2.114 Municipal Solid Waste Landfills

2.114.1 Applicability

(a) The provisions of this source category apply to each municipal solid waste (MSW) landfill that has accepted waste at any time since November 8, 1987, or has additional design capacity available for future waste deposition; and

(b) Has a design capacity greater than or equal to 2.5 million megagrams or 2.5 million cubic meters. The landfill may calculate design capacity in either megagrams or cubic meters for comparison with the exemption values. Any density conversions shall be documented and submitted to the Director.

2.114.2 Test Methods and Procedures

(a) (1) The landfill owner or operator shall calculate the NMOC emission rate using either the equation provided in paragraph (a)(1)(i) of this section or the equation provided in paragraph (a)(1)(ii) of this section. The values to be used in both equations are 0.05 per year for k, 170 cubic meters per megagram for L_o, and 4,000 parts per million by volume as hexane for the C_{NMOC}.

(i) The following equation shall be used if the actual year-to-year solid waste acceptance rate is known.

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

where:

M_{NMOC} = Total NMOC emission rate from the landfill, megagrams per ye

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

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

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

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

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

3.6×10^{-9} = conversion factor

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 the documentation provisions of Section 2.114.6(d)(2) are followed.

(ii) The following equation shall be used if the actual year-to-year solid waste acceptance rate is unknown.

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

where:

M_{NMOC} = mass emission rate of NMOC, megagrams per year

L_o	=	methane generation potential, cubic meters per megagram solid waste
R	=	average annual acceptance rate, megagrams per year
k	=	methane generation rate constant, $year^{-1}$
t	=	age of landfill, years
C_{NMOC}	=	concentration of NMOC, parts per million by volume as hexane
c	=	time since closure, years. For active landfill c = O 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 the documentation provisions of Section 2.114.6(d)(2) are followed.

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

(i) If the NMOC emission rate calculated in paragraph (a)(1) of this section is less than 50 megagrams per year, then the landfill owner shall submit an emission rate report as provided in Section 2.114.5(b)(1), and shall recalculate the NMOC mass emission rate annually as required under the applicable regulation.

(ii) If the calculated NMOC emission rate is equal to or greater than 50 megagrams per year, then the landfill owner shall either comply with §60.752(b)(2)[1] or Rule (ggg)3.(i)[2], or determine a site-specific NMOC concentration and recalculate the NMOC emission rate using the procedures provided in paragraph (a)(3) of this section.

(3) Tier 2. The landfill owner or operator shall determine the NMOC concentration using the following sampling procedure. The landfill owner or operator shall install at least two sample probes per hectare of landfill surface that has retained waste for at least 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 shall collect and analyze one sample of landfill gas from each probe to determine the NMOC concentration using Method 25C of Appendix A of this text or Method 18 of Appendix A of this text. If using Method 18 of Appendix A of this text, the minimum list of compounds to be tested shall be those published in the most recent Compilation of Air Pollutant Emission Factors (AP-42). If composite sampling is used, equal volumes shall be taken from each sample probe. If more than the required number of samples are taken, all samples shall be used in the analysis. The landfill owner or operator shall divide the NMOC concentration from Method 25C of Appendix A of this text by six to convert from C_{NMOC} as carbon to C_{NMOC} as hexane.

(i) The landfill owner or operator shall recalculate the NMOC mass emission rate using the equations provided in paragraph (a)(1)(i) or (a)(1)(ii) of this section and using the average NMOC concentration from the collected samples instead of the default value in the equation provided in paragraph (a)(1) of this section.

(ii) If the resulting mass emission rate calculated using the site-specific NMOC concentration is equal to or greater than 50 megagrams per year, then the landfill owner or operator shall either comply with §60.752(b)(2)[1] or Rule (ggg)3.(i)[2], or determine the site-specific methane generation rate constant and recalculate the NMOC emission rate using the site-specific methane generation rate using the procedure specified in paragraph (a)(4) of this section.

(iii) If the resulting NMOC mass emission rate is less than 50 megagrams per year, the owner or operator shall submit a periodic estimate of the emission rate report as provided in Section 2.114.5(b)(1) and retest the site-specific NMOC concentration every 5 years using the methods specified in this section.

