

EASTERN KERN AIR POLLUTION CONTROL DISTRICT



**MAJOR SOURCE
PERMIT TO OPERATE**

2700 "M" Street, Suite 302
Bakersfield, CA 93301-2370
Bakersfield: (661) 862-5250
Field Office: (661) 823-9264

Permittee: Ridgecrest Recycling and Sanitary Landfill

Location: 3301 Bowman Road, Ridgecrest

Permit No: 0027-V-2019

Mailing Address 2700 "M" Street, Suite 500
Bakersfield, CA 93301

Permit No: 0027-V-2019

Issuance Date: XXXX XX, 2021

Expiration Date: XXXX XX, 2026

Nature of Business: Landfill

This permit is issued pursuant to, and is conditioned upon, compliance with provisions of the Eastern Kern Air Pollution Control District Rules and Regulations as authorized by the California Health and Safety Code (CH&SC), Section 39002. This permit is subject to accuracy of all information submitted relating to the permit application and to conditions appended hereto. It is valid from date of issuance until date of expiration unless renewed and shall be made readily available for inspection at any reasonable time to any and all persons who may request to see it.

Pursuant to the Clean Air Act Amendments of 1990 (CAAA), all conditions of this permit are federally enforceable by U.S. EPA and Eastern Kern Air Pollution Control District. Those provisions which are not required by the CAAA are considered to be Eastern Kern provisions and are not federally enforceable by U.S. EPA.

By:

Glen E. Stephens, P.E.
Air Pollution Control Officer

TABLE OF CONTENTS

General Permit Conditions

List of Insignificant Air Pollutant Emitting Equipment

Process Diagrams

Emission Unit

Description of Source

004

Landfill

005D

Landfill Gas Extraction & Disposal System

Federal Regulations

40 CFR Part 60
NSPS Subpart A

General Provisions

NSPS Subpart Cf

Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills

NSPS Subpart WWW

Standards of Performance Municipal Solid Waste Landfills

40 CFR Part 63
NESHAP Subpart A

General Provisions

Appendices

Appendix A

Applicable Federal Requirements

Appendix B

Compliance Assurance Monitoring (CAM)

Appendix C

Greenhouse Gas Facility Wide Reporting

Appendix D

Fugitive Dust Requirements under the California Integrated Waste Management Board (CIWMB) Criteria for Landfills and Disposal Sites

General Permit Conditions

In accordance with CH&SC, §39002 and §§42301.10 - 42301.12 and all applicable District Rules and Regulations, the conditions which are listed below are hereby contained in and made a part of this permit:

	Federally Enforceable Conditions	Reg/Rule
1.	<p><u>Inspections</u></p> <p>Inspections shall be made by the enforcement agency for the purpose of obtaining information necessary to determine whether air pollution sources are in compliance with applicable rules and regulations, including authority to require record keeping and to make inspections and conduct tests of air pollution sources.</p>	Reg. I, Rule 107
2.	<p><u>Stack Monitoring</u></p> <p>Upon the request of and as directed by the Control Officer, the owner shall provide, install, and operate continuous monitoring equipment on such operations as directed. The owner shall maintain, calibrate, and repair the equipment and shall keep the equipment operating at design capabilities.</p>	Reg. I, Rule 108
3.	<p><u>Source Sampling</u></p> <p>Upon the request of the Control Officer and as directed by him the owner of any source operation which emits or may emit air contaminants, for which emission limits have been established, shall provide the necessary and proper facilities for source sampling.</p> <p>The applicable test method, if not specified in the rule, shall be conducted in accordance with Title 40 Code of Federal Regulations (40 CFR), Subpart 60, Appendix A - Reference Methods, except particulate matter (PM₁₀) for compliance with Rule 210.1 requirements shall be conducted in accordance with 40 CFR, Subpart 51, Appendix M, Method 201 or 201A. Where no test method exists in the preceding references for a source type source sampling shall be conducted in accordance with California Air Resources Board (CARB) approved methods.</p>	Reg. I, Rule 108.1
4.	<p><u>Severability</u></p> <p>If any provision, clause, sentence, paragraph, section or part of these Regulations or application thereof to any person or circumstance shall for any reason be adjudged by a court of competent jurisdiction to be unconstitutional or invalid, such judgment shall not affect or invalidate the remainder of this Regulation and the application of such provision to other persons or circumstances, but shall be confined in its operation to the provision, clause, sentence, paragraph, section or part thereof directly involved in the controversy in which such judgment shall have been rendered and to the person or circumstance involved, and it is hereby declared to be the intent of the Eastern Kern Air Pollution Control Board that these Regulations would have been adopted in any case had such invalid provision or provisions not been included.</p>	Reg. I, Rule 114

