection Systems

- a) The methods ~~specified~~ in subsections (a)(1) through (a)(6) ~~of this Section~~ ~~must shall~~ be used to determine whether the gas collection system ~~complies in~~ ~~compliance~~ with Section 220.220 ~~of this Subpart~~.
 - 1) To calculate the maximum expected gas generation flow rate from the MSW landfill, one of the following equations ~~must shall~~ be used. The k and L_o kinetic factors ~~must shall~~ be those published in the Compilation of Air Pollutant Emission Factors (AP-42), incorporated by reference in

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Section 220.130 ~~of this Part~~, or other site-specific emission factors approved by the Agency. If k has been determined ~~under as specified in~~ Section 220.260(a)(4) ~~of this Subpart~~, the value of k determined from the test ~~must shall~~ be used. A value of no more than 15 years ~~must shall~~ be used for the intended use period of the gas mover equipment, the variable t. 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:

$$Q_m = 2L_oR(e^{-kc} - e^{-kt})$$

where:

- Q_m = maximum expected gas generation flow rate, m³/yr
- L_o = methane generation potential, m³ per Mg solid waste
- R = average annual acceptance rate, Mg/yr
- k = methane generation rate constant, yr⁻¹
- t = age in years of the landfill at equipment installation plus 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 in years is the age of the landfill at installation.
- c = time since closure, years (for an active landfill $c = 0$ and $e^{-kc} = 1$)

Commented [BW10]: Add a line of space between each of these

B) For sites with known year-to-year solid waste acceptance rates:

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

where:

- Q_m = maximum expected gas generation flow rate, m³/yr
- k = methane generation rate constant, yr⁻¹
- L_o = methane generation potential, m³ per Mg solid waste
- M_i = mass of solid waste in the ith section, Mg

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t_i = age of the i^{th} section, yr

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- 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 subsections (a)(1)(A) and (a)(1)(B) ~~of this Section~~. If the landfill is still accepting waste, the actual measured flow data will not equal the maximum expected gas generation rate, so calculations made using the equations in subsection (a)(1)(A) or (a)(1)(B) ~~of this Section~~ or other methods ~~must shall~~ be used to predict the maximum gas generation rate over the intended period of use of the gas control system equipment.
- 2) ~~To determine~~For the purpose of determining the sufficient number of gas collectors, the owner or operator ~~must shall~~ design a system of vertical wells, horizontal collectors, or other type of collection device, capable of controlling and extracting gas from all portions of the landfill ~~and~~ sufficient to meet the operational and performance standards of Sections 220.220 through 220.250. ~~The Such~~ design must be approved by the Agency as part of an air construction permit or a CAAPP permit, if the gas collection system was installed ~~before prior to~~ July 31, 1998.
- 3) ~~To determine~~For the purpose of demonstrating whether the gas collection system flow rate of an active collection system is sufficient, the owner or operator ~~must shall~~ measure gauge pressure in the gas collection header at each individual well monthly. If positive pressure exists, action ~~must shall~~ be initiated to correct the ~~exceedance exceedence~~ within ~~five 5~~ calendar days, except for the three conditions ~~allowed~~ under Section 220.250(b) ~~of this Subpart~~. If negative pressure cannot be achieved without excess air infiltration within 15 calendar days after the first measurement, the gas collection system ~~must shall~~ be expanded to correct the ~~exceedance exceedence~~ within 120 days after the initial measurement of positive pressure. Any attempted corrective measure must not cause ~~exceedance exceedences~~ of other operational or performance standards. An alternate timeline ~~to correct for correcting~~ the ~~exceedance exceedence~~ may be submitted to the Agency for approval.
- 4) Owners or operators are not required to expand the system, as required in subsection (a)(3) ~~of this Section~~, during the first 180 days after gas collection system startup.

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- 5) ~~To identify~~~~For purposes of identifying~~ whether excess air infiltration into the landfill is occurring, the owner or operator ~~must shall~~ monitor each well on a monthly basis for temperature and nitrogen or oxygen ~~under, as provided in~~ Section 220.250(c)~~of this Subpart~~. If a well exceeds one of these operating parameters, action ~~must shall~~ be initiated to correct the ~~exceedance~~~~exceedence~~ within ~~five~~~~5~~ calendar days. If correction of the ~~exceedance~~~~exceedence~~ cannot be achieved within 15 calendar days after the first measurement, the gas collection system ~~must shall~~ be expanded to correct the ~~exceedance~~~~exceedence~~ within 120 days after the initial ~~exceedance~~~~exceedence~~. An alternate timeline ~~to correct~~~~for correcting~~ the ~~exceedance~~~~exceedence~~ may be submitted to the Agency for approval.
 - 6) An owner or operator using a collection system that does not conform to ~~the specifications provided in~~ Section 220.220(b) or (c) ~~of this Subpart~~ ~~must shall~~ provide information satisfactory to the Agency ~~under, as specified in~~ Section 220.220(d)~~of this Subpart~~, demonstrating that off-site migration is being controlled.
- b) To comply with the operational standards in Section 220.250(a)~~of this Subpart~~, each owner or operator of a controlled landfill ~~must shall~~ install each well or design component as specified in a construction permit issued by the Agency. Each well ~~must shall~~ be installed ~~within~~~~no later than~~ 60 days after the date on 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 ~~must shall~~ be used ~~to comply for compliance~~ with the surface methane operational standard ~~as provided in~~ Section 220.250(d)~~of this Subpart~~.
 - 1) After ~~installing~~~~installation of~~ the collection system, the owner or operator ~~must shall~~ monitor surface concentrations of methane along the entire perimeter of the collection area and along a pattern that traverses the landfill at 30-meter intervals (or 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 (d)~~of this Section~~.

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- 2) The background concentration ~~must shall~~ be determined by moving the probe inlet upwind and downwind outside the boundary of the landfill at a distance of at least 30 meters from the perimeter wells.
- 3) Surface emission monitoring ~~must shall~~ be performed in ~~compliance~~ ~~accordance~~ with ~~Section~~ ~~section~~ 4.3.1 of Method 21, ~~of Appendix A, 40~~ CFR 60, ~~Appendix A~~, incorporated by reference in Section 220.130 ~~of this Part~~, except that the probe inlet ~~must shall~~ be placed within 5 to 10 cm of the ground. Monitoring ~~must shall~~ be performed during typical meteorological conditions.
- 4) Any reading of 500 ppm or more above background at any location ~~must shall~~ be recorded as a monitored ~~exceedance~~ ~~exceedence~~ and the actions ~~specified~~ in subsections (c)(4)(A) through (c)(4)(E) ~~of this Section must shall~~ be taken. As long as the actions ~~specified~~ below are taken, the ~~exceedance~~ ~~exceedence~~ is not a violation of ~~the operational requirements~~ ~~of Section 220.250(d) of this Subpart~~.
 - A) The location of each monitored ~~exceedance~~ ~~exceedence~~ ~~must 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~~ ~~exceedence~~ ~~must shall~~ be made, and the location ~~must shall~~ be remonitored within 10 calendar days after detecting the ~~exceedance~~ ~~exceedence~~.
 - C) If the remonitoring of the location shows a second ~~exceedance~~ ~~exceedence~~, additional corrective action ~~must shall~~ be taken, and the location ~~must shall~~ be monitored again within 10 days after the second ~~exceedance~~ ~~exceedence~~. If the remonitoring shows a third ~~exceedance~~ ~~exceedence~~ for the same location, the action ~~specified~~ in subsection (c)(4)(E) ~~must of this Section shall~~ be taken. No further monitoring of that location is required until the action ~~specified~~ in subsection (c)(4)(E) ~~of this Section~~ has been taken.
 - D) If the remonitoring of the location does not show an ~~exceedance~~ ~~exceedence~~ ~~under, as specified by~~ subsection (c)(4)(B)

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or (c)(4)(C), the location ~~must shall~~ be remonitored ~~one+~~ month from the initial ~~exceedanceexceedence~~. If the ~~one-month+ month~~ remonitoring shows a concentration less than 500 ppm above background, no further monitoring of that location is required until the next quarterly monitoring period. If the ~~one-month+ month~~ remonitoring shows an ~~exceedanceexceedence~~, the actions ~~specified~~ in subsection (c)(4)(C) or (c)(4)(E) ~~of this Section~~, as appropriate, ~~must shall~~ be taken.

E) For any location where there are three monitored ~~exceedanceexceedences~~ within a quarterly period, a new well or other collection device ~~must shall~~ be installed within 120 calendar days after the initial ~~exceedanceexceedence~~. An alternate remedy to the ~~exceedanceexceedence~~, such as upgrading the blower, header pipes, or control device, and a corresponding timeline for installation may be submitted to the Agency for approval.

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

d) The following instrumentation specifications and procedures for surface emission monitoring devices apply to the monitoring required by subsection (c) ~~of this Section~~:

- 1) The portable analyzer ~~must shall~~ meet the instrument specifications ~~provided~~ in Section 3 ~~of~~ Method 21, ~~Appendix A~~, 40 CFR 60. ~~Appendix A~~, incorporated by reference in Section 220.130 ~~of this Part~~, except that methane ~~must shall~~ replace all references to VOC.
- 2) The calibration gas ~~must shall~~ be methane, diluted to a nominal concentration of 500 ppm in air.
- 3) To meet the performance evaluation requirements in Section 3.1.3 ~~of~~ Method 21, ~~Appendix A~~, 40 CFR 60. ~~Appendix A~~, incorporated by reference in Section 220.130 ~~of this Part~~, the instrument evaluation procedures of Section 4.4 of Method 21, ~~Appendix A~~, 40 CFR 60. ~~Appendix A~~, incorporated by reference in Section 220.130 ~~of this Part~~, ~~must shall~~ be used.

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- 4) The calibration procedures ~~provided~~ in Section 4.2 ~~of~~ Method 21, ~~Appendix A~~, 40 CFR 60 ~~Appendix A~~, incorporated by reference in Section 220.130, ~~must of this Part, shall~~ be followed immediately before commencing a surface monitoring survey.
- e) ~~MSW~~ landfill owners or operators are required to comply with ~~the provisions of~~ this Subpart at all times, except during periods of start-up, shutdown, or malfunction. ~~However, provided that~~ the duration of start-up, shutdown, or malfunction must not exceed ~~five~~ days for collection systems and must not exceed ~~one~~ hour for treatment or control devices.

Commented [SKA12]: "The MSW" is on file

(Source: Amended at 50 Ill. Reg. _____, effective _____)

Section 220.250 Operational Standards for Collection and Control Systems

Each owner or operator of an MSW landfill with a gas collection and control system ~~must~~ ~~shall~~:

- a) Operate the collection system ~~so~~ ~~such~~ that gas is collected from each area, cell, or group of cells in the MSW landfill in which the initial solid waste has been in place for:
- 1) ~~Five~~ years or more, if active; or
 - 2) ~~Two~~ years or more, if closed or at final grade.
- b) Operate the collection system with negative pressure at each wellhead, except under the following conditions:
- 1) A fire or increased well temperature. The owner or operator ~~must~~ ~~shall~~ record instances when positive pressure occurs in efforts to avoid a fire. These records ~~must~~ ~~shall~~ be submitted with the annual reports ~~under~~ ~~as~~ ~~provided in~~ Section 220.280(e)(1) ~~of this Subpart~~.
 - 2) Use of a geomembrane or synthetic cover. The owner or operator ~~must~~ ~~shall~~ develop pressure limits associated with ~~the~~ ~~such a~~ cover that must be approved by the Agency.
 - 3) A decommissioned well. A well may experience a static positive pressure after ~~shutdown~~ ~~shut down~~ to accommodate ~~for~~ declining flows. All design changes ~~must~~ ~~shall~~ be approved by the Agency.

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- c) Operate each interior wellhead in the collection system with a landfill gas temperature less than ~~55 °C (131 °C)~~ ~~55°C (131°F)~~ and with either a nitrogen level less than ~~20% percent~~ or an oxygen level less than ~~5% percent~~. The owner or operator may establish a higher operating temperature, nitrogen, or oxygen value at a particular well. A higher operating value demonstration that provides supporting data to show that the elevated parameter does not cause fires or significantly inhibit anaerobic decomposition by killing methagengens must be approved by the Agency before ~~the such~~ higher operating value may be used. Operating values ~~must shall~~ be determined as follows:
- 1) The nitrogen level ~~must shall~~ be determined using Method 3C, ~~Appendix A, 40 CFR 60. Appendix A~~, incorporated by reference in Section 220.130 ~~of this Part~~.
 - 2) The oxygen level ~~must shall~~ be determined by an oxygen meter using Method 3A, ~~Appendix A, 40 CFR 60. Appendix A~~, incorporated by reference in Section 220.130 ~~of this Part~~, except that:
 - A) The span ~~must shall~~ be set so that the regulatory limit is between 20 and ~~50% percent~~ of the span;
 - B) A data recorder is not required;
 - C) Only two 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 ~~10% percent~~.
- d) Operate the collection system so that the methane concentration is less than 500 ppm above background at the surface of the landfill. To determine if this level is exceeded, the owner or operator ~~must shall~~ conduct surface testing around the perimeter of the collection area and along a pattern that traverses the landfill at 30-meter intervals and where visual observations indicate elevated concentrations of landfill gas, such as distressed vegetation and cracks or seeps in the cover. An initial surface monitoring design plan ~~must shall~~ be developed and included as part of the operating permit application (e.g., a CAAPP permit application) that

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includes a topographical map with the monitoring route and the rationale for any site-specific deviations from the 30-meter intervals. Areas with steep slopes or other dangerous areas may be excluded from the surface testing. The monitoring plan ~~must shall~~ be updated as necessary. Updated copies must be sent to the Agency and kept on-site at the MSW landfill.

- e) Operate the gas collection and control system ~~so such~~ that all collected gases are vented to a control system designed and operated in compliance with Sections 220.230, 220.250, and 220.270 ~~of this Subpart~~. ~~If in the event~~ the collection or control system is inoperable, the gas mover system ~~must shall~~ be shut down, and all valves in the collection and control system contributing to venting of the gas to the atmosphere ~~must shall~~ be closed within ~~one+~~ hour.
- f) Operate the gas collection and control or treatment system at all times, except during shutdown or malfunction. ~~However, provided that~~ the duration of start-up, shutdown, or malfunction must not exceed ~~five~~ 5 days for collection systems and must not exceed ~~one+~~ hour for treatment or control devices.
- g) If monitoring demonstrates that the operational requirements in subsection (b), (c), or (d) ~~of this Section~~ are not met, take corrective action ~~under as specified in~~ Section 220.240(a)(3), (a)(5), or (c)(4) ~~of this Subpart~~. If ~~such~~ corrective actions are taken ~~under as specified in~~ Section 220.240(a)(3), (a)(5), or (c)(4) ~~of this Subpart~~, the monitored ~~exceedance exceedence~~ is not a violation of the operational requirements in this Section.
- h) The collection and control system may be capped or removed ~~if provided:~~
 - 1) The landfill is no longer accepting solid waste;
 - 2) A system removal report has been submitted to the Agency ~~under as provided in~~ Section 220.280(d) ~~of this Subpart~~;
 - 3) The collection and control system has been operating ~~at least a minimum of~~ 15 years;
 - 4) The calculated NMOC gas produced by the landfill is less than 50 Mg/yr on three successive test dates, ~~under pursuant to~~ the procedures ~~specified in~~ Section 220.260(b) ~~of this Subpart~~. The test dates ~~must shall~~ be ~~at least no less than~~ 90 days apart, and no more than 180 days apart; and

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- 5) The system is not required to satisfy any applicable requirement of 35 Ill. Adm. Code, Subtitle G.

