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
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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.

Richard R. McGill, Jr.
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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

POLLUTION CONTROL BOARD

NOTICE OF PROPOSED AMENDMENTS

1) Heading of the Part: Nonmethane Organic Compounds

2) Code Citation: 35 Ill. Adm. Code 220

3)

Section Numbers:	Proposed Actions:
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.

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 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:

POLLUTION CONTROL BOARD

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

SUBPART B: MSW LANDFILLS

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

This Part contains emission control requirements for municipal solid waste (MSW) landfills in compliance ~~accordance~~ with Section~~section~~ 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.

Commented [JS1]: All Definitions are to be indented to the 1" mark.

"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 m^3, 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 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 ILCS 5/3.230]

Commented [JS2]: This is to appear ahead of the stricken citation.

"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.

"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,~~

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 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°~~C~~	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
MMbtu~~mmbtu~~	million British thermal units
MSW	municipal solid waste

MW	megawatt; 1 million watts
NMOC	nonmethane organic compounds
NO_x~~NOx~~	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

Commented [JS3]: Omit excess strikethrough.

(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 m^3 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 m^3 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

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 m^3 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

(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 under~~pursuant 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 m^3, 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 under~~pursuant to~~ subsection (b)(1)(D) ~~of this Section~~ for the period required in Section 220.250(h)~~ of this Subpart~~, as calculated under~~pursuant 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

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 with~~through 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).

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 these~~such~~ sections must ~~shall~~be compared to the NMOC emissions estimate for the entire landfill, as calculated under~~pursuant to~~ Section 220.260~~ of this Subpart~~. Emissions from each section must ~~shall~~be computed using the following equation:

$$Q_i = 2k L_o M_i (e^{-kt_i})(C_{NMOC})(3.6x10^{-9})$$

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_o, 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~~.,~~ 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

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~~ shallbe~~ 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.~~,~~ 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:

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 under~~pursuant 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~~is 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

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, m^3/yr
L_o	=	methane generation potential, m^3 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)

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

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

where:

Q_m	=	maximum expected gas generation flow rate, m^3/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

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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 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.

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) ~~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~~.

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)

or (c)(4)(C), the location must ~~shall~~be remonitored one~~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~~1 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 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.

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~~5~~ days for collection systems and must not exceed one~~1~~ hour for treatment or control devices.

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(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~~5~~ years or more, if active; or

2) Two~~2~~ years or more, if closed or at final grade.

b) Operate the collection system with negative pressure at each 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.

c) Operate each interior wellhead in the collection system with a landfill gas temperature less than 55 ºC (131 ºC) ~~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 methagens 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

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~~1~~ 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~~1~~ 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

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, under~~pursuant to~~ subsection (a)(2), (a)(3), (a)(4), or (e), or install a gas collection and control system under~~pursuant 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, under~~pursuant 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, under~~pursuant 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 under~~as 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 m^3 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:

$$M_{NMOC} = \sum_{i=1}^{n} 2kL_o M_i (e^{-kt_i})(C_{NMOC})(3.6x10^{-9}) \qquad \text{where:}$$

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

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3.6×10^{-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 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:

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

where:

M_{NMOC}	=	Total NMOC emission rate from the landfill, Mg/yr
L_o	=	methane generation potential, 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

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 two~~2~~ sample probes per hectare of landfill surface that has retained waste for at least two~~2~~ years. If the landfill is larger than 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~~shallbe~~ 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 six~~6~~ 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 five~~5~~ 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 five~~5~~ 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~~

when the system can be removed under ~~as provided in~~Section 220.250(h) ~~of this Subpart~~, using the following equation:

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

where:

M_{NMOC}	=	mass emission rate of NMOC (Mg/yr)
Q_{LFG}	=	flow rate of landfill gas (m^3/minute)
C_{NMOC}	=	NMOC concentration (ppmv as hexane)

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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

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 underas provided by Section 220.230(d) of this Subpart. If using Method 18, the minimum list of compounds to be tested areshallbe 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 shallbe used to calculate efficiency:

Control efficiency = $(NMOC_{in} - NMOC_{out})/(NMOC_{in})$

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 underpursuant 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 shallbe 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 shallat theirhisown 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 shallnotify the Agency of that intent at leastnot 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~~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 ºC ~~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~~shallrecord~~ 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

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~~shallrecord~~ 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 _____)

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 m^3. 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 m^3 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

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~~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 ~~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 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~~5~~ 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 ~~shall~~include the current amount of solid waste in place~~in-place~~ and the estimated waste acceptance rate for each year of the five~~5~~ years for which an NMOC emission rate is estimated. All data and calculations upon which this estimate is based must ~~shall~~be provided to the Agency. This estimate must~~shall~~ be revised at least once every five~~5~~ years. If the actual waste acceptance rate exceeds the estimated waste acceptance rate in any year reported in the five-year~~5-year~~ estimate, a revised five-year~~5-year~~ estimate must ~~shall~~be submitted to the Agency. The revised estimate must ~~shall~~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 ~~shall~~include all the data, calculations, sample reports, and measurements used to estimate the annual or five-year~~5-year~~ emissions.