(4) Tier 3. The site-specific methane generation rate constant shall be determined using the procedures provided in Method 2E of Appendix A of this text. The landfill owner or operator shall estimate the NMOC mass emission rate using equations in paragraph (a)(1)(i) or (a)(1)(ii) of this section and using a site-specific methane generation rate constant k, and the site-specific NMOC concentration as determined in paragraph (a)(3) of this section instead of the default values provided in paragraph (a)(1) of this section. The landfill owner or operator shall compare the resulting NMOC mass emission rate to the standard of 50 megagrams per year.

(i) If the NMOC mass emission rate as calculated using the site-specific methane generation rate and concentration of NMOC is equal to or greater than 50 megagrams per year, the owner or operator shall comply with §60.752(b)(2)[1] or Rule (ggg)3.(i)[2].

(ii) If the NMOC mass emission rate is less than 50 megagrams per year, then the owner or operator shall submit a periodic emission rate report as provided in Section 2.114.5(b)(1) and shall recalculate the NMOC mass emission rate annually, as provided in Section 2.114.5(b)(1) using the equations in paragraph (a)(1) of this section and using the site-specific methane generation rate constant and NMOC concentration obtained in paragraph (a)(3) of this section. 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.

(5) The owner or operator may use other methods to determine the NMOC concentration or a site-specific k as an alternative to the methods required in paragraphs (a)(3) and (a)(4) of this section if the method has been approved by the Director as part of the collection and control system design plan.

(b) After the installation of a collection and control system in compliance with Section 2.114.3, the owner or operator shall calculate the NMOC emission rate for purposes of determining when the system can be removed as provided in §60.752(b)(2)(v)[1] or Rule (ggg)3.(i)[2], using the following equation:

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

where:

M_{NMOC} = mass emission rate of NMOC, megagrams per year

Q_{LFG} = flow rate of landfill gas, cubic meters per minute

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

(1) The flow rate of landfill gas, Q_{LFG}, shall be determined by measuring the total landfill gas flow rate at the common header pipe that leads to the control device using a gas flow measuring device calibrated according to the provisions of section 4 of Method 2E of Appendix A of this text.

(2) The average NMOC concentration, C_{NMOC}, shall be determined by collecting and analyzing landfill gas sampled from the common header pipe before the gas moving or condensate removal equipment using the procedures in Method 25C or Method 18 of Appendix A of this text. If using Method 18 of Appendix A of this text, the minimum list of compounds to be tested shall be those published in the most recent Compilation of Air Pollutant Emission Factors (AP-42). The sample location on the common header pipe shall be before any condensate removal or other gas refining units. The landfill owner or operator shall divide the NMOC concentration from Method 25C of Appendix A of this text by six to convert from C_{NMOC} as carbon to C_{NMOC} as hexane.

(3) The owner or operator may use another method to determine landfill gas flow rate and NMOC concentration if the method has been approved by the Director as part of the collection and control system design plan.

(c) The owner or operator of each MSW landfill subject to the provisions of 40CFR60 Subpart WWW[1] shall estimate the NMOC emission rate for comparison to the PSD major source and significance levels in §51.166[3] or §52.21[4] of this chapter using AP-42 or other approved measurement procedures. If a collection system, which complies with the provisions in §60.752(b)(2)[1] or is already installed, the owner or operator shall estimate the NMOC emission rate using the procedures provided in paragraph (b) of this section.

(d) Method 25 or Method 18 of Appendix A of this text shall be used to determine compliance with any required reduction efficiency or specified outlet concentration level, unless another method to demonstrate compliance has been approved by the Director as part of the collection and control system design plan. If using Method 18 of Appendix A of this text, the minimum list of compounds to be tested shall be those published in the most recent Compilation of Air Pollutant Emission Factors (AP-42). The following equation shall be used to calculate efficiency:

$$Control\ Efficiency = \frac{NMOC_{in} - NMOC_{out}}{NMOC_{in}}$$

where:

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

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

(e) To determine nitrogen and oxygen levels in each wellhead use the following test methods:

(1) The nitrogen level shall be determined using Method 3C, unless an alternative test method is established as part of the collection and control system design plan.