(Source: Amended at 50 Ill. Reg. _____, effective _____)

Section 220.260 Test Methods and Procedures

- a) The landfill owner or operator ~~must shall~~ calculate the NMOC emission rate using the equation ~~provided in~~ either subsection (a)(1)(A) or ~~subsection (a)(1)(B) of this Section and~~ make a determination that the emission rate is less than 50 Mg/yr, ~~underpursuant to~~ subsection (a)(2), (a)(3), (a)(4), or (e), or install a gas collection and control system ~~underpursuant to~~ Sections 220.220 and 220.230 ~~of this Subpart~~. However, both equations may be used if the actual year-to-year solid waste acceptance rate is known, ~~underpursuant to~~ subsection (a)(1)(A) ~~of this Section~~, for part of the life of the landfill and the actual year-to-year solid waste acceptance rate is unknown, ~~underpursuant to~~ subsection (a)(1)(B) ~~of this Section~~, for part of the life of the landfill. If the NMOC emission rate calculated in this subsection is less than 50 Mg/yr, then the landfill owner ~~must shall~~ submit an emission rate report ~~underas provided in~~ Section 220.280(b) ~~of this Subpart~~, and ~~must shall~~ recalculate the NMOC mass emission rate as required under Section 220.210(c) ~~of this Subpart~~.
- 1) The values to be used in both equations are 0.05/yr for k, 170 m³ per Mg for L_o, and 4,000 ppmv as hexane for the C_{NMOC}.
- A) The following equation ~~must shall~~ be used if the actual year-to-year solid waste acceptance rate is known:

$$M_{\text{NMOC}} = \sum_{i=1}^n 2kL_o M_i (e^{-kt_i})(C_{\text{NMOC}})(3.6 \times 10^{-9}) \quad \text{where:}$$

M _{NMOC}	=	Total NMOC emission rate from the landfill, Mg/yr
k	=	methane generation rate constant, yr ⁻¹
L _o	=	methane generation potential, m ³ per Mg solid waste
M _i	=	mass of solid waste in the i th section, Mg
t _i	=	age of the solid waste in the i th section, years
C _{NMOC}	=	concentration of NMOC, ppmv as hexane

Commented [BW13]: Add a line of space between each of these

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3.6×10^{-9} = conversion factor

Commented [BW14]: Add a line of space between each of these

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.

- B) The following equation ~~must shall~~ be used if the actual year-to-year solid waste acceptance rate is unknown:

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

where:

M_{NMOC} = Total NMOC emission rate from the landfill, Mg/yr
 L_o = methane generation potential, m^3 per Mg solid waste

R = average annual acceptance rate, Mg/yr

k = methane generation rate constant, year^{-1}

t = age of landfill, years

C_{NMOC} = concentration of NMOC, ppmv as hexane

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

3.6×10^{-9} = conversion factor

Commented [BW15]: Add a line of space between each of these

Commented [BW16]: This should say: concentration of NMOC, ppmv as hexane conversion factor

Commented [SKA17R16]: What PCB has is correct. JCAR database contained an error. JCAR's error has been corrected.

The mass of nondegradable solid waste may be subtracted from the average annual acceptance rate when calculating a value for R , if documentation of the nature and amount of such wastes is maintained.

- 2) Tier 1. The landfill owner or operator ~~must shall~~ calculate the NMOC mass emission rate using the equations ~~provided~~ in subsection (a)(1)(A) or (a)(1)(B) ~~of this Section~~. The owner or operator ~~must shall~~ compare the calculated NMOC mass emission rate to the standard of 50 Mg/yr using the default values for the NMOC mass emission rate and the methane generation rate constant.
- 3) Tier 2. The landfill owner or operator ~~must shall~~ calculate the NMOC mass emission rate using the equations ~~provided~~ in subsection (a)(1)(A) or (a)(1)(B) ~~of this Section~~ using the average NMOC concentration from the

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collected samples instead of the default value in the equations ~~provided in subsection (a)(1) of this Section~~. The landfill owner or operator ~~must shall~~ determine the NMOC concentration using the following sampling procedure: The landfill owner or operator ~~must shall~~ install at least ~~two2~~ sample probes per hectare of landfill surface that has retained waste for at least ~~two2~~ years. If the landfill is larger than 25 hectares in area, only 50 samples are required. The sample probes should be located to avoid known areas of nondegradable solid waste. The owner or operator ~~must shall~~ collect and analyze one sample of landfill gas from each probe to determine the NMOC concentration using Method 25C or Method 18 of ~~Appendix A, 40 CFR 60, Appendix A~~, incorporated by reference in Section 220.130 ~~of this Part~~. If using Method 18, the minimum list of compounds to be tested ~~are shall be~~ those ~~published in the Compilation of Air Pollutant Emission Factors (AP-42), incorporated by reference in Section 220.130 of this Part~~. If composite sampling is used, equal volumes ~~must shall~~ be taken from each sample probe. If more than the required number of samples are taken, all samples ~~must shall~~ be used in the analysis. Divide the NMOC concentration from Method 25C by ~~six6~~ to convert from C_{NMOC} as carbon to C_{NMOC} as hexane. The owner or operator ~~must shall~~ retest the site-specific NMOC concentration every ~~five5~~ years using the methods ~~specified in this Section~~.

- 4) Tier 3. The landfill owner or operator ~~must shall~~ estimate the NMOC mass emission rate using equations in subsection (a)(1)(A) or (a)(1)(B) ~~with of this Section and using~~ a site-specific methane generation rate constant k , and the site-specific NMOC concentration as determined in subsection (a)(3) ~~of this Section~~ instead of the default values ~~provided in subsection (a)(1) of this Section~~. The site-specific methane generation rate constant ~~must shall~~ be determined using the procedures ~~provided in Method 2E, Appendix A, 40 CFR 60, Appendix A~~, incorporated by reference in Section 220.130 ~~of this Part~~. The calculation of the methane generation rate constant is performed only once, and the value obtained is used in all subsequent annual NMOC emission rate calculations. In addition, ~~under pursuant to~~ subsection (a)(3) ~~of this Section~~, the owner or operator ~~must shall~~ retest the site-specific NMOC concentration every ~~five5~~ years using the methods ~~specified in that subsection~~.

- b) After the installation of a collection and control system in compliance with Sections 220.220 and 220.230 ~~of this Subpart~~, the owner or operator ~~must shall~~ calculate the NMOC emission rate ~~to determine for purposes of determining~~

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when the system can be removed ~~under as provided in~~ Section 220.250(h) ~~of this Subpart~~, 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 (Mg/yr)
 Q_{LFG} = flow rate of landfill gas (m³/minute)
 C_{NMOC} = NMOC concentration (ppmv as hexane)

Commented [BW18]: Add a line of space between these.

- 1) The flow rate of landfill gas (Q_{LFG}) ~~must shall~~ be determined by measuring the total landfill gas flow rate at the common header pipe that leads to the control device ~~with using~~ a gas flow measuring device calibrated according to ~~the provisions of~~ Section 4 of Method 2E, ~~Appendix A~~, 40 CFR 60. ~~Appendix A~~, incorporated by reference in Section 220.130 ~~of this Part~~.
- 2) The average NMOC concentration (C_{NMOC}) ~~must shall~~ be determined by collecting and analyzing landfill gas sampled from the common header pipe before the gas moving or condensate removal equipment ~~under using~~ ~~the procedures in~~ Method 25C or Method 18, ~~Appendix A~~, 40 CFR 60. ~~Appendix A~~, incorporated by reference in Section 220.130 ~~of this Part~~. If using Method 18, the minimum list of compounds to be tested ~~are shall be~~ those ~~published in~~ the Compilation of Air Pollutant Emission Factors (AP-42), incorporated by reference in Section 220.130 ~~of this Part~~. The sample location on the common header pipe ~~must shall~~ be before any condensate removal or other gas refining units. The landfill owner or operator ~~must shall~~ divide the NMOC concentration from Method 25C by ~~six~~ 6 to convert C_{NMOC} as carbon to C_{NMOC} as hexane.
- c) If the gas collection system complies with ~~the provisions in~~ Section 220.220 ~~of this Subpart~~ and is already installed, the owner or operator ~~must shall~~ estimate the NMOC emission rate using the procedures ~~provided in~~ subsection (b) ~~of this Section~~. For areas of the landfill where the owner or operator has not been required to install a well yet, ~~they he/she~~ may select an appropriate method from subsection (a) ~~of this Section~~ to estimate emissions.
- d) For the performance test required in Section 220.210(d)(2) ~~of this Subpart~~, Method 25C or Method 18, ~~Appendix A~~, 40 CFR 60. ~~Appendix A~~, incorporated by reference in Section 220.130 ~~of this Part~~, ~~must shall~~ be used to determine

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compliance with 98 weight-percent efficiency or the 20 ppmv outlet concentration level, unless another method to demonstrate compliance has been approved by the Agency ~~under as provided by~~ Section 220.230(d) ~~of this Subpart~~. If using Method 18, the minimum list of compounds to be tested ~~are shall be~~ those ~~published~~ in the Compilation of Air Pollutant Emission Factors (AP-42), incorporated by reference in Section 220.130 ~~of this Part~~. The following equation ~~must shall~~ be used to calculate efficiency:

$$\text{Control efficiency} = (\text{NMOC}_{\text{in}} - \text{NMOC}_{\text{out}}) / (\text{NMOC}_{\text{in}})$$

where:

NMOC_{in} = mass of NMOC entering control device
 NMOC_{out} = mass of NMOC exiting control device

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- e) The owner or operator may use other methods to determine the NMOC concentration, site-specific k, or landfill gas flow rate, as an alternate to the methods required in subsection (a)(3) and (a)(4) ~~of this Section~~, if the method has been approved by the Agency ~~under, as provided for in~~ Section 220.220(d) or Section 220.230(d) ~~of this Subpart~~.
- f) The owner or operator may use the procedures ~~described~~ in AP-42, Compilation of Air Pollutant Emission Factors, incorporated by reference in Section 220.130 ~~of this Part~~, to estimate emissions ~~under pursuant to~~ the annual emission report required in 35 Ill. Adm. Code 210.302(a). The most recent values for k, L_o, and NMOC concentration reported in AP-42 ~~must shall~~ be used to calculate emissions. To determine applicability of or compliance with ~~the requirements of~~ this Part, the owner or operator must use the tiered emission estimates ~~provided~~ in subsections (a)(1) through (a)(4) ~~of this Section~~.
- g) Testing:
 - 1) Upon a request by the Agency, the owner or operator of an MSW landfill ~~must shall~~ at ~~their~~ own expense demonstrate compliance with the applicable requirements of this Subpart using the appropriate test method.
 - 2) An owner or operator planning to conduct a test to demonstrate compliance with this Subpart ~~must shall~~ notify the Agency of that intent ~~at least not less than~~ 30 days before the planned initiation of the tests so that the Agency may observe the test.

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(Source: Amended at 50 Ill. Reg. _____, effective _____)

Section 220.270 Monitoring of Operations

- a) Active gas collection systems. Each owner or operator of an active gas collection system ~~must shall~~ install a sampling port and a thermometer, 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 ~~under, as provided in~~ Section 220.240(a)(3) ~~of this Subpart~~; and
 - 2) Monitor the temperature and nitrogen or oxygen concentration in the landfill gas on a monthly basis ~~under, as provided in~~ Section 220.240(a)(5) ~~of this Subpart~~.
- b) Enclosed combustors. Each owner or operator of an enclosed combustor ~~must shall~~ calibrate, maintain, and operate according to the ~~manufacturer's~~ ~~manufacturer's~~ specifications, the following equipment:
- 1) A temperature monitoring device equipped with a continuous recorder and ~~with having~~ a minimum accuracy of plus or minus 1% ~~percent~~ of the temperature being measured, expressed in degrees Celsius, or plus or minus ~~0.5 °C~~ ~~0.5°C~~, whichever is greater. A temperature monitoring device is not required for boilers or process heaters with design heat input capacity greater than 44 MW.
 - 2) A device that records flow to or bypass of the control device. The owner or operator ~~must shall~~ either:
 - A) Install, calibrate, and maintain a gas flow rate measuring device that ~~records shall record~~ the flow to the control device every 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 ~~must 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

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line.

- c) Open flare. Each owner or operator of an open flare ~~must shall~~ install, calibrate, maintain, and operate according to the ~~manufacturer's~~ ~~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.
 - 2) A device that records flow to or bypass of the flare. The owner or operator ~~must shall~~ either:
 - A) Install, calibrate, and maintain a gas flow rate measuring device that ~~records shall record~~ the flow to the control device at least every 15 minutes; or
 - B) Secure the bypass line valve in the closed position with a car-seal or lock-and-key type configuration. A visual inspection of the seal or closure mechanism ~~must 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 install a collection or control system that does not meet the specifications in Section 220.220(b) or (c) ~~must of this Subpart,~~ ~~shall~~ provide information satisfactory to the Agency ~~under as provided in~~ Sections 220.220(d) and 220.230(d) ~~of this Subpart,~~ describing the design and operation of the collection system, the operating parameters that would indicate proper performance, and appropriate monitoring procedures.
- e) Each owner or operator ~~must shall~~ monitor surface concentrations of methane according to the instrument specifications and procedures ~~provided~~ in Section 220.240(c) and (d) ~~of this Subpart~~. Any inactive landfill that has no monitored ~~exceedances~~ ~~exceedences~~ of the operational standard in three consecutive quarterly monitoring periods must resume annual monitoring. Any methane reading of 500 ppm or more above the background detected during the annual monitoring returns the monitoring frequency for that landfill to quarterly.

(Source: Amended at 50 Ill. Reg. _____, effective _____)

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Section 220.280 Reporting Requirements

- a) Each owner and operator ~~must shall~~ submit a design capacity report to the Agency.
- 1) The initial design capacity report ~~must shall~~ be submitted ~~by no later than~~ October 29, 1998.
 - 2) The initial design capacity report ~~must 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 ~~under according to the provisions of~~ the State or RCRA construction or operating permit.
 - B) The maximum design capacity of the landfill. ~~If~~ the maximum design capacity is specified in a State construction or RCRA permit, a copy of the permit specifying the maximum design capacity of the landfill ~~must shall~~ be provided. If the maximum design capacity of the landfill is not specified in a permit, the maximum design capacity ~~must shall~~ be calculated using good engineering practices. The calculations ~~must shall~~ be provided, along with the relevant parameters (e.g., depth of solid waste, solid waste acceptance rate, and compaction practices, as applicable), as part of the report. The Agency may request other reasonable information as may be necessary to verify the maximum design capacity of the landfill.
 - 3) An amended design capacity report ~~must shall~~ be submitted to the Agency providing notification of an increase in the design capacity of the landfill within 90 days after an increase in the maximum design capacity of the landfill to or above 2.5 million Mg and 2.5 million m³. This increase in design capacity may result from an increase in the permitted volume or an increase in the density of the landfill as documented in the annual recalculation required in Section ~~220.290(f) 220.290 (f) of this Subpart.~~
- b) Each owner and operator with a total design capacity equal to or greater than 2.5 million Mg and 2.5 million m³ ~~must shall~~ submit an NMOC emission rate report to the Agency initially and by June 1 annually ~~after thereafter~~, except ~~under as provided for in~~ subsections (b)(1) and (b)(4) ~~of this Section.~~ The Agency may

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request ~~such~~ additional information ~~as may be~~ necessary to verify the reported NMOC emission rate. The NMOC emission rate report ~~must shall~~ contain an annual or ~~five-year~~ ~~year~~ estimate of the NMOC emission rate calculated ~~underusing the formula and procedures in~~ Section 220.260(a) ~~of this Subpart~~, as applicable. The annual NMOC emission rate report required by this subsection must be submitted with the annual emissions report required ~~underpursuant to~~ 35 Ill. Adm. Code 201.302(a).