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4) All owners and operators of MSW landfills with a total design capacity of 2.5 million Mg and 2.5 million m^3 are required to submit an annual emissions report under~~pursuant 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

NMOC emission rate report but are required to submit an annual emissions report under~~pursuant to~~ 35 Ill. Adm. Code 201.302(a). Owners~~Further, owners~~ or operators filing a five-year~~5-year~~ estimate of NMOC emissions under~~pursuant to~~ subsection (b)(2) ~~of this Section~~ may use a five-year~~5-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~~1~~ 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 under~~as 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~~1~~ 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~~1~~ 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 under~~pursuant 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 under~~pursuant 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~~,~~ under~~pursuant 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 under~~pursuant 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~~.

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~~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

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 m^3, 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 ºC (82 ºF)~~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~~.

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 inSection 220.220(b)(1)(D)(ii) of this Subpart.

e) All collection and control system exceedancesexceedences of the operational standards in Section 220.250 of this Subpart, the reading the subsequent month, whether or not the second reading is an exceedanceexceedence, and the location of each exceedanceexceedence.

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 m^3, as provided in the definition of "design capacity", must shallkeep 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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POLLUTION CONTROL BOARD

NOTICE OF PROPOSED AMENDMENTS

1) Heading of the Part: Nonmethane Organic Compounds

2) Code Citation: 35 Ill. Adm. Code 220

3)

Section Numbers:	Proposed Actions:
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.

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

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

Section

SUBPART B: MSW LANDFILLS

Section

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 Section~~section~~ 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 m^3, 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

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, but not limited to, single and multiple residences, hotels and motels, bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds, and day-use recreation areas). [415 ILCS 5/3.230]~~(Section 3.89 of the Act)~~

"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.

"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 underpursuant 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,~~ garbage, offal, dead animals, general household waste, and commercial waste. All solid wastes that do not meet the definitions of

inert or chemical wastes mustshall 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 becauseas 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°C	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_xNOx	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 m^3 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 m^3 to comparefor 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. UnderPursuant 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 m^3 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) willof this Section shall apply, or the landfill is inactive.

d) For MSW landfills with emissions equal to or greater than 50 Mg/yr, calculated underpursuant 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. TheSuch alternate system isshall be effective only when included in a federally enforceable permit or approved as a SIP revision.

2) Certify compliance: Within six6 months afterof 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 under~~pursuant 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 m^3, 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 under~~pursuant to~~ subsection (b)(1)(D) ~~of this Section~~ for the period required in Section 220.250(h) ~~of this Subpart~~, as calculated under~~pursuant 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

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 with~~through 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).

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 these~~such~~ 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 mustshall be computed using the following equation:

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

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, years
t_i	=	age of the solid waste in the i^{th} section, years
C_{NMOC}	=	concentration of NMOC, ppmv
$3.6x10^{-9}$	=	Conversion factor

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.

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 mustshall extend as necessary to comply with emission and migration standards. Collection devices, such as wells and horizontal collectors, mustshall be perforated to allow gas entry without head loss sufficient to impair performance across the intended extent of control. Perforations mustshall be situated with regard to the need to prevent excessive air infiltration.

B) Vertical wells mustshall be placed without endangeringso as not to endanger underlying liners and mustshall address the occurrence of water within the landfill. Holes and trenches constructed for piped wells and horizontal collectors mustshall be of sufficient cross-section so as to allow for their proper construction and completion, including, for example, centering of pipes and placingplacement of gravel backfill. Collection devices mustshall 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 doesso 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 mustshall include a positive closing throttle valve, any necessary seals and couplings, access couplings, and at least one sampling port. The collection devices mustshall be constructed of PVC, HDPE, fiberglass, stainless steel, or other nonporous material of suitable thickness.

3) The landfill gas mustshall be conveyed to a gas control system through the collection header pipe(s). The gas mover equipment mustshall 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 mustshall 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 complyshall be in accordance with Section 220.240(a) of this Subpart.

c) Passive Collection Systems:

1) A passive collection system mustshall be installed with liners on the bottom and all sides in all areas in which gas is to be collected. The liners mustshall meet all requirements specified in 35 Ill. Adm. Code 811.306.