(2) Unless an alternative test method is established as part of the collection and control system design plan, the oxygen shall be determined by an oxygen meter using Method 3A except that:

(i) The span shall be set so that the regulatory limit is between 20 and 50 percent of the span;

(ii) A data recorder is not required;

(iii) Only two calibration gases are required, a zero and span, and ambient air may be used as the span;

(iv) A calibration error check is not required; and

(v) The allowable sample bias, zero drift, and calibration drift are ± 10 percent.

2.114.3 Compliance Provisions

(a) Except for methods and procedures approved by the Director as part of the collection and control system design plan, the specified methods in paragraphs (a)(1) through (a)(6) of this section shall be used to determine whether the gas collection system is in compliance with §60.752(b)(2)(ii)[1] or Rule (ggg)3.(i)[2].

(1) For the purposes of calculating the maximum expected gas generation flow rate from the landfill to determine compliance with §60.752(b)(2)(ii)(A)(1)[1] or Rule (ggg)3.(i)[2], one of the following equations shall be used. The k and L_o kinetic factors should be those published in the most recent Compilation of Air Pollutant Emission Factors (AP-42) or other site specific values demonstrated to be appropriate and approved by the Director. If k has been determined as specified in Section 2.114.2(a)(4), the value of k determined from the test shall be used. A value of no more than 15 years shall be used for the intended use period of the gas mover equipment. The active life of the landfill is the age of the landfill plus the estimated number of years until closure.

(i) For sites with unknown year-to-year solid waste acceptance rate:

where:

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

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

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

R = average annual acceptance rate, megagrams per year

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

t = age of the landfill at equipment installation plus the time

the owner or operator intends to use the gas mover equipment or active life of the landfill, whichever is less. If the equipment is installed after closure, t is the age of the landfill at installation, years

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

(ii) For sites with known year-to-year solid waste acceptance rate:

where:

$$Q_M = \sum_{i=1}^{n} 2\,k\,L_o\,M_i\,(e^{-kt_i})$$

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

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

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

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

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

(iii) 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 paragraphs (a)(1)(i) and (ii) 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 using the equations in paragraphs (a)(1)(i) or (ii) or other methods shall be used to predict the maximum expected gas generation rate over the intended period of use of the gas control system equipment.

(2) For the purposes of determining sufficient density of gas collectors for compliance with §60.752(b)(2)(ii)(A)(2)[1] or Rule (ggg)3.(i)[2], the owner or operator shall design a system of vertical wells, horizontal collectors, or other collection devices, satisfactory to the Director, capable of controlling and extracting gas from all portions of the landfill sufficient to meet all operational and performance standards.

(3) For the purpose of demonstrating whether the gas collection system flow rate is sufficient to determine compliance with §60.752(b)(2)(ii)(A)(3)[1] or Rule (ggg)3.(i)[2], the owner or operator shall measure gauge pressure in the gas collection header at each individual well monthly. If a positive pressure exists, action shall be initiated to correct the exceedance within 5 calendar days, except for the three conditions allowed under §60.753(b)[1] or Rule (ggg)3.(ii)[2]. If negative pressure cannot be achieved without excess air infiltration within 15 calendar days of the first measurement, the gas collection system shall be expanded to correct the exceedance within 120 days of the initial measurement of positive pressure. Any attempted corrective measure shall not cause exceedances of other operational or performance standards.

(4) Owners or operators are not required to install additional wells as required in paragraph (a)(3) of this section during the first 180 days after gas collection system start-up.

(5) For the purpose of identifying whether excess air infiltration into the landfill is occurring, the owner or operator shall monitor each well monthly for temperature and nitrogen or oxygen as provided in §60.753(c)[1] or Rule (ggg)3.(ii)[2]. If a well exceeds one of these operating parameters, action shall be initiated to correct the exceedance within 5 calendar days. If correction of the exceedance cannot be achieved within 15 calendar days of the first measurement, the gas collection system shall be expanded to correct the exceedance within 120 days of the initial exceedance. Any attempted corrective measure shall not cause exceedances of other operational or performance standards.

(6) An owner or operator seeking to demonstrate compliance with §60.752(b)(2)(ii)(A)(4)[1] or Rule (ggg)3.(i)[2] through the use of a collection system not conforming to the specifications provided in §60.759[1] or Rule (ggg)3.(viii)[2] shall provide information satisfactory to the Director as specified in §60.752(b)(2)(i)(C)[1] or Rule (ggg)3.(i)[2] demonstrating that off-site migration is being controlled.