- 1) The initial NMOC emission rate report may be combined with the initial design capacity report required in subsection (a) ~~of this Section~~. The first NMOC emission report ~~must shall~~ be filed with the Agency by October 29, 1998. Subsequent NMOC emission reports ~~must shall~~ be filed with the Agency by June 1 of the subsequent year, except ~~underas provided for in~~ subsection (b)(2) ~~of this Section~~.
- 2) Using Tier 1, if the estimated NMOC emission rate as reported in the annual report to the Agency is less than 50 Mg/yr in each of the next ~~five~~ consecutive years, the owner or operator may elect to submit an estimate of the NMOC emission rate for the next ~~five years~~ ~~year period~~ in lieu of the annual report. This estimate ~~must shall~~ include the current amount of solid waste ~~in place in place~~ and the estimated waste acceptance rate for each year of the ~~five~~ years for which an NMOC emission rate is estimated. All data and calculations upon which this estimate is based ~~must shall~~ be provided to the Agency. This estimate ~~must shall~~ be revised at least once every ~~five~~ years. If the actual waste acceptance rate exceeds the estimated waste acceptance rate in any year reported in the ~~five-year~~ ~~year~~ estimate, a revised ~~five-year~~ ~~year~~ estimate ~~must shall~~ be submitted to the Agency. The revised estimate ~~must shall~~ cover the ~~five years~~ ~~year period~~ beginning with the year in which the actual waste acceptance rate exceeded the estimated waste acceptance rate.
- 3) The NMOC emission rate report ~~must shall~~ include all the data, calculations, sample reports, and measurements used to estimate the annual or ~~five-year~~ ~~year~~ emissions.
- 4) All owners and operators of MSW landfills with a total design capacity of 2.5 million Mg and 2.5 million m³ are required to submit an annual emissions report ~~underpursuant to~~ 35 Ill. Adm. Code 201.302(a). MSW landfills that have installed a gas collection and control system that meets the requirements of this Subpart are not required to submit an annual

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NMOC emission rate report but are required to submit an annual emissions report ~~underpursuant to~~ 35 Ill. Adm. Code 201.302(a). ~~Owners~~ Further, owners or operators filing a ~~five-year~~ ~~year~~ estimate of NMOC emissions ~~underpursuant to~~ subsection (b)(2) ~~of this Section~~ may use a ~~five-year~~ ~~year~~ estimate for NMOC, so long as they file an annual emission report and meet the requirements of subsection (b)(2) ~~of this Section~~.

- c) Each owner or operator subject to ~~the provisions of~~ Section 220.220(a) ~~must of this Subpart shall~~ submit an application for a construction permit containing the information ~~listed in~~ subsection (c)(3) ~~of this Section~~ to the Agency within ~~one~~ year after the first report, required under subsection (b) ~~of this Section~~, in which the emission rate exceeds 50 Mg/yr, except as follows:
- 1) If the owner or operator elects to recalculate the NMOC emission rate after Tier 2 NMOC sampling and analysis ~~underas provided in~~ Section 220.260(a)(3) ~~of this Subpart~~ and the resulting rate is less than 50 Mg/yr, annual periodic reporting ~~must shall~~ be resumed, using the Tier 2 determined site-specific NMOC concentration, until the calculated emission rate is equal to or greater than 50 Mg/yr or the landfill is inactive. The revised NMOC emission rate report, with the recalculated emission rate based on NMOC sampling and analysis, ~~must shall~~ be submitted within ~~one~~ year after the first calculated ~~emission rate exceeding~~ ~~exceedence~~ of 50 Mg/yr.
 - 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 Section 220.260(a)(4) ~~of this Subpart~~, and the resulting emission rate is less than 50 Mg/yr, annual periodic reporting ~~must shall~~ be resumed or the landfill is inactive. The resulting site-specific methane generation rate constant k ~~must shall~~ be used in the emission rate calculation until ~~such time as~~ the emission rate calculation results in an ~~exceedance~~ ~~exceedence~~. The revised NMOC emission rate report based on ~~the provisions of~~ Section 220.260(a)(4) ~~of this Subpart~~ and the resulting site-specific methane generation rate constant k ~~must shall~~ be submitted to the Agency within ~~one~~ year after the first calculated emission rate exceeding 50 Mg/yr.
 - 3) In addition to the information required by 35 Ill. Adm. Code 201.152, the following ~~must shall~~ be included in the construction permit application for

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the collection system required ~~underpursuant to~~ Section 220.280(c)~~of this Subpart~~: depths of refuse, refuse gas generation rates and flow characteristics, cover properties, gas system ~~expandability~~~~expandibility~~, leachate and condensate management, accessibility, compatibility with filling operations, integration with closed landfill end use, air intrusion control, corrosion resistance, fill settlement, and resistance to the refuse decomposition heat.

- d) Each owner or operator of a controlled landfill ~~must shall~~ submit the information required by this subsection (d) to the Agency 30 days ~~before prior to removing or ceasing removal or cessation of~~ operation of the control equipment. The Agency may request ~~such~~ additional information ~~as may be necessary~~ to verify that all of the conditions for removal of equipment ~~under in accordance with~~ Section 220.250(h) ~~of this Subpart~~ have been met.
- 1) Certification that ~~operating the operation of~~ the collection and control system is no longer required ~~underpursuant to~~ 35 Ill. Adm. Code ~~Subtitle G~~;
 - 2) Documentation demonstrating that the 15-year minimum control period has expired; and
 - 3) Dated copies of the ~~three~~3 successive NMOC emission rate reports ~~under, as provided for in~~ Section 220.250(h) ~~of this Subpart~~, demonstrating that the landfill is no longer producing 50 Mg/yr or greater of NMOC; ~~underpursuant to~~ Section 220.260(b) ~~of this Section~~.
- e) Each owner or operator of a landfill ~~must shall~~ submit to the Agency annual reports of the recorded information in subsections (e)(1) through (e)(6) ~~of this Section~~. The initial annual report ~~must shall~~ be submitted within 180 days after installation and start-up of the collection and control system; and may be included with the report of the initial performance test required ~~underpursuant to~~ Section 220.210(d)(2) ~~of this Subpart~~. For enclosed combustion devices and flares, reportable ~~exceedances~~~~exceedences~~ are defined under Section 220.290(c) ~~of this Subpart~~.
- 1) Value and length of time for ~~the exceedance~~~~exceedence~~ of applicable parameters monitored under Section 220.270(a), (b), (c), and (d) ~~of this Subpart~~.

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- 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 220.270 of this Subpart.~~
 - 3) Description and duration of all periods when the control device was not operating for ~~more than one period exceeding 1~~ hour and length of time the control device was not operating.
 - 4) All periods when the collection system was not operating ~~for more than five in excess of 5~~ days.
 - 5) The location of each ~~exceedance~~ ~~exceedence~~ of the 500 ppm methane concentration ~~under, as provided in Section 220.250(d) of this Subpart,~~ and the concentration recorded at each location for which an ~~exceedance~~ ~~exceedence~~ was recorded in the previous month.
 - 6) The date of installation and the location of each well or collection system expansion added ~~under pursuant to~~ subsections (a)(3), (b), and (c)(4) of Section 220.240 ~~of this Subpart.~~
- f) Each owner or operator ~~must shall~~ include the following information with the initial performance test report and any subsequent performance tests required ~~under pursuant to~~ Section 220.210(d)(2) ~~of this Subpart.~~
- 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 gas generation flow rates for all areas from which collection wells have been excluded based on nonproductivity and the calculations of

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gas generation flow rate for each excluded area;

- 5) 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 of gas.

(Source: Amended at 50 Ill. Reg. _____, effective _____)

Section 220.290 Recordkeeping Requirements

Each owner or operator of an MSW landfill ~~must shall~~ keep for at least ~~five~~⁵ years, unless another time period is specified in this Section, up-to-date, readily accessible, on-site records of the following:

- a) For the life of the landfill, the design capacity report in which the landfill became equal to or greater than 2.5 million Mg and 2.5 million m³, the current amount of solid waste ~~in place~~^{in place}, and the year-by-year waste acceptance rate. Off-site records may be maintained if they are retrievable within ~~four~~⁴ hours. Either paper copy or electronic formats are acceptable.
- b) For the life of the control equipment, the data ~~listed~~ in subsections (b)(1) through (b)(4) ~~of this Section~~ as measured during the initial performance test or compliance determination. Records of the control device vendor specifications ~~must shall~~ be maintained until removal.
 - 1) Active collection systems:
 - A) The maximum expected gas generation flow rate as calculated in Section 220.240(a) ~~of this Subpart~~. The owner or operator may use another method to determine the maximum gas generation flow rate, if the method has been approved by the Agency.
 - B) The density of wells, horizontal collectors, surface collectors, or other gas extraction devices determined ~~under using the procedures specified in~~ Section 220.220(b)(1)(A) ~~of this Subpart~~.
 - 2) Enclosed combustion device other than a boiler or process heater with a design heat input capacity greater ~~than~~⁴⁴ MW:

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- A) The combustion temperature measured at least every 15 minutes and averaged over the same time period as the performance test.
 - B) The percent reduction of NMOC determined ~~under as specified in Section 220.230(b) of this Subpart~~ achieved by the control device.
 - 3) Boilers or process heaters 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 as the performance testing.
 - 4) Open flare: the flare type (i.e., 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 ~~under as specified in 40 CFR 60.18, incorporated by reference in Section 220.130 of this Part;~~ continuous records of the flare pilot flame or flare flame monitoring, and records of all periods of operations during which the flare pilot flame or the flare flame is absent.
- c) Continuous records of the equipment operating parameters ~~specified to be monitored in Section 220.270 and of this Subpart 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/exceedences~~ that ~~must shall~~ be recorded and reported under Section 220.280(e) ~~of this Subpart~~:
 - A) For enclosed combustors, except for boilers and process heaters with design heat input of 44 MW (150 ~~MMbtu~~ ~~mmbtu~~/hr) or greater, all ~~three-hour~~ ~~3-hour~~ periods of operation during which the average combustion temperature was more than ~~28 °C (82 °F)~~ ~~28°C (82°F)~~ below the average combustion temperature during the most recent performance test at which compliance with Section 220.230(b) ~~of this Subpart~~ was determined.
 - 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, ~~under as required pursuant to~~ subsection (b)(2)(A) ~~of this Section~~.

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- 2) 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 ~~underpursuant to~~ Section 220.270 ~~of this Subpart~~.
 - 3) For boilers or process heaters with a design heat input capacity of 44 MW or greater, records of all periods of operation of boiler or process heater. ~~(Examples of such records include records of steam use, fuel use, or monitoring data collected~~ ~~underpursuant to~~ State, local, or federal regulatory requirements.)
 - 4) For open flares, records of the flame or flare pilot flame monitoring ~~specified under~~ Section 220.270(c) ~~of this Subpart~~, and all periods of operation in which the flare pilot flame or the flare flame is absent.
- d) For the life of the collection system, a plot map showing each existing and planned collector in the system and providing a unique identification location label for each collector, including:
- 1) The location of all newly installed collectors ~~as specified under~~ Section 220.240(b) ~~of this Part~~ 35-220RG
 - 2) The nature, date of deposition, amount, and location of asbestos-containing or nondegradable waste excluded from collection ~~under, as provided in~~ Section 220.220(b)(1)(D)(i) ~~and of this Subpart, as well as any nonproductive areas excluded from collection under, as provided in~~ Section 220.220(b)(1)(D)(ii) ~~of this Subpart~~.
- e) All collection and control system ~~exceedances~~ ~~exceedences~~ of the operational standards in Section 220.250 ~~of this Subpart~~, the reading the subsequent month, whether or not the second reading is an ~~exceedance~~ ~~exceedence~~, and the location of each ~~exceedance~~ ~~exceedence~~.
- f) Owners or operators who convert design capacity from volume to mass or mass to volume to demonstrate that landfill design capacity is less than 2.5 million Mg or 2.5 million m³, as provided in the definition of "design capacity", ~~must shall~~ keep records of the annual recalculation of site-specific density, design capacity, and the supporting documentation.

(Source: Amended at 50 Ill. Reg. _____, effective _____)

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- 1) Heading of the Part: Nonmethane Organic Compounds
- 2) Code Citation: 35 Ill. Adm. Code 220
- 3)

<u>Section Numbers</u> :	<u>Proposed Actions</u> :
220.100	Amendment
220.110	Amendment
220.120	Amendment
220.200	Amendment
220.210	Amendment
220.220	Amendment
220.230	Amendment
220.240	Amendment
220.250	Amendment
220.260	Amendment
220.270	Amendment
220.280	Amendment
220.290	Amendment
- 4) Statutory Authority: Implementing and authorized by Sections 4, 9.1, 27, and 28.5 of the Environmental Protection Act [415 ILCS 5/4, 9.1, 27, 28.5].
- 5) A Complete Description of the Subjects and Issues Involved: Subtitle B of the Board's rules addresses air pollution and includes permitting provisions, emissions standards and limitations, and monitoring requirements. Part 220 establishes emission control requirements for municipal solid waste landfills under the Clean Air Act.

This rulemaking originated with a proposal by the Illinois Environmental Protection Agency (IEPA). IEPA cited Executive Order 2016-13, which directed agencies to review their rules to identify provisions that are outdated, repetitive, confusing, or unnecessary and then revise or repeal them as appropriate. At that time, the Board had begun its own review with the same general purposes.

The Board throughout Part 220 proposed numerous revisions, including primarily matters of concision. The Board also proposed amendments such as updating statutory references, simplifying cross references, making the forms of temperatures more consistent with one another, and using "must" to be more clearly mandatory.

The Board intends that the amendments are non-substantive in nature.

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- 6) Published studies or reports, and sources of underlying data, used to compose this rulemaking: No
- 7) Will this proposed rulemaking replace an emergency rule currently in effect? No
- 8) Does this rulemaking contain an automatic repeal date? No
- 9) Do these proposed amendments contain incorporations by reference? No
- 10) Are there any proposed rulemakings pending on this Part? No
- 11) Statement of Statewide Policy Objectives: This proposed amendment does not create or enlarge a State mandate as defined in Section 3(b) of the State Mandates Act [30 ILCS 805/3].
- 12) Time, Place, and Manner in which interested persons may comment on this proposed rulemaking: The Board will accept written public comments on this proposal for a period of at least 45 days after the date of publication in the *Illinois Register*. Public comments should refer to Docket R18-21 and be filed electronically through the Clerk's Office On-Line (COOL) on the Board's website at <https://pcb.illinois.gov/>. Public comments may be addressed to:

Clerk's Office
Illinois Pollution Control Board
60 East Van Buren Street, Suite 630
Chicago, IL 60605

(312) 814-3461
don.brown@illinois.gov

Interested persons may download copies of the Board's opinions and orders in R18-21 from the Board's Web site at <https://pcb.illinois.gov/> and may also request copies by calling the Clerk's office at (312) 814-3620.