2) The collection and control system mustshall 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 underas provided for in subsection (d) of this Section.

d) Alternate Collection Systems:
An owner or operator seeking to install an alternate gas collection system mustshall demonstrate to the Agency that thesuch 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 underpursuant to Section 220.240(a) of this Subpart, and in an equivalent manner to whatthat required by this Section requires. Any alternate gas collection system must be approved by the Agency. TheSuch alternate willshall be effective only when included in a federally enforceable permit or approved as a SIP revision. The alternate mustshall include any alternate procedures for collection, control, compliance, monitoring, operation, testing, reporting, and recordkeeping that are appropriate.

e) Alternate Emissions Standard:
UnderPursuant to Section 28.1 of the Act [415 ILCS 5/28.1], and in complianceaccordance with 35 Ill. Adm. Code 106., Subpart G, provisions for adjusted standards, adjusted standards for alternate emissions standards, or alternate emissions standards with an alternate compliance schedule willshall 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). TheAny such request must be approved by the Board. TheSuch alternate willshall be effective only when included in a federally enforceable permit or approved as a SIP revision. Any alternate mustshall 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.

(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 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 underpursuant to subsection (d) or (e) ~~of this Section~~.

a) An open flare designed and operated in complianceaccordance 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 underpursuant 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 mustshall be introduced into the flame zone.

2) The control device mustshall 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 areshall ~~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 mustshall demonstrate to the Agency that thesuch collection system is capable of control equivalent to subsection (b) of this Section. TheSuch alternate willshall be effective only when included in a federally enforceable permit or approved as a SIP revision. The alternate mustshall include any alternate procedures for collection, control, compliance, monitoring, operation, testing, reporting, and recordkeeping that are appropriate.

e) UnderPursuant to Section 28.1 of the Act [415 ILCS 5/28.1], and in complianceaccordance with 35 Ill. Adm. Code 106.,, Subpart G, provisions for adjusted standards, adjusted standards for alternate emissions standards, or alternate emissions standards with an alternate compliance schedule willshall 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). TheAny such request must be approved by the Board. TheSuch alternate willshall be effective only when included in a federally enforceable permit or approved as a SIP revision. Any alternate mustshall 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 complianceaccordance 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) must of this Section

~~shall~~ be used to determine whether the gas collection system complies~~is 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 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, m^3/yr
L_o = methane generation potential, m^3 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 $e^{-kc}=1$)

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

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

where:

Q_m = maximum expected gas generation flow rate, m^3/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 i^{th} section, yr

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.

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~~.

2) The background concentration mustshall 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 mustshall be performed in complianceaccordance with Sectionsection 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 mustshall be placed within 5 to 10 cm of the ground. Monitoring mustshall be performed during typical meteorological conditions.

4) Any reading of 500 ppm or more above background at any location mustshall 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 exceedanceexceedence is not a violation of the operational requirements of Section 220.250(d) of this Subpart.

A) The location of each monitored exceedance mustexceedence 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 mustexceedence shall be made, and the location mustshall be remonitored within 10 calendar days after detecting the exceedanceexceedence.

C) If the remonitoring of the location shows a second exceedanceexceedence, additional corrective action mustshall be taken, and the location mustshall be monitored again within 10 days after the second exceedanceexceedence. If the remonitoring shows a third exceedanceexceedence for the same location, the action specified in subsection (c)(4)(E) mustof 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 mustshall be remonitored one month1 month from the initial exceedanceexceedence. If the one-month1 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~~1 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 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.

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) The 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~~5~~ days for collection systems and must not exceed one~~1~~ hour for treatment or control devices.

(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~~5~~ years or more, if active; or

2) Two~~2~~ years or more, if closed or at final grade.

b) Operate the collection system with negative pressure at each 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.

c) Operate each interior wellhead in the collection system with a landfill gas temperature less than 55 ºC (131 ºC)~~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 methagens must be approved by the Agency before the~~such~~ 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 sosuch 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~~. IfIn 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~~1~~ 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~~1~~ 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

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, under~~pursuant to~~ subsection (a)(2), (a)(3), (a)(4), or (e), or install a gas collection and control system under~~pursuant 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, under~~ pursuant 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 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 m^3 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:

$$M_{NMOC} = \sum_{i=1}^{n} 2kL_o M_i(e^{-kti})(CN_{NMOC})(3.6x10^{-9})$$

where:

M_{NMOC}	=	Total NMOC emission rate from the landfill, Mg/yr
k	=	methane generation rate constant, yr^{-1}
L_o	=	methane generation potential, m^3 per Mg solid waste
M_i	=	mass of solid waste in the i^{th} section, Mg
t_i	=	age of solid waste in the i^{th} section, years
C_{NMOC}	=	concentration of NMOC, ppmv as hexane
3.6×10^{-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 M^i 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, 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 conversion factor
c = time since closure, years (for active landfill c = 0 and $e^{-kc} = 1$)
3.6×10^{-9} = conversion factor

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 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 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 areshall 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 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 five~~5~~ 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 five~~5~~ 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~~ when the system can be removed under~~as provided in~~ Section 220.250(h)~~ of this Subpart~~, using the following equation:

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

where:

M_{NMOC} = mass emission rate of NMOC (Mg/yr)
Q_{LFG} = flow rate of landfill gas (m^3/minute)
C_{NMOC} = NMOC concentration (ppmv as hexane)

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 areshall 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 mustshall be before any condensate removal or other gas refining units. The landfill owner or operator mustshall divide the NMOC concentration from Method 25C by six6 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 mustshall 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, theyhe/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, mustshall be used to determine 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 areshall 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 mustshall be used to calculate efficiency:

Control efficiency = $(NMOC_{in} - NMOC_{out})/(NMOC_{in})$

where:

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

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 underpursuant 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 mustshall 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 mustshall at theirhis 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 mustshall notify the Agency of that intent at leastnot 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 mustshall 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 mustshall calibrate, maintain, and operate according to the manufacturer's specifications, the following equipment:

1) A temperature monitoring device equipped with a continuous recorder and withhaving a minimum accuracy of plus or minus 1% percent of the temperature being measured, expressed in degrees Celsius, or plus or minus 0.5 ºC0.5°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 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.

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.

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.

e) Each owner or operator mustshall 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 _____)

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 m^3. 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) ~~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 m^3 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 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~~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~~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 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~~5~~ 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~~shall~~ include the current amount of solid waste in- place and the estimated waste acceptance rate for each year of the five~~5~~ years for which an NMOC emission rate is estimated. All data and calculations upon which this estimate is based must~~shall~~ be provided to the Agency. This estimate must~~shall~~ be revised at least once every five~~5~~ years. If the actual waste acceptance rate exceeds the estimated waste acceptance rate in any year reported in the five-year~~5-year~~ estimate, a revised five-year~~5-year~~ estimate must~~shall~~ be submitted to the Agency. The revised estimate must~~shall~~ 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~~shall~~ 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 m^3 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 NMOC emission rate report but are required to submit an annual emissions report underpursuant to 35 Ill. Adm. Code 201.302(a). OwnersFurther, owners or operators filing a five-year5-year estimate of NMOC emissions underpursuant to subsection (b)(2) of this Section may use a five-year5-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) mustof 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 one1 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 mustshall 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, mustshall be submitted within one1 year after the first calculated emission rate exceedingexceedence 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 mustshall be resumed or the landfill is inactive. The resulting site-specific methane generation rate constant k mustshall be used in the emission rate calculation until such time as the emission rate calculation results in an exceedanceexceedence. 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 mustshall be submitted to the Agency within one1 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 mustshall be included in the construction permit application for

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 expandabilityexpandibility, 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 mustshall submit the information required by this subsection (d) to the Agency 30 days before removing or ceasingprior to 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 underin accordance with Section 220.250(h) of this Subpart have been met.

1) Certification that operatingthe 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 three3 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 under, pursuant to Section 220.260(b) of this Section.

e) Each owner or operator of a landfill mustshall submit to the Agency annual reports of the recorded information in subsections (e)(1) through (e)(6) of this Section. The initial annual report mustshall 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 exceedancesexceedences are defined under Section 220.290(c) of this Subpart.

1) Value and length of time for the exceedanceexceedence of applicable parameters monitored under Section 220.270(a), (b), (c), and (d) of this Subpart.

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~~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

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 mustshall keep for at least five5 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 m^3, the current amount of solid waste in- place, and the year-by-year waste acceptance rate. Off-site records may be maintained if they are retrievable within four4 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 mustshall 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 underusing 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:

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 underas 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 underas 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 andof 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 exceedancesexceedences that mustshall 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 MMbtummbtu/hr) or greater, all three-hour3-hour periods of operation during which the average combustion temperature was more than 28 ºC (82 ºF)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, underas required pursuant to subsection (b)(2)(A) of this Section.

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~~.

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 m^3, 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 _____)