(b) For purposes of compliance with §60.753(a)[1] or Rule (ggg)3.(ii)[2], each owner or operator of a controlled landfill shall place each well or design component as specified in the approved design plan as provided in §60.752(b)(2)(i)[1] or Rule (ggg)3.(i)[2]. Each well shall be installed within 60 days of the date in which the initial solid waste has been in place for a period of:

(1) 5 years or more if active; or

(2) 2 years or more if closed or at final grade.

(c) The following procedures shall be used for compliance with the surface methane operational standard as provided in §60.753(d)[1] or Rule (ggg)3.(ii)[2].

(1) After installation of the collection system, the owner or operator shall monitor surface concentrations of methane along the entire perimeter of the collection area and along a serpentine pattern spaced 30 meters apart (or a site-specific established spacing) for each collection area on a quarterly basis using an organic vapor analyzer, flame ionization detector, or other portable monitor meeting the specifications provided in paragraph (d) of this section.

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

(3) Surface emission monitoring shall be performed in accordance with section 4.3.1 of Method 21 of Appendix A of this text, except that the probe inlet shall be placed within 5 to 10 centimeters of the ground. Monitoring shall be performed during typical meteorological conditions.

(4) Any reading of 500 parts per million or more above background at any location shall be recorded as a monitored exceedance and the actions specified in paragraphs (c)(4)(i) through (v) of this section shall be taken. As long as the specified actions are taken, the exceedance is not a violation of the operational requirements of §60.753(d)[1] or Rule (ggg)3.(ii)[2].

(i) The location of each monitored exceedance shall be marked and the location recorded.

(ii) Cover maintenance or adjustments to the vacuum of the adjacent wells to

increase the gas collection in the vicinity of each exceedance shall be made and the location shall be re-monitored within 10 calendar days of detecting the exceedance.

(iii) If the re-monitoring of the location shows a second exceedance, additional corrective action shall be taken and the location shall be monitored again within 10 days of the second exceedance. If the re-monitoring shows a third exceedance for the same location, the action specified in paragraph (c)(4)(v) of this section shall be taken, and no further monitoring of that location is required until the action specified in paragraph (c)(4)(v) has been taken.

(iv) Any location that initially showed an exceedance but has a methane concentration less than 500 ppm methane above background at the 10-day re-monitoring specified in paragraph (c)(4)(ii) or (iii) of this section shall be re-monitored 1 month from the initial exceedance. If the 1-month remonitoring shows a concentration less than 500 parts per million above background, no further monitoring of that location is required until the next quarterly monitoring period. If the 1-month remonitoring shows an exceedance, the actions specified in paragraph (c)(4)(iii) or (v) shall be taken.

(v) For any location where monitored methane concentration equals or exceeds 500 parts per million above background three times within a quarterly period, a new well or other collection device shall be installed within 120 calendar days of the initial exceedance. An alternative remedy to the exceedance, such as upgrading the blower, header pipes or control device, and a corresponding timeline for installation may be submitted to the Director for approval.

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

(d) Each owner or operator seeking to comply with the provisions in paragraph (c) of this section shall comply with the following instrumentation specifications and procedures for surface emission monitoring devices:

(1) The portable analyzer shall meet the instrument specifications provided in section 3 of Method 21 of Appendix A of this text, except that "methane" shall replace all references to VOC.

(2) The calibration gas shall be methane, diluted to a nominal concentration of 500 parts per million in air.

(3) To meet the performance evaluation requirements in section 3.1.3 of Method 21 of Appendix A of this text, the instrument evaluation procedures of section 4.4 of Method 21 of Appendix A of this text shall be used.

(4) The calibration procedures provided in section 4.2 of Method 21 of Appendix A of this text shall be followed immediately before commencing a surface monitoring survey.