- 13) Initial Regulatory Flexibility Analysis:
- A) Description of the type of small businesses, not for profit corporations or small municipalities subject to the proposed rule amendment: None
- B) Description of the proposed reporting, bookkeeping and other procedures required

POLLUTION CONTROL BOARD

NOTICE OF PROPOSED AMENDMENTS

for compliance with the rule amendment: None

- C) Description of the types of professional skills necessary for compliance: None
- 14) Small Business Economic Impact Analysis: Because the Board proposes non-substantive amendments as described above in (5), it does not reasonably foresee adverse economic impacts such as loss of revenue or increased expenses on small businesses.
- 15) Regulatory Agenda on which this rulemaking was summarized: This rule was not included on either of the two most recent agendas, although it had been included on the July 2018 agenda (42 Ill. Reg. 13328 (July 6, 2018)).
- 16) Any other information or justification for the proposed amendment that the agency believes would be helpful to the public regarding the proposed amendment. For example, a discussion or analysis of the benefits the proposed amendment is projected to have on the Illinois public, consumers, investors or other similar groups. See (5).

The full text of the Proposed Amendments begins on the next page:

TITLE 35: ENVIRONMENTAL PROTECTION
SUBTITLE B: AIR POLLUTION
CHAPTER I: POLLUTION CONTROL BOARD
SUBCHAPTER c: EMISSION STANDARDS AND LIMITATIONS
FOR STATIONARY SOURCES

PART 220
NONMETHANE ORGANIC COMPOUNDS

SUBPART A: GENERAL PROVISIONS

12	Section	
13	220.100	Purpose
14	220.110	Definitions
15	220.120	Abbreviations
16	220.130	Incorporations by Reference

SUBPART B: MSW LANDFILLS

20	Section	
21	220.200	Applicability
22	220.210	Compliance Requirements and Schedule
23	220.220	Gas Collection System Requirements
24	220.230	Gas Control System Requirements
25	220.240	Compliance Procedures for Gas Collection Systems
26	220.250	Operational Standards for Collection and Control Systems
27	220.260	Test Methods and Procedures
28	220.270	Monitoring of Operations
29	220.280	Reporting Requirements
30	220.290	Recordkeeping Requirements

AUTHORITY: Implementing and authorized by Sections 4, 9.1, 27, and 28.5 of the Illinois Environmental Protection Act [415 ILCS 5/4, 9.1, 27, and 28.5].

SOURCE: Adopted in Docket R98-28 at 22 Ill. Reg. 11790, effective July 31, 1998; amended in R18-21 at 50 Ill. Reg. _____, effective _____.

SUBPART A: GENERAL PROVISIONS

Section 220.100 Purpose

This Part contains emission control requirements for municipal solid waste (MSW) landfills in compliance accordance with Sectionsection 111(d) and subpart B of the Clean Air Act.

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(Source: Amended at 50 Ill. Reg. _____, effective _____)

Section 220.110 Definitions

The definitions in this Section apply only to ~~the provisions of~~ this Part. Unless otherwise defined ~~in this Section or herein and unless~~ a different meaning of a term is clear from its context, the ~~definitions of~~ terms ~~used~~ in this Part ~~shall~~ have the ~~definitions in meanings specified by~~ 35 Ill. Adm. Code 201.102, 211, and 810.103.

"Active collection system" means a gas collection system that uses gas mover equipment.

"Active landfill" means a landfill in which solid waste is being placed or a landfill that is planning to accept waste in the future.

"Commercial waste" means all types of solid waste generated by stores, offices, restaurants, warehouses, and other nonmanufacturing activities, excluding household and industrial wastes.

"Controlled landfill" means any landfill at which collection and control systems are required under this Part ~~because as a result~~ of the NMOC emission rate. The landfill is considered controlled at the time an application for a construction permit for a collection and control system is submitted to the Agency in compliance with Sections 220.220 and 220.230 ~~of this Part~~.

"Design capacity" means the maximum amount of solid waste a landfill can accept, ~~as indicated~~ in terms of volume or mass, as specified in the permit(s) issued ~~under pursuant to~~ Section 21(d) of the Act for the source plus any in-place waste not accounted for in the permit(s). ~~If;~~ if no design capacity is specified in a permit, then the design capacity ~~must shall~~ be calculated using good engineering practices; ~~or,~~ if the landfill is closed ~~under pursuant to~~ the applicable regulations in 35 Ill. Adm. Code, Subtitle G, the actual capacity ~~specified~~ in the closure plan. 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 2.5 million Mg or 2.5 million m³, the calculation must include a site-specific density, which must be recalculated annually.

"Disposal facility" means all contiguous land and structures, and improvements on the land used for the disposal of solid waste. Portions of the disposal facility may be separated by access roads.

"Emission rate cutoff" means the threshold annual emission rate to which a

87 landfill compares its estimated emission rate to determine if control under this
 88 Part is required.

89
 90 "Enclosed combustor" means an enclosed firebox. Examples include, ~~but are not~~
 91 ~~limited to,~~ an enclosed flare, a boiler, and an internal combustion engine.

92
 93 "Flare" means an open combustor without enclosure or shroud.

94
 95 "Gas mover equipment" means the equipment (i.e., fan, blower, compressor) used
 96 to transport landfill gas through the header system.

97
 98 *"Household waste" means any solid waste (including garbage, trash, and sanitary*
 99 *waste in septic tanks) derived from households (including, but not limited to,*
 100 *single and multiple residences, hotels and motels, bunkhouses, ranger stations,*
 101 *crew quarters, campgrounds, picnic grounds, and day-use recreation areas).*
 102 [415 ILCS 5/3.230](Section 3.89 of the Act)

103
 104 "Inactive landfill" means a landfill in which solid waste is no longer being placed,
 105 and that is no longer permitted to accept waste under Section 21 of the Act or has
 106 a federally enforceable permit condition prohibiting the acceptance of additional
 107 waste. If an inactive landfill is subsequently permitted to accept additional waste
 108 and additional solid waste is placed in the landfill, the landfill is no longer
 109 inactive.

110
 111 "Industrial waste" means solid waste generated by manufacturing or industrial
 112 processes that is not a hazardous waste regulated under Subtitle C of RCRA, 40
 113 CFR 264 and 265. ~~This Such~~ waste may include, ~~but is not limited to,~~ waste
 114 resulting from the following manufacturing processes: electric power generation;
 115 fertilizer/agricultural chemicals; food and related products/by-products; inorganic
 116 chemicals; iron and steel manufacturing; leather and leather products; nonferrous
 117 metals manufacturing/foundries; organic chemicals; plastics and resins
 118 manufacturing; pulp and paper industry; rubber and miscellaneous plastic
 119 products; stone, glass, clay, and concrete products; textile manufacturing;
 120 transportation equipment; and water treatment. This term does not include mining
 121 waste or oil and gas waste.

122
 123 "Interior well" means any well or similar collection component located inside the
 124 perimeter of the landfill. A perimeter well located outside the landfilled waste is
 125 not an interior well.

126
 127 "Landfill" means an area of land or an excavation in which wastes are placed for
 128 permanent disposal, and that is not a land application unit, surface impoundment,
 129 or an underground injection well. For ~~the purposes of~~ this Part, landfills include

130 waste piles.

131
 132 "Lateral expansion" means a horizontal expansion of the waste boundaries of an
 133 existing MSW landfill. A lateral expansion is not a modification for ~~the purposes~~
 134 ~~of filing an amended design capacity report~~ underpursuant to Section 220.210(a)
 135 ~~of this Part~~, unless it results in an increase in the design capacity of the landfill.

136
 137 "Modification" means an increase in the permitted volume design capacity of the
 138 landfill by either horizontal or vertical expansion.

139
 140 "Municipal solid waste (MSW)" means household waste.

141
 142 "Municipal solid waste (MSW) landfill" means an entire disposal facility or
 143 landfill in a contiguous geographical space where household waste is placed in or
 144 on land. An MSW landfill may also receive other types of RCRA Subtitle D
 145 wastes, such as commercial solid waste, nonhazardous sludge, conditionally
 146 exempt small quantity generator waste, and industrial solid waste. Portions of an
 147 MSW landfill may be separated by access roads. An MSW landfill may be
 148 publicly or privately owned or operated.

149
 150 "Municipal solid waste (MSW) landfill emissions" means gas generated by
 151 decomposition of organic waste deposited in an MSW landfill or derived from the
 152 evolution of organic compounds in the waste.

153
 154 "Nondegradable waste" means any waste that does not decompose through
 155 chemical breakdown or microbiological activity. Examples include, ~~but are not~~
 156 ~~limited to~~, concrete, municipal waste combustor ash, and metals.

157
 158 "Nonmethane organic compounds (NMOC)" means nonmethane organic
 159 compounds, as measured according to ~~the provisions of~~ Section 220.260 ~~of this~~
 160 ~~Part~~.

161
 162 "Passive collection system" means a gas collection system that uses solely
 163 positive pressure within the landfill to move the gas rather than using gas mover
 164 equipment.

165
 166 "Putrescible waste" means a solid waste that contains organic matter capable of
 167 being decomposed by microorganisms ~~so as~~ to cause a malodor, gases, or other
 168 offensive conditions, or which is capable of providing food for birds and vectors.
 169 Putrescible wastes may form a contaminated leachate from microbiological
 170 degradation, chemical processes, and physical processes. Putrescible waste
 171 includes, ~~but is not limited to~~, garbage, offal, dead animals, general household
 172 waste, and commercial waste. All solid wastes that do not meet the definitions of

inert or chemical wastes ~~must~~ shall be considered putrescible wastes.

"Sludge" means 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. ~~This term excludes, exclusive of~~ the treated effluent from a wastewater treatment plant.

"Solid waste" means a waste that is defined as an inert waste, ~~as~~ a putrescible waste, ~~as~~ a chemical waste, or ~~as~~ a special waste, and which is also not defined as a hazardous waste ~~under pursuant to~~ 35 Ill. Adm. Code 721.

"Sufficient density" means 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 Part.

"Sufficient extraction rate" means 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 ~~because as a result~~ of expansion or excess surface emissions, for the life of the blower.

(Source: Amended at 50 Ill. Reg. _____, effective _____)

Section 220.120 Abbreviations

Act	Illinois Environmental Protection Act
Agency	Illinois Environmental Protection Agency
Board	Illinois Pollution Control Board
°C°E	degrees Celsius or centigrade
cm	centimeters
CAAPP	Clean Air Act Permit Program
°F°F	degrees Fahrenheit
hr	hours
m	meters
m ³	cubic meters
Mg	megagrams
MMbtummbtu	million British thermal units
MSW	municipal solid waste
MW	megawatt; 1 million watts
NMOC	nonmethane organic compounds
NO_xNO_x	nitrogen oxides
ppm	parts per million
ppmv	parts per million by volume

RCRA	Resource Conservation and Recovery Act
SIP	State Implementation Plan
USEPA	United States Environmental Protection Agency
VOC	volatile organic compounds
VOM	volatile organic material
yr	years

(Source: Amended at 50 Ill. Reg. _____, effective _____)

SUBPART B: MSW LANDFILLS

Section 220.200 Applicability

- a) Except as provided in subsection (b) ~~of this Section~~, an owner or operator of an MSW landfill for which construction or modification commenced before May 30, 1991, is subject to ~~the requirements of~~ this Subpart if the landfill has accepted waste at any time since November 8, 1987, or has additional design capacity available for future waste deposition.
- b) Any MSW landfill that commenced construction, reconstruction, or modification on or after May 30, 1991, is subject to ~~the requirements of~~ 40 CFR 60, Subpart WWW, in lieu of ~~the requirements of~~ this Part.

(Source: Amended at 50 Ill. Reg. _____, effective _____)

Section 220.210 Compliance Requirements and Schedule

- a) Each owner or operator of an MSW landfill ~~withhaving~~ a design capacity less than 2.5 million Mg by mass or 2.5 million m³ by volume ~~mustshall~~ submit an initial design capacity report to the Agency ~~underas provided in~~ Section 220.280(a) ~~of this Subpart~~. The owner or operator may calculate design capacity in either Mg or m³ ~~to compare for comparison~~ with the exemption values. Any density conversions ~~mustshall~~ be documented and submitted with the report. If the landfill is subsequently modified, then the owner or operator ~~mustshall~~ submit to the Agency an amended design capacity report ~~underas provided for in~~ Section 220.280(a)(3) ~~of this Subpart~~. Submittal of an initial design capacity report and, if applicable, an amended design capacity report ~~mustshall~~ fulfill the requirements of this Subpart. ~~Under Pursuant to~~ Section 220.200(b) ~~of this Subpart~~, modification of an MSW landfill will subject it to ~~the requirements of~~ 40 CFR 60, Subpart WWW.
- b) An owner or operator of an MSW landfill ~~withhaving~~ a design capacity equal to or greater than 2.5 million Mg and 2.5 million m³ ~~mustshall~~ submit an initial

design capacity report and initial ~~emissionemissions~~ rate report to the Agency ~~under, as provided in~~ Section 220.280(a) and (b) ~~of this Subpart~~, and comply with either subsection (c) or (d) ~~of this Section~~.

c) For MSW landfills with an NMOC ~~emissionemissions~~ rate less than 50 Mg/yr, the owner or operator ~~mustshall~~:

1) Submit an emission rate report ~~under, as provided by~~ Section 220.280(b) ~~of this Subpart~~, to the Agency; and

2) Recalculate the NMOC emission rate using the procedures ~~specified in~~ Section 220.260(a) ~~of this Subpart~~ until ~~such time as~~ the calculated NMOC emission rate is equal to or greater than 50 Mg/yr, at which time ~~the provisions of~~ subsection (d) ~~will of this Section shall~~ apply, or the landfill is inactive.

d) For MSW landfills with emissions equal to or greater than 50 Mg/yr, calculated ~~under pursuant to~~ Section 220.260(a) ~~of this Subpart~~, within 30 months after the date when the first annual NMOC emission rate report equals or exceeds 50 Mg/yr, an owner or operator ~~mustshall~~:

1) Install and operate:

A) A gas collection and control system meeting the gas collection system and control requirements of Sections 220.220 and 220.230 ~~of this Subpart~~; or

B) An alternate gas collection and control system using alternate procedures for gas collection and control, determining compliance, monitoring, operation, testing, recordkeeping, or reporting instead of those ~~provided for~~ in this Subpart, as approved by the Agency or Board ~~and, as~~ meeting the requirements in Section 220.220(d) or (e), or Section 220.230(d) or (e) ~~of this Subpart~~. ~~The Such~~ alternate system ~~is shall~~ be effective only when included in a federally enforceable permit or approved as a SIP revision.

2) Certify compliance: Within ~~six 6~~ months ~~after of~~ initial startup or upon change in method of compliance, or by October 31, 2001, whichever is later, the owner or operator of an MSW landfill subject to ~~the control requirements of~~ this Subpart must certify compliance with ~~the requirements of~~ this Subpart by submitting to the Agency ~~the following~~:

A) A description of the gas collection and control system used;

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- B) The date the system was installed; and
- C) A demonstration that the control system meets the requirements of Section 220.230 ~~of this Subpart~~:
 - i) For active collection systems: the reduction efficiency or ppmv must be established by a performance test using the test methods required ~~underpursuant to~~ Section 220.260(d) ~~of this Subpart~~; or
 - ii) For open flares: compliance with ~~the requirements of~~ 40 CFR 60.18, incorporated by reference in Section 220.130 ~~of this Part~~, must be established.

(Source: Amended at 50 Ill. Reg. _____, effective _____)

Section 220.220 Gas Collection System Requirements

- a) Each owner or operator of an MSW landfill ~~withhaving~~ a design capacity equal to or greater than 2.5 million Mg and 2.5 million m³, and a calculated NMOC emission rate equal to or greater than 50 Mg/yr, must install and operate a gas collection system that meets the requirements of either subsection (b), (c), (d), or (e) ~~of this Section~~ and:
 - 1) Handles maximum expected gas flow rate from the entire area of the MSW landfill that warrants control ~~underpursuant to~~ subsection (b)(1)(D) ~~of this Section~~ for the period required in Section 220.250(h) ~~of this Subpart~~, as calculated ~~underpursuant to~~ Section 220.240(a) ~~of this Subpart~~;
 - 2) Collects 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~~:
 - A) ~~Five~~5 years or more, if active; or
 - B) ~~Two~~2 years or more if closed or at final grade;
 - 3) Is designed to minimize off-site migration of subsurface gas;
 - 4) Routes all the collected gas to a control system that complies with ~~the requirements in~~ Section 220.230 ~~of this Subpart~~; and

- 321 5) Collects and treats gas in ~~compliance~~ ~~accordance~~ with the applicable
 322 requirements of 35 Ill. Adm. Code- Subtitle G.
 323
- 324 b) Active Collection Systems:
 325
- 326 1) Active collection wells, horizontal collectors, surface collectors, or other
 327 extraction devices ~~must~~ ~~shall~~ be sited at a sufficient density throughout all
 328 gas producing areas using the following procedures:
 329
- 330 A) The collection devices within the interior and along the perimeter
 331 areas ~~must~~ ~~shall~~ be designed to achieve comprehensive control of
 332 surface gas emissions.
 333
- 334 B) The sites for gas collection devices, as determined in subsection
 335 (b)(1)(A) ~~of this Section~~, ~~must~~ ~~shall~~ address landfill gas migration
 336 issues and augmentation of the collection system ~~with through the~~
 337 ~~use of~~ active or passive systems at the landfill perimeter or
 338 exterior.
 339
- 340 C) ~~The collection system must collect~~ ~~Collect~~ gas at a sufficient
 341 extraction rate, as defined at Section 220.110 ~~of this Part~~.
 342
- 343 D) The placement of gas collection devices, ~~as~~ determined in
 344 subsection (b)(1)(A), ~~must of this Section shall~~ control all gas
 345 producing areas, except as provided by this subsection (b)(1)(D).
 346
- 347 i) Any segregated area of asbestos or nondegradable material
 348 may be excluded from collection, if documented ~~as~~
 349 ~~provided~~ under Section 220.280(f)(3) ~~of this Subpart~~. The
 350 documentation ~~must~~ ~~shall~~ provide the nature, date of
 351 deposition, location, and amount of asbestos or
 352 nondegradable material deposited in the area, and ~~must~~ ~~shall~~
 353 be provided to the Agency upon request.
 354
- 355 ii) Any nonproductive area of the landfill may be excluded
 356 from control ~~if provided that~~ the total of all excluded areas
 357 can be shown to contribute less than 1% ~~percent~~ of the total
 358 amount of NMOC emissions from the landfill. The amount,
 359 location, and age of the material ~~must~~ ~~shall~~ be documented
 360 and provided to the Agency upon request. A separate
 361 NMOC emissions estimate ~~must~~ ~~shall~~ be made for each
 362 section proposed for exclusion, and the sum of all
 363 ~~thesesuch~~ sections ~~must~~ ~~shall~~ be compared to the NMOC

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emissions estimate for the entire landfill, as calculated ~~underpursuant to~~ Section 220.260 ~~of this Subpart~~. Emissions from each section ~~mustshall~~ be computed using the following equation:

$$Q_i = 2kL_oM_i(e^{-kt^i})(C_{NMOC})(3.6 \times 10^{-9})$$

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where:

- Q_i = NMOC emission rate from the i^{th} section, Mg/yr
- k = methane generation rate constant, yr^{-1}
- L_o = methane generation potential, m^3 per Mg solid waste
- M_i = mass of degradable solid waste in the i^{th} section, years
- t_i = age of the solid waste in the i^{th} section, years
- C_{NMOC} = concentration of NMOC, ppmv
- 3.6×10^{-9} = Conversion factor

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The values for k and C^{NMOC} determined in field testing ~~mustshall~~ be used, if field testing has been performed ~~to determinein 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 Section 220.260(a)(1) ~~mustof this Subpart 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 ~~if, provided~~ the nature, location, age, and amount of the nondegradable material is documented.

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- 2) The gas collection devices ~~mustshall~~ be constructed using the following equipment or procedures:
 - A) The landfill gas extraction components ~~mustshall~~ 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 ~~must~~ extend as necessary to comply with emission and migration standards. Collection devices, such as wells and horizontal collectors, ~~must~~ be perforated to allow gas entry without head loss sufficient to impair performance across the intended extent of control. Perforations ~~must~~ be situated ~~with regard to the need~~ to prevent excessive air infiltration.

B) Vertical wells ~~must~~ be placed ~~without endangering~~ ~~so as not to endanger~~ underlying liners and ~~must~~ address the occurrence of water within the landfill. Holes and trenches constructed for piped wells and horizontal collectors ~~must~~ be of sufficient cross-section ~~so as to~~ allow for their proper construction and completion, including, for example, centering ~~of~~ pipes and ~~placing~~ placement of gravel backfill. Collection devices ~~must~~ be designed ~~so as not to~~ allow indirect short circuiting of air into the cover, refuse into the collection system, or gas into the air. Any gravel used around pipe perforations should be ~~of~~ a dimension ~~which does~~ ~~so as not to~~ penetrate or block perforations.

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

3) The landfill gas ~~must~~ be conveyed to a gas control system through the collection header pipe(s). The gas mover equipment ~~must~~ be sized to handle the maximum gas generation flow rate expected for the period of intended use ~~underpursuant to~~ Section 220.250(h) ~~of this Subpart~~ using the following procedures:

A) For existing gas collection systems, the flow data ~~must~~ be used to project the maximum flow rate. If no flow data exists, the procedures in subsection (b)(3)(B) ~~must of this Section shall~~ be used.

B) For new gas collection systems, the maximum flow rate ~~must comply shall be in accordance~~ with Section 220.240(a) ~~of this Subpart~~.

- 438 c) Passive Collection Systems:
 439
 440 1) A passive collection system ~~must~~shall be installed with liners on the
 441 bottom and all sides in all areas in which gas is to be collected. The liners
 442 ~~must~~shall meet all requirements ~~specified~~in 35 Ill. Adm. Code 811.306.
 443
 444 2) The collection and control system ~~must~~shall either conform with the
 445 specifications for active collection systems in subsection (a) ~~of this~~
 446 ~~Section~~ or the owner or operator must obtain the Agency's approval for
 447 alternate provisions ~~underas provided for in~~ subsection (d) ~~of this Section~~.
 448
 449 d) Alternate Collection Systems:
 450 An owner or operator seeking to install an alternate gas collection system
 451 ~~must~~shall demonstrate to the Agency that ~~thesueh~~ collection system is capable of
 452 capturing the maximum expected gas flow rate from the entire area of the MSW
 453 landfill, for the period required in Section 220.250(h) ~~of this Subpart~~, as
 454 calculated ~~underpursuant to~~ Section 220.240(a) ~~of this Subpart~~, and in an
 455 equivalent manner to ~~whatthat required by~~ this Section ~~requires~~. Any alternate
 456 gas collection system must be approved by the Agency. ~~TheSueh~~ alternate
 457 ~~will~~shall be effective only when included in a federally enforceable permit or
 458 approved as a SIP revision. The alternate ~~must~~shall include any alternate
 459 procedures for collection, control, compliance, monitoring, operation, testing,
 460 reporting, and recordkeeping that are appropriate.
 461
 462 e) Alternate Emissions Standard:
 463 ~~UnderPursuant to~~ Section 28.1 of the Act [415 ILCS 5/28.1], and in
 464 ~~complianceaceordance~~ with 35 Ill. Adm. Code 106.5, Subpart G, provisions for
 465 adjusted standards, adjusted standards for alternate emissions standards, or
 466 alternate emissions standards with an alternate compliance schedule ~~will~~shall be
 467 granted by the Board, to the extent consistent with federal law. An owner or
 468 operator seeking an alternate emissions standard or an alternate emissions
 469 standard with an alternate compliance schedule must demonstrate to the Board
 470 that, ~~with respect to the MSW landfill~~, the control requirements ~~for the MSW~~
 471 ~~landfill~~ meet one or more of the criteria ~~listed~~in this subsection (e), ~~under~~
 472 ~~pursuant to~~ 40 CFR 60.24(f). ~~TheAny sueh~~ request must be approved by the
 473 Board. ~~TheSueh~~ alternate ~~will~~shall be effective only when included in a federally
 474 enforceable permit or approved as a SIP revision. Any alternate ~~must~~shall include
 475 any procedures for collection, control, compliance, monitoring, operation, testing,
 476 reporting, and recordkeeping that are appropriate and a demonstration that the
 477 control requirements, ~~as contained~~ in this Subpart, as they apply to the MSW
 478 landfill, meet one or more of the following criteria:
 479
 480 1) Unreasonable cost of control resulting from plant age, location, or basic

- 481 process design;
- 482
- 483 2) Physical impossibility of installing necessary control equipment; or
- 484
- 485 3) Other factors specific to the MSW landfill that support an alternate
- 486 emissions standard or alternate emissions standard with final compliance
- 487 date.
- 488

489 (Source: Amended at 50 Ill. Reg. _____, effective _____)

490

491 **Section 220.230 Gas Control System Requirements**

492

493 Each owner and operator of an MSW landfill subject to the control requirements of this Subpart

494 must install and operate a gas collection system that routes all the collected gas to a gas control

495 system that complies with ~~the requirements in~~ subsection (f) and either install a gas control

496 system, as described in either subsection (a), (b), or (c) ~~of this Section~~; or obtain approval of and

497 install an alternate gas control system ~~underpursuant to~~ subsection (d) or (e) ~~of this Section~~.

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- 499 a) An open flare designed and operated in ~~complianceaeoordanee~~ with 40 CFR
- 500 60.18, incorporated by reference in Section 220.130 of this Part.
- 501
- 502 b) A control system designed and operated to reduce NMOC by 98 weight-percent,
- 503 or, when an enclosed combustion device is used for control, to either reduce
- 504 NMOC by 98 weight-percent or reduce the outlet NMOC concentration to less
- 505 than 20 ppmv, dry basis as hexane at ~~3%-percent~~ oxygen. The reduction
- 506 efficiency or ppmv must be established by an initial performance test required
- 507 ~~underpursuant to~~ Section 220.210(d)(2), using the test methods required under
- 508 Section 220.260(d) ~~of this Subpart~~:
- 509
- 510 1) If a boiler or process heater is used as the control device, the landfill gas
- 511 stream ~~mustshall~~ be introduced into the flame zone.
- 512
- 513 2) The control device ~~mustshall~~ be operated within the parameter ranges
- 514 established during the initial or most recent performance test. The
- 515 operating parameters to be monitored are ~~specified~~ in Section 220.270 ~~of~~
- 516 ~~this Subpart~~. The initial performance test must be performed within ~~six6~~
- 517 months after startup or by October 31, 2001, whichever is later.
- 518
- 519 c) A treatment system that processes the collected gas for subsequent sale or use.
- 520 All emissions from any atmospheric vent from the gas treatment system ~~areshall~~
- 521 ~~be~~ subject to ~~the requirements of~~ subsection (b) ~~of this Section~~.
- 522
- 523 d) An alternate gas control system approved by the Agency. An owner or operator

524 seeking to install an alternate gas control system ~~must~~ demonstrate to the
 525 Agency that ~~the~~ collection system is capable of control equivalent to
 526 subsection (b) ~~of this Section~~. ~~The~~ alternate ~~will~~ be effective only when
 527 included in a federally enforceable permit or approved as a SIP revision. The
 528 alternate ~~must~~ include any alternate procedures for collection, control,
 529 compliance, monitoring, operation, testing, reporting, and recordkeeping that are
 530 appropriate.

531
 532 e) ~~Under Pursuant to~~ Section 28.1 of the Act [415 ILCS 5/28.1], and in
 533 ~~compliance accordance~~ with 35 Ill. Adm. Code 106.5, Subpart G, provisions for
 534 adjusted standards, adjusted standards for alternate emissions standards, or
 535 alternate emissions standards with an alternate compliance schedule ~~will~~ be
 536 granted by the Board, to the extent consistent with federal law. An owner or
 537 operator seeking an alternate emissions standard or an alternate emissions
 538 standard with an alternate compliance schedule must demonstrate to the Board
 539 that, ~~with respect to the MSW landfill~~, the control requirements ~~for the MSW~~
 540 ~~landfill~~ meet one or more of the criteria ~~listed~~ in this subsection (e), ~~under pursuant~~
 541 ~~to~~ 40 CFR 60.24(f). ~~The~~ ~~Any~~ ~~such~~ request must be approved by the Board.
 542 ~~The~~ ~~Such~~ alternate ~~will~~ be effective only when included in a federally
 543 enforceable permit or approved as a SIP revision. Any alternate ~~must~~ include
 544 any procedures for collection, control, compliance, monitoring, operation, testing,
 545 reporting, and recordkeeping that are appropriate and a demonstration that the
 546 control requirements ~~as contained~~ in this Subpart, as they apply to the MSW
 547 landfill, meet one or more of the following criteria:

- 548
- 549 1) Unreasonable cost of control resulting from plant age, location, or basic
- 550 process design;
- 551
- 552 2) Physical impossibility of installing necessary control equipment; or
- 553
- 554 3) Other factors specific to the MSW landfill that support an alternate
- 555 emissions standard or alternate emissions standard with final compliance
- 556 date.
- 557

558 f) Gas control systems must be operated in ~~compliance accordance~~ with a permit
 559 issued ~~under pursuant to~~ the applicable requirements of 35 Ill. Adm. Code, Subtitle
 560 G.

561
 562 (Source: Amended at 50 Ill. Reg. _____, effective _____)

563 **Section 220.240 Compliance Procedures for Gas Collection Systems**

564
 565 a) The methods ~~specified~~ in subsections (a)(1) through (a)(6) ~~must of this Section~~

566

567 shall be used to determine whether the gas collection system ~~complies in~~
 568 ~~compliance~~ with Section 220.220 ~~of this Subpart~~.

569
 570 1) To calculate the maximum expected gas generation flow rate from the
 571 MSW landfill, one of the following equations ~~must~~ be used. The k
 572 and L_o kinetic factors ~~must~~ be those published in the Compilation of
 573 Air Pollutant Emission Factors (AP-42), incorporated by reference in
 574 Section 220.130 ~~of this Part~~, or other site-specific emission factors
 575 approved by the Agency. If k has been determined ~~under as specified in~~
 576 Section 220.260(a)(4) ~~of this Subpart~~, the value of k determined from the
 577 test ~~must~~ be used. A value of no more than 15 years ~~must~~ be
 578 used for the intended use period of the gas mover equipment, the variable
 579 t. The active life of the landfill is the age of the landfill plus the estimated
 580 number of years until closure.