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

2.114.4 Monitoring of Operations

Except for methods and procedures approved by the Director as part of the collection and control system design plan,

(a) Each owner or operator seeking to comply with §60.752(b)(2)(ii)(A)[1] or Rule (ggg)3.(i)[2] for an active gas collection system shall install a sampling port and a thermometer or other temperature measuring device at each wellhead and:

(1) Measure the gauge pressure in the gas collection header on a monthly basis as provided in Section 2.114.3(a)(3);

(2) Monitor nitrogen or oxygen concentration in the landfill gas on a monthly basis as provided in Section 2.114.3(a)(5); and

(3) Monitor temperature of the landfill gas on a monthly basis as provided in Section 2.114.3(a)(5).

(b) Each owner or operator seeking to comply with §60.752(b)(2)(iii)[1] or Rule (ggg)3.(i)[2] using an enclosed combustor shall calibrate, maintain, and operate according to the manufacturer's specifications, the following equipment.

(1) A temperature monitoring device equipped with a continuous recorder and having an accuracy of ±1 percent of the temperature being measured expressed in degrees Celsius or ±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 megawatts.

(2) A gas flow rate measuring device that provides a measurement of gas flow to or bypass of the control device. The owner or operator shall either:

(i) Install, calibrate, and maintain a gas flow rate measuring device that shall record the flow to the control device at least every 15 minutes; or

(ii) Secure the bypass line valve in the closed position with a car-seal or a lock-and-key type configuration. A visual inspection of the seal or closure mechanism shall be performed at least once every month to ensure that the valve is maintained in the closed position and that the gas flow is not diverted through the bypass line.

(c) Each owner or operator seeking to comply with §60.752(b)(2)(iii)[1] or Rule (ggg)3.(i)[2] using an open flare shall install, calibrate, maintain, and operate according to the manufacturer's specifications the following equipment:

(1) A heat sensing device, such as an ultraviolet beam sensor or thermocouple, at the pilot light or the flame itself to indicate the continuous presence of a flame.

(2) A device that records flow to or bypass of the flare. The owner or operator shall either:

(i) Install, calibrate, and maintain a gas flow rate measuring device that shall record the flow to the control device at least every 15 minutes; or

(ii) Secure the bypass line valve in the closed position with a car-seal or a lock-

and-key type configuration. A visual inspection of the seal or closure mechanism shall be performed at least once every month to ensure that the valve is maintained in the closed position and that the gas flow is not diverted through the bypass line.

(d) Each owner or operator seeking to demonstrate compliance with §60.752(b)(2)(iii)[1] or Rule (ggg)3.(i)[2] using a device other than an open flare or an enclosed combustor shall provide information satisfactory to the Director as part of the collection and control system design plan describing the operation of the control device, the operating parameters that would indicate proper performance, and appropriate monitoring procedures. The Director shall review the information and either approve it or request that additional information be submitted. The Director may specify additional appropriate monitoring procedures.

(e) Each owner or operator seeking to install a collection system that does not meet the specifications in §60.759[1] or Rule (ggg)3.(viii)[2] or seeking to monitor alternative parameters to those required by §60.753[1] or Rule (ggg)3.(ii)[2] and Sections 2.114.2, 2.114.3, and 2.114.4 shall provide information satisfactory to the Director as provided in §60.752(b)(2)(i)(B) and (C)[1] or Rule (ggg)3.(i)[2] describing the design and operation of the collection system, the operating parameters that would indicate proper performance, and appropriate monitoring procedures. The Director may specify additional appropriate monitoring procedures.

(f) Each owner or operator seeking to demonstrate compliance with Section 2.114.3(c), shall monitor surface concentrations of methane according to the instrument specifications and procedures provided in Section 2.114.3(d). Any closed landfill that has no monitored exceedances of the operational standard in three consecutive quarterly monitoring periods may skip to annual monitoring. Any methane reading of 500 ppm or more above background detected during the annual monitoring returns the frequency for that landfill to quarterly monitoring.

2.114.5 Reporting Requirements

Except for methods and procedures approved by the Director as part of the collection and control system design plan:

(a) [Reserved]

(b) Each owner or operator subject to the requirements of this source category shall submit an NMOC emission rate report to the Director initially and annually thereafter, except as provided for in paragraphs (b)(1)(ii) or (b)(3) of this section. The Director may request such additional information as may be necessary to verify the reported NMOC emission rate.