581
 582 A) For sites with unknown year-to-year solid waste acceptance rate:
 583

$$Q_m = 2L_oR(e^{-kc} - e^{-kt})$$

584 where:

- 585 Q_m = maximum expected gas generation flow rate, m³/yr
- 586 L_o = methane generation potential, m³ per Mg solid waste
- R = average annual acceptance rate, Mg/yr
- k = methane generation rate constant, yr⁻¹
- t = age in years of the landfill at equipment installation plus
 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 in
 years is the age of the landfill at installation
- c = time since closure, years (for an active landfill c = 0 and
 e^{-kc}=1)

587
 588 B) For sites with known year-to-year solid waste acceptance rates:
 589

$$Q_m = \sum_{i=1}^n 2kL_oM_i(e^{-kti})$$

590 where:

- 591 Q_m = maximum expected gas generation flow rate, m³/yr
- 592

k = methane generation rate constant, yr^{-1}

L_0 = methane generation potential, m^3 per Mg solid waste

M_i = mass of solid waste in the i^{th} section, Mg

t_i = age of the i^{th} section, yr

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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 subsections (a)(1)(A) and (a)(1)(B) ~~of this Section~~. If the landfill is still accepting waste, the actual measured flow data will not equal the maximum expected gas generation rate, so calculations made using the equations in subsection (a)(1)(A) or (a)(1)(B) ~~of this Section~~ or other methods must shall be used to predict the maximum gas generation rate over the intended period of use of the gas control system equipment.

2) ~~To determine~~For the purpose of determining the sufficient number of gas collectors, the owner or operator must shall design a system of vertical wells, horizontal collectors, or other type of collection device, capable of controlling and extracting gas from all portions of the landfill and sufficient to meet the operational and performance standards of Sections 220.220 through 220.250. ~~The Such~~ design must be approved by the Agency as part of an air construction permit or a CAAPP permit, if the gas collection system was installed ~~before prior to~~ July 31, 1998.

3) ~~To determine~~For the purpose of demonstrating whether the gas collection system flow rate of an active collection system is sufficient, the owner or operator must shall measure gauge pressure in the gas collection header at each individual well monthly. If positive pressure exists, action must shall be initiated to correct the ~~exceedance exceedence~~ within ~~five~~5 calendar days, except for the three conditions ~~allowed~~ under Section 220.250(b) ~~of this Subpart~~. If negative pressure cannot be achieved without excess air infiltration within 15 calendar days after the first measurement, the gas collection system must shall be expanded to correct the ~~exceedance exceedence~~ within 120 days after the initial measurement of positive pressure. Any attempted corrective measure must not cause ~~exceedances exceedences~~ of other operational or performance standards. An alternate timeline ~~to correct for correcting~~ the ~~exceedance exceedence~~ may be submitted to the Agency for approval.

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- 4) Owners or operators are not required to expand the system, as required in subsection (a)(3) ~~of this Section~~, during the first 180 days after gas collection system startup.
 - 5) ~~To identify~~ ~~For purposes of identifying~~ whether excess air infiltration into the landfill is occurring, the owner or operator ~~must~~ ~~shall~~ monitor each well on a monthly basis for temperature and nitrogen or oxygen ~~under, as provided in~~ Section 220.250(c) ~~of this Subpart~~. If a well exceeds one of these operating parameters, action ~~must~~ ~~shall~~ be initiated to correct the ~~exceedance~~ ~~exceedence~~ within ~~five~~ ~~5~~ calendar days. If correction of the ~~exceedance~~ ~~exceedence~~ cannot be achieved within 15 calendar days after the first measurement, the gas collection system ~~must~~ ~~shall~~ be expanded to correct the ~~exceedance~~ ~~exceedence~~ within 120 days after the initial ~~exceedance~~ ~~exceedence~~. An alternate timeline ~~to correct~~ ~~for correcting~~ the ~~exceedance~~ ~~exceedence~~ may be submitted to the Agency for approval.
 - 6) An owner or operator using a collection system that does not conform to ~~the specifications provided in~~ Section 220.220(b) or (c) ~~must~~ ~~of this Subpart~~ ~~shall~~ provide information satisfactory to the Agency ~~under, as specified in~~ Section 220.220(d) ~~of this Subpart~~, demonstrating that off-site migration is being controlled.
- b) To comply with the operational standards in Section 220.250(a) ~~of this Subpart~~, each owner or operator of a controlled landfill ~~must~~ ~~shall~~ install each well or design component as specified in a construction permit issued by the Agency. Each well ~~must~~ ~~shall~~ be installed ~~within~~ ~~no later than~~ 60 days after the date on 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 ~~must~~ ~~shall~~ be used ~~to comply for compliance~~ with the surface methane operational standard ~~as provided in~~ Section 220.250(d) ~~of this Subpart~~.
- 1) After ~~installing~~ ~~installation of~~ the collection system, the owner or operator ~~must~~ ~~shall~~ monitor surface concentrations of methane along the entire perimeter of the collection area and along a pattern that traverses the landfill at 30-meter intervals (or 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 (d) ~~of this Section~~.

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- 2) The background concentration ~~must~~ shall be determined by moving the probe inlet upwind and downwind outside the boundary of the landfill at a distance of at least 30 meters from the perimeter wells.

- 3) Surface emission monitoring ~~must~~ shall be performed in ~~compliance~~ accordance with ~~Section~~ section 4.3.1 of Method 21, ~~of Appendix A, 40 CFR 60. Appendix A,~~ incorporated by reference in Section 220.130 ~~of this Part,~~ except that the probe inlet ~~must~~ shall be placed within 5 to 10 cm of the ground. Monitoring ~~must~~ shall be performed during typical meteorological conditions.

- 4) Any reading of 500 ppm or more above background at any location ~~must~~ shall be recorded as a monitored ~~exceedance, exceedence~~ and the actions ~~specified~~ in subsections (c)(4)(A) through (c)(4)(E) ~~must of this Section shall~~ be taken. As long as the actions ~~specified~~ below are taken, the ~~exceedance, exceedence~~ is not a violation of ~~the operational requirements of~~ Section 220.250(d) ~~of this Subpart.~~
 - A) The location of each monitored ~~exceedance, exceedence 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, exceedence shall~~ be made, and the location ~~must~~ shall be remonitored within 10 calendar days after detecting the ~~exceedance, exceedence.~~

 - C) If the remonitoring of the location shows a second ~~exceedance, exceedence,~~ additional corrective action ~~must~~ shall be taken, and the location ~~must~~ shall be monitored again within 10 days after the second ~~exceedance, exceedence.~~ If the remonitoring shows a third ~~exceedance, exceedence~~ for the same location, the action ~~specified~~ in subsection (c)(4)(E) ~~must of this Section shall~~ be taken. No further monitoring of that location is required until the action ~~specified~~ in subsection (c)(4)(E) ~~of this Section~~ has been taken.

 - D) If the remonitoring of the location does not show an ~~exceedance, underexceedence, as specified by~~ subsection (c)(4)(B) or (c)(4)(C), the location ~~must~~ shall be remonitored ~~one month, 1 month~~ from the initial ~~exceedance, exceedence.~~ If the ~~one month, 1 month~~ remonitoring shows a concentration less than 500 ppm above

background, no further monitoring of that location is required until the next quarterly monitoring period. If the ~~one-month~~ month remonitoring shows an ~~exceedance~~ exceedence, the actions ~~specified~~ in subsection (c)(4)(C) or (c)(4)(E) ~~of this Section~~, as appropriate, ~~must~~ shall be taken.

E) For any location where there are three monitored ~~exceedances~~ exceedences within a quarterly period, a new well or other collection device ~~must~~ shall be installed within 120 calendar days after the initial ~~exceedance~~ exceedence. An alternate remedy to the ~~exceedance~~ exceedence, such as upgrading the blower, header pipes, or control device, and a corresponding timeline for installation may be submitted to the Agency for approval.

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

d) The following instrumentation specifications and procedures for surface emission monitoring devices apply to the monitoring required by subsection (c) ~~of this Section~~:

1) The portable analyzer ~~provided~~ must ~~of~~ shall meet the instrument specifications ~~provided~~ in Section 3 ~~of~~ shall Method 21, ~~Appendix A~~, 40 CFR 60. ~~Appendix A~~, incorporated by reference in Section 220.130 ~~of this Part~~, except that methane ~~must~~ shall replace all references to VOC.

2) The calibration gas ~~must~~ shall be methane, diluted to a nominal concentration of 500 ppm in air.

3) To meet the performance evaluation requirements in Section 3.1.3 ~~of~~ shall Method 21, ~~Appendix A~~, 40 CFR 60. ~~Appendix A~~, incorporated by reference in Section 220.130 ~~of this Part~~, the instrument evaluation procedures of Section 4.4 of Method 21, ~~Appendix A~~, 40 CFR 60. ~~Appendix A~~, incorporated by reference in Section 220.130 ~~of this Part~~, ~~must~~ shall be used.

4) The calibration procedures ~~provided~~ in Section 4.2 ~~of~~ shall Method 21, ~~Appendix A~~, 40 CFR 60. ~~Appendix A~~, incorporated by reference in Section 220.130, ~~must~~ shall ~~of this Part~~, ~~shall~~ be followed immediately before commencing a surface monitoring survey.

e) The MSW landfill owners or operators are required to comply with ~~the provisions~~

758 ~~of~~ this Subpart at all times, except during periods of start-up, shutdown, or
 759 malfunction. However, provided that the duration of start-up, shutdown, or
 760 malfunction must not exceed five days for collection systems and must not
 761 exceed one hour for treatment or control devices.

762
 763 (Source: Amended at 50 Ill. Reg. _____, effective _____)
 764

765 **Section 220.250 Operational Standards for Collection and Control Systems**
 766

767 Each owner or operator of an MSW landfill with a gas collection and control system mustshall:

- 768
- 769 a) Operate the collection system sosueh that gas is collected from each area, cell, or
 770 group of cells in the MSW landfill in which the initial solid waste has been in
 771 place for:
 - 772
 - 773 1) Five years or more, if active; or
 - 774
 - 775 2) Two years or more, if closed or at final grade.
 - 776
 - 777 b) Operate the collection system with negative pressure at each wellhead, except
 778 under the following conditions:
 - 779
 - 780 1) A fire or increased well temperature. The owner or operator mustshall
 781 record instances when positive pressure occurs in efforts to avoid a fire.
 782 These records mustshall be submitted with the annual reports underas
 783 provided in Section 220.280(e)(1) ~~of this Subpart~~.
 - 784
 - 785 2) Use of a geomembrane or synthetic cover. The owner or operator
 786 mustshall develop pressure limits associated with thesueh-a cover that
 787 must be approved by the Agency.
 - 788
 - 789 3) A decommissioned well. A well may experience a static positive pressure
 790 after shutdownshut-down to accommodate ~~for~~ declining flows. All design
 791 changes mustshall be approved by the Agency.
 - 792
 - 793 c) Operate each interior wellhead in the collection system with a landfill gas
 794 temperature less than 55 °C (131 °C)55°C (131°F) and with either a nitrogen level
 795 less than 20%-percent or an oxygen level less than 5%-percent. The owner or
 796 operator may establish a higher operating temperature, nitrogen, or oxygen value
 797 at a particular well. A higher operating value demonstration that provides
 798 supporting data to show that the elevated parameter does not cause fires or
 799 significantly inhibit anaerobic decomposition by killing methagens must be
 800 approved by the Agency before thesueh higher operating value may be used.

Operating values mustshall be determined as follows:

1) The nitrogen level mustshall be determined using Method 3C, Appendix A, 40 CFR 60.Appendix A, incorporated by reference in Section 220.130 of this Part.

2) The oxygen level mustshall be determined by an oxygen meter using Method 3A, Appendix A, 40 CFR 60.Appendix A, incorporated by reference in Section 220.130 of this Part, except that:

A) The span mustshall be set so that the regulatory limit is between 20 and 50%percent of the span;

B) A data recorder is not required;

C) Only two 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 10%percent.

d) Operate the collection system so that the methane concentration is less than 500 ppm above background at the surface of the landfill. To determine if this level is exceeded, the owner or operator mustshall conduct surface testing around the perimeter of the collection area and along a pattern that traverses the landfill at 30-meter intervals and where visual observations indicate elevated concentrations of landfill gas, such as distressed vegetation and cracks or seeps in the cover. An initial surface monitoring design plan mustshall be developed and included as part of the operating permit application (e.g., a CAAPP permit application) that includes a topographical map with the monitoring route and the rationale for any site-specific deviations from the 30-meter intervals. Areas with steep slopes or other dangerous areas may be excluded from the surface testing. The monitoring plan mustshall be updated as necessary. Updated copies must be sent to the Agency and kept on-site at the MSW landfill.

e) Operate the gas collection and control system so such that all collected gases are vented to a control system designed and operated in compliance with Sections 220.230, 220.250, and 220.270 of this Subpart. Ifn the event the collection or control system is inoperable, the gas mover system mustshall be shut down, and all valves in the collection and control system contributing to venting of the gas to the atmosphere mustshall be closed within one+ hour.

- 844
- 845 f) Operate the gas collection and control or treatment system at all times, except
- 846 during shutdown or malfunction. ~~However, provided that~~ the duration of start-up,
- 847 shutdown, or malfunction must not exceed ~~five~~5 days for collection systems and
- 848 must not exceed ~~one~~ hour for treatment or control devices.
- 849
- 850 g) If monitoring demonstrates that the operational requirements in subsection (b),
- 851 (c), or (d) ~~of this Section~~ are not met, take corrective action ~~under as specified in~~
- 852 Section 220.240(a)(3), (a)(5), or (c)(4) ~~of this Subpart~~. If ~~such~~ corrective actions
- 853 are taken ~~under as specified in~~ Section 220.240(a)(3), (a)(5), or (c)(4) ~~of this~~
- 854 ~~Subpart~~, the monitored ~~exceedance~~~~exceedence~~ is not a violation of the operational
- 855 requirements in this Section.
- 856
- 857 h) The collection and control system may be capped or removed ~~if provided:~~
- 858
- 859 1) The landfill is no longer accepting solid waste;
- 860
- 861 2) A system removal report has been submitted to the Agency ~~under, as~~
- 862 ~~provided in~~ Section 220.280(d) ~~of this Subpart~~;
- 863
- 864 3) The collection and control system has been operating ~~at least a minimum~~
- 865 ~~of~~ 15 years;
- 866
- 867 4) The calculated NMOC gas produced by the landfill is less than 50 Mg/yr
- 868 on three successive test dates, ~~under pursuant to~~ the procedures ~~specified in~~
- 869 Section 220.260(b) ~~of this Subpart~~. The test dates ~~must shall~~ be ~~at least no~~
- 870 ~~less than~~ 90 days apart, and no more than 180 days apart; and
- 871
- 872 5) The system is not required to satisfy any applicable requirement of 35 Ill.
- 873 Adm. Code- Subtitle G.
- 874

875 (Source: Amended at 50 Ill. Reg. _____, effective _____)

876

877 **Section 220.260 Test Methods and Procedures**

878

- 879 a) The landfill owner or operator ~~must shall~~ calculate the NMOC emission rate using
- 880 the equation ~~provided in~~ either subsection (a)(1)(A) or ~~subsection (a)(1)(B) of this~~
- 881 ~~Section~~ and make a determination that the emission rate is less than 50 Mg/yr,
- 882 ~~under pursuant to~~ subsection (a)(2), (a)(3), (a)(4), or (e), or install a gas collection
- 883 and control system ~~under pursuant to~~ Sections 220.220 and 220.230 ~~of this~~
- 884 ~~Subpart~~. However, both equations may be used if the actual year-to-year solid
- 885 waste acceptance rate is known, ~~under pursuant to~~ subsection (a)(1)(A) ~~of this~~
- 886 ~~Section~~, for part of the life of the landfill and the actual year-to-year solid waste

acceptance rate is unknown, ~~underpursuant to subsection (a)(1)(B) of this Section,~~ for part of the life of the landfill. If the NMOC emission rate calculated in this subsection is less than 50 Mg/yr, then the landfill owner mustshall submit an emission rate report ~~underas provided in Section 220.280(b) of this Subpart,~~ and mustshall recalculate the NMOC mass emission rate as required under Section 220.210(c) ~~of this Subpart.~~

- 1) The values to be used in both equations are 0.05/yr for k, 170 m³ per Mg for L_o, and 4,000 ppmv as hexane for the C_{NMOC}.
 - A) The following equation mustshall be used if the actual year-to-year solid waste acceptance rate is known:

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

where:

- M_{NMOC} = Total NMOC emission rate from the landfill, Mg/yr
- k = methane generation rate constant, yr⁻¹
- L_o = methane generation potential, m³ per Mg solid waste
- M_i = mass of solid waste in the ith section, Mg
- t_i = age of solid waste in the ith section, years
- C_{NMOC} = concentration of NMOC, ppmv as hexane
- 3.6 x 10⁻⁹ = conversion factor

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 Mⁱ if documentation of the nature and amount of such wastes is maintained.

- B) The following equation mustshall be used if the actual year-to-year solid waste acceptance rate is unknown:

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

where:

- M_{NMOC} = Total NMOC emission rate from the landfill, Mg/yr
- L_o = methane generation potential, m³ per Mg solid waste

- R = average annual acceptance rate, Mg/yr
- k = methane generation rate constant, year⁻¹
- t = age of landfill, years
- C_{NMOC} = concentration of NMOC, ppmv as hexane conversion factor
- c = time since closure, years (for active landfill c = 0 and e^{-kc} = 1)
- 3.6 x 10⁻⁹ = conversion factor

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The mass of nondegradable solid waste may be subtracted from the average annual acceptance rate when calculating a value for R, if documentation of the nature and amount of such wastes is maintained.

- 2) Tier 1. The landfill owner or operator mustshall calculate the NMOC mass emission rate using the equations ~~provided~~ in subsection (a)(1)(A) or (a)(1)(B) ~~of this Section~~. The owner or operator mustshall compare the calculated NMOC mass emission rate to the standard of 50 Mg/yr using the default values for the NMOC mass emission rate and the methane generation rate constant.

- 3) Tier 2. The landfill owner or operator mustshall calculate the NMOC mass emission rate using the equations ~~provided~~ in subsection (a)(1)(A) or (a)(1)(B) ~~of this Section~~ using the average NMOC concentration from the collected samples instead of the default value in the equations ~~provided~~ in subsection (a)(1) ~~of this Section~~. The landfill owner or operator mustshall determine the NMOC concentration using the following sampling procedure: The landfill owner or operator mustshall install at least ~~two~~ sample probes per hectare of landfill surface that has retained waste for at least ~~two~~ years. If the landfill is larger than 25 hectares in area, only 50 samples are required. The sample probes should be located to avoid known areas of nondegradable solid waste. The owner or operator mustshall collect and analyze one sample of landfill gas from each probe to determine the NMOC concentration using Method 25C or Method 18 of ~~Appendix A, 40 CFR 60.~~ Appendix A, incorporated by reference in Section 220.130 ~~of this Part~~. If using Method 18, the minimum list of compounds to be tested ~~are~~ shall be those ~~published~~ in the Compilation of Air Pollutant Emission Factors (AP-42), incorporated by reference in Section 220.130 ~~of this Part~~. If composite sampling is used, equal volumes mustshall be taken from each sample probe. If more than the required number of samples are taken, all samples mustshall be used in the analysis. Divide the NMOC concentration from Method 25C by ~~six~~ to convert from C_{NMOC} as carbon to C_{NMOC} as hexane. The owner or operator

951 ~~mustshall~~ retest the site-specific NMOC concentration every ~~five~~5 years
 952 using the methods ~~specified~~ in this Section.

953
 954 4) Tier 3. The landfill owner or operator ~~mustshall~~ estimate the NMOC mass
 955 emission rate using equations in subsection (a)(1)(A) or (a)(1)(B) ~~withof~~
 956 ~~this Section and using~~ a site-specific methane generation rate constant k,
 957 and the site-specific NMOC concentration as determined in subsection
 958 (a)(3)~~of this Section~~ instead of the default values ~~provided~~ in subsection
 959 (a)(1)~~of this Section~~. The site-specific methane generation rate constant
 960 ~~mustshall~~ be determined using the procedures ~~provided~~ in Method 2E,
 961 ~~Appendix A, 40 CFR 60. Appendix A,~~ incorporated by reference in
 962 Section 220.130~~of this Part~~. The calculation of the methane generation
 963 rate constant is performed only once, and the value obtained is used in all
 964 subsequent annual NMOC emission rate calculations. In addition,
 965 ~~underpursuant to~~ subsection (a)(3)~~of this Section~~, the owner or operator
 966 ~~mustshall~~ retest the site-specific NMOC concentration every ~~five~~5 years
 967 using the methods ~~specified~~ in that subsection.

968
 969 b) After the installation of a collection and control system in compliance with
 970 Sections 220.220 and 220.230~~of this Subpart~~, the owner or operator ~~mustshall~~
 971 calculate the NMOC emission rate ~~to determinefor purposes of determining~~ when
 972 the system can be removed ~~underas provided in~~ Section 220.250(h)~~of this~~
 973 ~~Subpart~~, using the following equation:

974
 975
$$M_{NMOC} = 1.89 \times 10^{-3} Q_{LFG} C_{NMOC}$$

976
 977 where:

- 978 M_{NMOC} = mass emission rate of NMOC (Mg/yr)
- Q_{LFG} = flow rate of landfill gas (m³/minute)
- C_{NMOC} = NMOC concentration (ppmv as hexane)

979
 980 1) The flow rate of landfill gas (Q_{LFG}) ~~mustshall~~ be determined by measuring
 981 the total landfill gas flow rate at the common header pipe that leads to the
 982 control device ~~withusing~~ a gas flow measuring device calibrated according
 983 to ~~the provisions of~~ Section 4 of Method 2E, ~~Appendix A, 40 CFR~~
 984 ~~60. Appendix A,~~ incorporated by reference in Section 220.130~~of this Part~~.

985
 986 2) The average NMOC concentration (C_{NMOC}) ~~mustshall~~ be determined by
 987 collecting and analyzing landfill gas sampled from the common header
 988 pipe before the gas moving or condensate removal equipment ~~underusing~~
 989 ~~the procedures in~~ Method 25C or Method 18, ~~Appendix A, 40 CFR~~
 990 ~~60. Appendix A,~~ incorporated by reference in Section 220.130~~of this Part~~.

991 If using Method 18, the minimum list of compounds to be tested ~~are~~
 992 ~~be~~ those ~~published~~ in the Compilation of Air Pollutant Emission Factors
 993 (AP-42), incorporated by reference in Section 220.130 ~~of this Part~~. The
 994 sample location on the common header pipe ~~must~~ be before any
 995 condensate removal or other gas refining units. The landfill owner or
 996 operator ~~must~~ divide the NMOC concentration from Method 25C by
 997 ~~six~~ to convert C_{NMOC} as carbon to C_{NMOC} as hexane.

- 998
- 999 c) If the gas collection system complies with ~~the provisions in~~ Section 220.220 ~~of~~
 1000 ~~this Subpart~~ and is already installed, the owner or operator ~~must~~ estimate the
 1001 NMOC emission rate using the procedures ~~provided~~ in subsection (b) ~~of this~~
 1002 ~~Section~~. For areas of the landfill where the owner or operator has not been
 1003 required to install a well yet, ~~they~~ ~~he~~ ~~she~~ may select an appropriate method from
 1004 subsection (a) ~~of this Section~~ to estimate emissions.
- 1005
- 1006 d) For the performance test required in Section 220.210(d)(2) ~~of this Subpart~~,
 1007 Method 25C or Method 18, ~~Appendix A~~, 40 CFR 60. ~~Appendix A~~, incorporated by
 1008 reference in Section 220.130 ~~of this Part~~, ~~must~~ be used to determine
 1009 compliance with 98 weight-percent efficiency or the 20 ppmv outlet concentration
 1010 level, unless another method to demonstrate compliance has been approved by the
 1011 Agency ~~under as provided by~~ Section 220.230(d) ~~of this Subpart~~. If using
 1012 Method 18, the minimum list of compounds to be tested ~~are~~ ~~be~~ those
 1013 ~~published~~ in the Compilation of Air Pollutant Emission Factors (AP-42),
 1014 incorporated by reference in Section 220.130 ~~of this Part~~. The following equation
 1015 ~~must~~ be used to calculate efficiency:

1016

$$1017 \text{Control efficiency} = (\text{NMOC}_{\text{in}} - \text{NMOC}_{\text{out}}) / (\text{NMOC}_{\text{in}})$$

1018

1019 where:

1020

$$1021 \text{NMOC}_{\text{in}} = \text{mass of NMOC entering control device}$$

$$1022 \text{NMOC}_{\text{out}} = \text{mass of NMOC exiting control device}$$

- 1023
- 1024 e) The owner or operator may use other methods to determine the NMOC
 1025 concentration, site-specific k, or landfill gas flow rate, as an alternate to the
 1026 methods required in subsection (a)(3) and (a)(4) ~~of this Section~~, if the method has
 1027 been approved by the Agency ~~under, as provided for in~~ Section 220.220(d) or
 1028 Section 220.230(d) ~~of this Subpart~~.
- 1029
- 1030 f) The owner or operator may use the procedures ~~described~~ in AP-42, Compilation
 1031 of Air Pollutant Emission Factors, incorporated by reference in Section 220.130
~~of this Part~~, to estimate emissions ~~under pursuant to~~ the annual emission report
 required in 35 Ill. Adm. Code 210.302(a). The most recent values for k, L_o, and

NMOC concentration reported in AP-42 ~~must~~ shall be used to calculate emissions. To determine applicability of or compliance with ~~the requirements of~~ this Part, the owner or operator must use the tiered emission estimates ~~provided~~ in subsections (a)(1) through (a)(4) ~~of this Section~~.

g) Testing:

- 1) Upon a request by the Agency, the owner or operator of an MSW landfill ~~must~~ shall at ~~their~~his own expense demonstrate compliance with the applicable requirements of this Subpart using the appropriate test method.
- 2) An owner or operator planning to conduct a test to demonstrate compliance with this Subpart ~~must~~ shall notify the Agency of that intent ~~at least~~not less than 30 days before the planned initiation of the tests so that the Agency may observe the test.

(Source: Amended at 50 Ill. Reg. _____, effective _____)

Section 220.270 Monitoring of Operations

- a) Active gas collection systems. Each owner or operator of an active gas collection system ~~must~~ shall install a sampling port and a thermometer, 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 ~~under, as provided in~~ Section 220.240(a)(3) ~~of this Subpart~~; and
 - 2) Monitor the temperature and nitrogen or oxygen concentration in the landfill gas on a monthly basis ~~under, as provided in~~ Section 220.240(a)(5) ~~of this Subpart~~.
- b) Enclosed combustors. Each owner or operator of an enclosed combustor ~~must~~ 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 ~~with~~having a minimum accuracy of plus or minus 1% ~~percent~~ of the temperature being measured, expressed in degrees Celsius, or plus or minus ~~0.5 °C~~0.5°C, whichever is greater. A temperature monitoring device is not required for boilers or process heaters with design heat input capacity greater than 44 MW.

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- 2) A device that records flow to or bypass of the control device. The owner or operator mustshall either:
- A) Install, calibrate, and maintain a gas flow rate measuring device that recordsshall-record the flow to the control device every 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 mustshall 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.
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- c) Open flare. Each owner or operator of an open flare mustshall 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.
- 2) A device that records flow to or bypass of the flare. The owner or operator mustshall either:
- A) Install, calibrate, and maintain a gas flow rate measuring device that recordsshall-record the flow to the control device at least every 15 minutes; or
- B) Secure the bypass line valve in the closed position with a car-seal or lock-and-key type configuration. A visual inspection of the seal or closure mechanism mustshall 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.
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- d) Each owner or operator seeking to install a collection or control system that does not meet the specifications in Section 220.220(b) or (c) mustof this Subpart, shall provide information satisfactory to the Agency underas provided in Sections 220.220(d) and 220.230(d) of this Subpart, describing the design and operation of the collection system, the operating parameters that would indicate proper performance, and appropriate monitoring procedures.
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- e) Each owner or operator mustshall monitor surface concentrations of methane

1118 according to the instrument specifications and procedures ~~provided~~ in Section
 1119 220.240(c) and (d) ~~of this Subpart~~. Any inactive landfill that has no monitored
 1120 ~~exceedances~~~~exceedences~~ of the operational standard in three consecutive
 1121 quarterly monitoring periods must resume annual monitoring. Any methane
 1122 reading of 500 ppm or more above the background detected during the annual
 1123 monitoring returns the monitoring frequency for that landfill to quarterly.
 1124

1125 (Source: Amended at 50 Ill. Reg. _____, effective _____)
 1126

1127 **Section 220.280 Reporting Requirements**
 1128

- 1129 a) Each owner and operator ~~must~~~~shall~~ submit a design capacity report to the Agency.
 1130
- 1131 1) The initial design capacity report ~~must~~~~shall~~ be submitted ~~by no later than~~
 1132 October 29, 1998.
 - 1133 2) The initial design capacity report ~~must~~~~shall~~ contain the following
 1134 information:
 1135
 - 1136 A) A map or plot of the landfill providing the size and location of the
 1137 landfill and identifying all areas where solid waste may be
 1138 landfilled ~~under~~~~according to the provisions of~~ the State or RCRA
 1139 construction or operating permit.
 - 1140 B) The maximum design capacity of the landfill. If the maximum
 1141 design capacity is specified in a State construction or RCRA
 1142 permit, a copy of the permit specifying the maximum design
 1143 capacity of the landfill ~~must~~~~shall~~ be provided. If the maximum
 1144 design capacity of the landfill is not specified in a permit, the
 1145 maximum design capacity ~~must~~~~shall~~ be calculated using good
 1146 engineering practices. The calculations ~~must~~~~shall~~ be provided,
 1147 along with the relevant parameters (e.g., depth of solid waste, solid
 1148 waste acceptance rate, and compaction practices, as applicable), as
 1149 part of the report. The Agency may request other reasonable
 1150 information as may be necessary to verify the maximum design
 1151 capacity of the landfill.
 - 1152 3) An amended design capacity report ~~must~~~~shall~~ be submitted to the Agency
 1153 providing notification of an increase in the design capacity of the landfill
 1154 within 90 days after an increase in the maximum design capacity of the
 1155 landfill to or above 2.5 million Mg and 2.5 million m³. This increase in
 1156 design capacity may result from an increase in the permitted volume or an
 1157 increase in the density of the landfill as documented in the annual
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recalculation required in Section 220.290(f) ~~of this Subpart.~~