(1) The NMOC emission rate report shall contain an annual or 5-year estimate of the NMOC emission rate calculated using the formula and procedures provided in Section 2.114.2(a) or (b), as applicable.

(i) The initial NMOC emission rate report shall be submitted within 90 days of the date waste acceptance commences and may be combined with the initial design capacity report required in §60.757(a)[1] or Rule (ggg)3.(vi)[2]. Subsequent NMOC emission rate reports shall be submitted annually thereafter, except as provided for in paragraphs (b)(1)(ii) and (b)(3) of this section.

(ii) If the estimated NMOC emission rate as reported in the annual report to the

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

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

(3) Each owner or operator subject to the requirements of this source category is exempted from the requirements of paragraphs (b)(1) and (2) of this section, after the installation of a collection and control system in compliance with §60.752(b)(2)[1] or Rule (ggg)3.(i)[2], during such time as the collection and control system is in operation and in compliance with §60.753[1] and Rule (ggg)3.(ii)[2] and Section 2.114.3.

(c)-(e) [Reserved]

(f) Each owner or operator of a landfill seeking to comply with §60.752(b)(2)[1] or Rule (ggg)3.(i)[2] using an active collection system designed in accordance with §60.752(b)(2)(ii)[1] or Rule (ggg)3.(i)[2] shall submit to the Director annual reports of the recorded information in (f)(1) through (f)(6) of this paragraph. The initial annual report shall be submitted within 180 days of installation and start-up of the collection and control system, and shall include the initial performance test report required under Section 1.2. For enclosed combustion devices and flares, reportable exceedances are defined under Section 2.114.6(c).

(1) Value and length of time for exceedance of applicable parameters monitored under Section 2.114.4(a), (b), (c), and (d).

(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 2.114.4.

(3) Description and duration of all periods when the control device was not operating for 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 in excess of 5 days.

(5) The location of each exceedance of the 500 parts per million methane concentration as provided in §60.753(d)[1] or Rule (ggg)3.(ii)[2] and the concentration recorded at each location for which an exceedance was recorded in the previous month.

(6) The date of installation and the location of each well or collection system expansion added pursuant to paragraphs (a)(3), (b), and (c)(4) of Section 2.114.3.

(g) Each owner or operator seeking to comply with §60.752(b)(2)(i)[1] or Rule (ggg)3.(i)[2] shall include

the following information with the initial performance test report required under Section 1.2:

(1) A diagram of the collection system showing collection system positioning including all wells, horizontal collectors, surface collectors, or other gas extraction devices, including the locations of any areas excluded from collection and the proposed sites for the future collection system expansion;

(2) The data upon which the sufficient density of wells, horizontal collectors, surface collectors, or other gas extraction devices and the gas mover equipment sizing are based;

(3) The documentation of the presence of asbestos or nondegradable material for each area from which collection wells have been excluded based on the presence of asbestos or nondegradable material;

(4) The sum of the gas generation flow rates for all areas from which collection wells have been excluded based on nonproductivity and the calculations of gas generation flow rate for each excluded area;

(5) The provisions for increasing gas mover equipment capacity with increased gas generation flow rate, if the present gas mover equipment is inadequate to move the maximum flow rate expected over the life of the landfill; and

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

2.114.6 Recordkeeping Requirements

Except for methods and procedures approved by the Director as part of the collection and control system design plan:

(a) Each owner or operator of an MSW landfill subject to the provisions of §60.752(b) shall keep for at least 5 years up-to-date, readily accessible, on-site records of the maximum design capacity, 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 4 hours. Either paper copy or electronic formats are acceptable.

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

(1) Where an owner or operator subject to the provisions of this source category seeks to demonstrate compliance with §60.752(b)(2)(ii)[1] or Rule (ggg)3.(i)[2]:

(i) The maximum expected gas generation flow rate as calculated in Section 2.114.3(a)(1). The owner or operator may use another method to determine the maximum gas generation flow rate, if the method has been approved by the Director.

(ii) The density of wells, horizontal collectors, surface collectors, or other gas extraction devices determined using the procedures specified in §60.759(a)(1)[1] or Rule (ggg)3.(viii)[2].