- b) Each owner and operator with a total design capacity equal to or greater than 2.5 million Mg and 2.5 million m³ ~~must~~ submit an NMOC emission rate report to the Agency initially and by June 1 annually ~~after~~ thereafter, except ~~under~~ as provided for in subsections (b)(1) and (b)(4) ~~of this Section.~~ The Agency may request ~~such~~ additional information ~~as may be~~ necessary to verify the reported NMOC emission rate. The NMOC emission rate report ~~must~~ contain an annual or ~~five-year~~ ~~5-year~~ estimate of the NMOC emission rate calculated ~~under~~ using the formula and procedures in Section 220.260(a) ~~of this Subpart,~~ as applicable. The annual NMOC emission rate report required by this subsection must be submitted with the annual emissions report required ~~under~~ pursuant to 35 Ill. Adm. Code 201.302(a).
- 1) The initial NMOC emission rate report may be combined with the initial design capacity report required in subsection (a) ~~of this Section.~~ The first NMOC emission report ~~must~~ be filed with the Agency by October 29, 1998. Subsequent NMOC emission reports ~~must~~ be filed with the Agency by June 1 of the subsequent year, except ~~under~~ as provided for in subsection (b)(2) ~~of this Section.~~
 - 2) Using Tier 1, if the estimated NMOC emission rate as reported in the annual report to the Agency is less than 50 Mg/yr in each of the next ~~five~~ consecutive years, the owner or operator may elect to submit an estimate of the NMOC emission rate for the next ~~five years~~ ~~5-year period~~ in lieu of the annual report. This estimate ~~must~~ include the current amount of solid waste in place and the estimated waste acceptance rate for each year of the ~~five~~ years for which an NMOC emission rate is estimated. All data and calculations upon which this estimate is based ~~must~~ be provided to the Agency. This estimate ~~must~~ be revised at least once every ~~five~~ years. If the actual waste acceptance rate exceeds the estimated waste acceptance rate in any year reported in the ~~five-year~~ ~~5-year~~ estimate, a revised ~~five-year~~ ~~5-year~~ estimate ~~must~~ be submitted to the Agency. The revised estimate ~~must~~ cover the ~~five years~~ ~~5-year period~~ beginning with the year in which the actual waste acceptance rate exceeded the estimated waste acceptance rate.
 - 3) The NMOC emission rate report ~~must~~ include all the data, calculations, sample reports and measurements used to estimate the annual or ~~five-year~~ ~~5-year~~ emissions.
 - 4) All owners and operators of MSW landfills with a total design capacity of 2.5 million Mg and 2.5 million m³ are required to submit an annual

1204 emissions report ~~underpursuant to~~ 35 Ill. Adm. Code 201.302(a). MSW
 1205 landfills that have installed a gas collection and control system that meets
 1206 the requirements of this Subpart are not required to submit an annual
 1207 NMOC emission rate report but are required to submit an annual
 1208 emissions report ~~underpursuant to~~ 35 Ill. Adm. Code 201.302(a).
 1209 ~~Owners~~ ~~Further, owners~~ or operators filing a ~~five-year~~ ~~5-year~~ estimate of
 1210 NMOC emissions ~~underpursuant to~~ subsection (b)(2) ~~of this Section~~ may
 1211 use a ~~five-year~~ ~~5-year~~ estimate for NMOC, so long as they file an annual
 1212 emission report and meet the requirements of subsection (b)(2) ~~of this~~
 1213 ~~Section~~.
 1214

- 1215 c) Each owner or operator subject to ~~the provisions of~~ Section 220.220(a) ~~must of~~
 1216 ~~this Subpart shall~~ submit an application for a construction permit containing the
 1217 information ~~listed in~~ subsection (c)(3) ~~of this Section~~ to the Agency within ~~one+~~
 1218 year after the first report, required under subsection (b) ~~of this Section~~, in which
 1219 the emission rate exceeds 50 Mg/yr, except as follows:
 1220
- 1221 1) If the owner or operator elects to recalculate the NMOC emission rate
 1222 after Tier 2 NMOC sampling and analysis ~~underas provided in~~ Section
 1223 220.260(a)(3) ~~of this Subpart~~ and the resulting rate is less than 50 Mg/yr,
 1224 annual periodic reporting ~~mustshall~~ be resumed, using the Tier 2
 1225 determined site-specific NMOC concentration, until the calculated
 1226 emission rate is equal to or greater than 50 Mg/yr or the landfill is
 1227 inactive. The revised NMOC emission rate report, with the recalculated
 1228 emission rate based on NMOC sampling and analysis, ~~mustshall~~ be
 1229 submitted within ~~one+~~ year after the first calculated ~~emission rate~~
 1230 ~~exceedingexceedence~~ of 50 Mg/yr.
 1231
 - 1232 2) If the owner or operator elects to recalculate the NMOC emission rate
 1233 after determining a site-specific methane generation rate constant k, as
 1234 provided in Tier 3 in Section 220.260(a)(4) ~~of this Subpart~~, and the
 1235 resulting emission rate is less than 50 Mg/yr, annual periodic reporting
 1236 ~~mustshall~~ be resumed or the landfill is inactive. The resulting site-specific
 1237 methane generation rate constant k ~~mustshall~~ be used in the emission rate
 1238 calculation until ~~such time as~~ the emission rate calculation results in an
 1239 ~~exceedanceexceedence~~. The revised NMOC emission rate report based on
 1240 ~~the provisions of~~ Section 220.260(a)(4) ~~of this Subpart~~ and the resulting
 1241 site-specific methane generation rate constant k ~~mustshall~~ be submitted to
 1242 the Agency within ~~one+~~ year after the first calculated emission rate
 1243 exceeding 50 Mg/yr.
 1244
 - 1245 3) In addition to the information required by 35 Ill. Adm. Code 201.152, the
 1246 following ~~mustshall~~ be included in the construction permit application for

1247 the collection system required ~~underpursuant to~~ Section 220.280(c)~~-of this~~
 1248 ~~Subpart~~: depths of refuse, refuse gas generation rates and flow
 1249 characteristics, cover properties, gas system ~~expandability~~expandibility,
 1250 leachate and condensate management, accessibility, compatibility with
 1251 filling operations, integration with closed landfill end use, air intrusion
 1252 control, corrosion resistance, fill settlement, and resistance to the refuse
 1253 decomposition heat.

1254
 1255 d) Each owner or operator of a controlled landfill ~~mustshall~~ submit the information
 1256 required by this subsection (d) to the Agency 30 days ~~before removing or~~
 1257 ~~ceasingprior to removal or cessation of~~ operation of the control equipment. The
 1258 Agency may request ~~such~~ additional information ~~as may be~~ necessary to verify
 1259 that all ~~of~~ the conditions for removal of equipment ~~underin accordance with~~
 1260 Section 220.250(h)~~-of this Subpart~~ have been met.

- 1261
- 1262 1) Certification that ~~operatingthe operation of~~ the collection and control
 1263 system is no longer required ~~underpursuant to~~ 35 Ill. Adm. Code: Subtitle
 1264 G;
 - 1265 2) Documentation demonstrating that the 15-year minimum control period
 1266 has expired; and
 - 1267 3) Dated copies of the ~~three3~~ successive NMOC emission rate reports ~~under;~~
 1268 ~~as provided for in~~ Section 220.250(h)~~-of this Subpart~~, demonstrating that
 1269 the landfill is no longer producing 50 Mg/yr or greater of NMOC ~~under;~~
 1270 ~~pursuant to~~ Section 220.260(b)~~-of this Section~~.

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 1274 e) Each owner or operator of a landfill ~~mustshall~~ submit to the Agency annual
 1275 reports of the recorded information in subsections (e)(1) through (e)(6)~~-of this~~
 1276 ~~Section~~. The initial annual report ~~mustshall~~ be submitted within 180 days after
 1277 installation and start-up of the collection and control system, and may be included
 1278 with the report of the initial performance test required ~~underpursuant to~~ Section
 1279 220.210(d)(2)~~-of this Subpart~~. For enclosed combustion devices and flares,
 1280 reportable ~~exceedances~~exceedenees are defined under Section 220.290(c)~~-of this~~
 1281 ~~Subpart~~.

- 1282
- 1283 1) Value and length of time for ~~the exceedance~~exceedenece of applicable
 1284 parameters monitored under Section 220.270(a), (b), (c), and (d)~~-of this~~
 1285 ~~Subpart~~.
 - 1286 2) Description and duration of all periods when the gas stream is diverted
 1287 from the control device through a bypass line or the indication of bypass
 1288 flow~~as specified~~ under Section 220.270~~-of this Subpart~~.
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- 3) Description and duration of all periods when the control device was not operating for ~~more than one a period exceeding 1~~ hour and length of time the control device was not operating.
 - 4) All periods when the collection system was not operating ~~for more than five in excess of 5~~ days.
 - 5) The location of each ~~exceedance exceedence~~ of the 500 ppm methane concentration ~~under, as provided in~~ Section 220.250(d) ~~of this Subpart~~, and the concentration recorded at each location for which an ~~exceedance exceedence~~ was recorded in the previous month.
 - 6) The date of installation and the location of each well or collection system expansion added ~~under pursuant to~~ subsections (a)(3), (b), and (c)(4) of Section 220.240 ~~of this Subpart~~.
- f) Each owner or operator ~~must shall~~ include the following information with the initial performance test report and any subsequent performance tests required ~~under pursuant to~~ Section 220.210(d)(2) ~~of this Subpart~~.
- 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 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) 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

1333 6) The provisions for the control of off-site migration of gas.

1334
1335 (Source: Amended at 50 Ill. Reg. _____, effective _____)

1336
1337 **Section 220.290 Recordkeeping Requirements**

1338
1339 Each owner or operator of an MSW landfill ~~must~~ keep for at least ~~five~~5 years, unless
1340 another time period is specified in this Section, up-to-date, readily accessible, on-site records of
1341 the following:

- 1342
- 1343 a) For the life of the landfill, the design capacity report in which the landfill became
1344 equal to or greater than 2.5 million Mg and 2.5 million m³, the current amount of
1345 solid waste in-place, and the year-by-year waste acceptance rate. Off-site records
1346 may be maintained if they are retrievable within ~~four~~4 hours. Either paper copy
1347 or electronic formats are acceptable.
 - 1348
 - 1349 b) For the life of the control equipment, the data ~~listed~~ in subsections (b)(1) through
1350 (b)(4) ~~of this Section~~ as measured during the initial performance test or
1351 compliance determination. Records of the control device vendor specifications
1352 ~~must~~ be maintained until removal.
 - 1353
 - 1354 1) Active collection systems:
 - 1355
 - 1356 A) The maximum expected gas generation flow rate as calculated in
1357 Section 220.240(a) ~~of this Subpart~~. The owner or operator may
1358 use another method to determine the maximum gas generation
1359 flow rate, if the method has been approved by the Agency.
 - 1360
 - 1361 B) The density of wells, horizontal collectors, surface collectors, or
1362 other gas extraction devices determined ~~under~~using the procedures
1363 ~~specified in~~ Section 220.220(b)(1)(A) ~~of this Subpart~~.
 - 1364
 - 1365 2) Enclosed combustion device other than a boiler or process heater with a
1366 design heat input capacity greater ~~than~~ 44 MW:
 - 1367
 - 1368 A) The combustion temperature measured at least every 15 minutes
1369 and averaged over the same time period as the performance test.
 - 1370
 - 1371 B) The percent reduction of NMOC determined ~~under~~as specified in
1372 Section 220.230(b) ~~of this Subpart~~ achieved by the control device.
 - 1373
 - 1374 3) Boilers or process heaters of any size: a description of the location at
1375 which the collected gas vent stream is introduced into the boiler or process

- 1376 heater over the same time period as the performance testing.
 1377
 1378 4) Open flare: the flare type (i.e., steam-assisted, air-assisted, or nonassisted),
 1379 all visible emission readings, heat content determination, flow rate or
 1380 bypass flow rate measurements, and exit velocity determinations made
 1381 during the performance test ~~underas specified in~~ 40 CFR 60.18,
 1382 incorporated by reference in Section 220.130 ~~of this Part~~; continuous
 1383 records of the flare pilot flame or flare flame monitoring, and records of
 1384 all periods of operations during which the flare pilot flame or the flare
 1385 flame is absent.
 1386
 1387 c) Continuous records of the equipment operating parameters ~~specified~~ to be
 1388 monitored in Section 220.270 ~~and of this Subpart as well as~~ up-to-date, readily
 1389 accessible records for periods of operation during which the parameter boundaries
 1390 established during the most recent performance test are exceeded.
 1391
 1392 1) The following constitute ~~exceedances~~ ~~exceedences~~ that ~~must~~ ~~shall~~ be
 1393 recorded and reported under Section 220.280(e) ~~of this Subpart~~:
 1394
 1395 A) For enclosed combustors, except for boilers and process heaters
 1396 with design heat input of 44 MW (150 ~~MMbtummbtu~~/hr) or
 1397 greater, all ~~three-hour~~ ~~3-hour~~ periods of operation during which the
 1398 average combustion temperature was more than ~~28 °C (82 °F)~~ ~~28°C~~
 1399 ~~(82°F)~~ below the average combustion temperature during the most
 1400 recent performance test at which compliance with Section
 1401 220.230(b) ~~of this Subpart~~ was determined.
 1402
 1403 B) For boilers or process heaters, whenever there is a change in the
 1404 location at which the vent stream is introduced into the flame zone,
 1405 ~~underas required pursuant to~~ subsection (b)(2)(A) ~~of this Section~~.
 1406
 1407 2) Continuous records of the indication of flow to the control device or the
 1408 indication of bypass flow or records of monthly inspections of car-seals or
 1409 lock-and-key configurations used to seal bypass lines, specified
 1410 ~~underpursuant to~~ Section 220.270 ~~of this Subpart~~.
 1411
 1412 3) For boilers or process heaters with a design heat input capacity of 44 MW
 1413 or greater, records of all periods of operation of boiler or process heater.
 1414 ~~(Examples of such records include records of steam use, fuel use, or~~
 1415 ~~monitoring data collected~~ ~~underpursuant to~~ State, local, or federal
 1416 regulatory requirements.)
 1417
 1418 4) For open flares, records of the flame or flare pilot flame monitoring

- 1419 ~~specified~~ under Section 220.270(c) ~~of this Subpart~~, and all periods of
1420 operation in which the flare pilot flame or the flare flame is absent.
1421
- 1422 d) For the life of the collection system, a plot map showing each existing and
1423 planned collector in the system and providing a unique identification location
1424 label for each collector, including:
1425
- 1426 1) The location of all newly installed collectors ~~as specified~~ under Section
1427 220.240(b) ~~of this Part~~.
1428
- 1429 2) The nature, date of deposition, amount, and location of asbestos-
1430 containing or nondegradable waste excluded from collection ~~under, as~~
1431 ~~provided in~~ Section 220.220(b)(1)(D)(i) ~~and of this Subpart, as well as~~ any
1432 nonproductive areas excluded from collection ~~under, as provided in~~
1433 Section 220.220(b)(1)(D)(ii) ~~of this Subpart~~.
1434
- 1435 e) All collection and control system ~~exceedance~~~~exceedences~~ of the operational
1436 standards in Section 220.250 ~~of this Subpart~~, the reading the subsequent month,
1437 whether or not the second reading is an ~~exceedance~~~~exceedence~~, and the location
1438 of each ~~exceedance~~~~exceedence~~.
1439
- 1440 f) Owners or operators who convert design capacity from volume to mass or mass to
1441 volume to demonstrate that landfill design capacity is less than 2.5 million Mg or
1442 2.5 million m³, as provided in the definition of "design capacity", ~~must~~~~shall~~ keep
1443 records of the annual recalculation of site-specific density, design capacity, and
1444 the supporting documentation.
1445

1446 (Source: Amended at 50 Ill. Reg. _____, effective _____)