(2) Where an owner or operator subject to the provisions of this source category seeks to demonstrate compliance with §60.752(b)(2)(iii)[1] or Rule (ggg)3.(i)[2] through use of an enclosed combustion device other than a boiler or process heater with a design heat input capacity greater than 44 megawatts:

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

(ii) The percent reduction of NMOC determined as specified in §60.752(b)(2)(iii)(B)[1] or Rule (ggg)3.(i)[2] achieved by the control device.

(3) Where an owner or operator subject to the provisions of this source category seeks to demonstrate compliance with §60.752(b)(2)(iii)(B)(~~1~~)[1] or Rule (ggg)3.(i)[2] through use of a boiler or process heater of any size: a description of the location at which the collected gas vent stream is introduced into the boiler or process heater over the same time period of the performance testing.

(4) Where an owner or operator subject to the provisions of this source category seeks to demonstrate compliance with §60.752(b)(2)(iii)(A)[1] or Rule (ggg)3.(i)[2] through use of an 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 as specified in Section 1.7; continuous records of the flare pilot flame or flare flame monitoring and records of all periods of operations during which the pilot flame of the flare flame is absent.

(c) Each owner or operator of a controlled landfill subject to the provisions of this source category shall keep for 5 years up-to-date, readily accessible continuous records of the equipment operating parameters specified to be monitored in Section 2.114.4 as well as up-to-date, readily accessible records for periods of operation during which the parameter boundaries established during the most recent performance test are exceeded.

(1) The following constitute exceedances that shall be recorded and reported under Section 2.114.5(f):

(i) For enclosed combustors except for boilers and process heaters with design heat input capacity of 44 megawatts (150 million British thermal unit per hour) or greater, all 3-hour periods of operation during which the average combustion temperature was more than 28 °C below the average combustion temperature during the most recent performance test at which compliance with §60.752(b)(2)(iii)[1] or Rule (ggg)3.(i)[2] was determined.

(ii) For boilers or process heaters, whenever there is a change in the location at which the vent stream is introduced into the flame zone as required under paragraph (b)(3)(i) of this section.

(2) Each owner or operator subject to the provisions of this source category shall keep up-to-date, readily accessible continuous records of the indication of flow to the control device or the indication of bypass flow or records of monthly inspections of car-seals or lock-and-key configurations used to seal bypass lines, specified under Section 2.114.4.

(3) Each owner or operator subject to the provisions of this source category who uses a

boiler or process heater with a design heat input capacity of 44 megawatts or greater to comply with §60.752(b)(2)(iii)[1] or Rule (ggg)3.(i)[2] shall keep an up-to-date, readily accessible record of all periods of operation of the boiler or process heater. (Examples of such records could include records of steam use, fuel use, or monitoring data collected pursuant to other State, local, Tribal, or Federal regulatory requirements.)

(4) Each owner or operator seeking to comply with the provisions of this source category by use of an open flare shall keep up-to-date, readily accessible continuous records of the flame or flare pilot flame monitoring specified under Section 2.114.4(c), and up-to-date, readily accessible records of all periods of operation in which the flame or flare pilot flame is absent.

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

(1) Each owner or operator subject to the provisions of this source category shall keep up-to-date, readily accessible records of the installation date and location of all newly installed collectors as specified under Section 2.114.3(b).

(2) Each owner or operator subject to the provisions of this source category shall keep readily accessible documentation of the nature, date of deposition, amount, and location of asbestos-containing or nondegradable waste excluded from collection as provided in §60.759(a)(3)(i)[1] or Rule (ggg)3.(viii)[2] as well as any nonproductive areas excluded from collection as provided in §60.759(a)(3)(ii)[1] or Rule (ggg)3.(viii)[2].

(e) Each owner or operator subject to the provisions of this source category shall keep for at least 5 years up-to-date, readily accessible records of all collection and control system exceedances of the operational standards in §60.753[1] or Rule (ggg)3.(ii)[2], the reading in the subsequent month whether or not the second reading is an exceedance, and the location of each exceedance.

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[1]Code of Federal Regulations, Title 40, Part 60.
[2]Rules For Air Quality Control, Chapter 391-3-1-.02(2)(ggg)
[3]Code of Federal Regulations, Title 40, Part 51
[4]Code of Federal Regulations, Title 40, Part 52