	Federally Enforceable Conditions	Reg/Rule
5.	<p><u>Applicability of Federally Enforceable Conditions</u></p> <p>Federally Enforceable Conditions <u>do not apply</u> to the following permit sections: Equipment Descriptions, and any Design Conditions, Operational Conditions, Special Conditions, or Compliance Testing Requirements designated as District only. Federally Enforceable Conditions <u>shall apply</u> to Design Conditions, Operational Conditions, Special Conditions, Compliance Testing Requirements, and Emission Limits except as noted above.</p>	Reg. II, Rule 201.1
6.	<p><u>Compliance with Permit Conditions</u></p> <p>A. Permittee shall comply with all permit conditions;</p> <p>B. Permit does not convey any property rights or any exclusive privilege;</p> <p>C. Non-compliance with any permit condition shall be grounds for permit termination, revocation and reissuance, modification, enforcement action or denial of permit renewal;</p> <p>D. Permittee shall not use “need to halt or reduce a permitted activity in order to maintain compliance” as a defense for non-compliance with any permit condition;</p> <p>E. Pending permit action or notification of anticipated non-compliance does not stay any permit condition; and</p> <p>F. Within a reasonable time period, permittee shall furnish any information requested by the APCO, in writing, for purpose of determining: 1) compliance with the permit, or 2) whether or not cause exists for a permit or enforcement action.</p>	Reg. II, Rule 201.1
7.	<p><u>Permit Life</u></p> <p>The life of this permit shall be five years from the date of issuance.</p>	Reg. II, Rule 201.1
8.	<p><u>Administrative Permit Amendment and Minor Permit Modification</u></p> <p>Administrative Permit Amendment and Minor Permit Modification are those actions taken by the District as defined in Rule 201.1.</p>	Reg. II, Rule 201.1

	Federally Enforceable Conditions	Reg/Rule
	<p><u>Emergency Provisions</u></p> <p>A. The permittee shall comply with the requirements of Rule 111 and the emergency provisions contained in all permit streamlining requirements imposed in accordance with Subsection V.J., Page 201.1-27, all District-only rules which apply in accordance with Subsection V.K.1., Page 201.1-28, and all applicable federal requirements not subsumed by such permit streamlining requirement(s) or District-only rules;</p> <p>B. Within two weeks of an emergency event, an owner or operator of the source shall submit to the District a properly signed, contemporaneous log or other relevant evidence which demonstrates that:</p> <ol style="list-style-type: none"> 1) An emergency occurred; 2) The permittee can identify the cause(s) of the emergency; 3) The facility was being properly operated at the time of the emergency; 4) All steps were taken to minimize the emissions resulting from the emergency; and 5) Within two working days of the emergency event, the permittee provided the District with a description of the emergency and any mitigating or corrective actions taken; <p>C. In any enforcement proceeding, the permittee has the burden of proof for establishing that an emergency occurred.</p>	<p>Reg. II, Rule 201.1</p>
	<p><u>Recordkeeping</u></p> <p>A. Recording of maintenance of all monitoring and support information associated with all permit streamlining requirements imposed in accordance with Subsection V.J., all District-only rules which apply in accordance with Subsection V.K.1., and all applicable federal requirement not submitted by such permit streamlining requirement(s) or District-only rules, including:</p> <ol style="list-style-type: none"> 1) Date, place, and time of sampling; 2) Operating conditions at time of sampling; 3) Date, place, and method of analysis; and 4) Results of analysis; <p>B. Retention of records of all required monitoring data and support information for a period of at least five years from the date of sample collection, measurement, report, or application; and</p>	<p>Reg. II, Rule 201.1</p>

	Federally Enforceable Conditions	Reg/Rule
	<p>C. Any other record keeping deemed necessary by the APCO to ensure compliance with all permit streamlining requirements imposed in accordance with Subsection V.J., all District-only rules which apply in accordance with Subsection V.K.1., and all applicable federal requirements not subsumed by such permit streamlining requirement(s) or District-only rules.</p>	
	<p><u>Reporting</u></p> <p>A. Any non-conformance with permit requirements, including any attributable to emergency conditions (as defined in the permit) shall be promptly reported to the APCO and in accordance with Rule 111;</p> <p>B. Monitoring report shall be submitted at least every six months identifying any non-conformance with permit requirements, including any previously reported to the APCO;</p> <p>C. All reports of non-conformance with permit requirements shall include probable cause of non-conformance and any preventative or corrective action taken;</p> <p>D. Progress report shall be made on a compliance schedule at least semi-annually and including:</p> <ol style="list-style-type: none"> 1) Date when compliance will be achieved, 2) Explanation of why compliance was not, or will not be achieved by the scheduled date, and 3) Log of any preventative or corrective action taken; and <p>E. Each monitoring report shall be accompanied by a written statement from the responsible official certifying the truth, accuracy, and completeness of the report.</p>	<p>Reg. II, Rule 201.1</p>
	<p><u>Referencing of District and Applicable Requirements</u></p> <p>Pursuant to Rule 201.1.VI.c. District hereby references the following documents which are clearly identified and available to the District and to the public:</p> <p>A. Each Authority to Construct file for new equipment and each Authority to Construct file to modify existing equipment.</p> <p>These files contain title, document number, applicant, and date received. Also included in these files are rule citations, engineering evaluations, and final documents all related to the existing permit conditions and emissions limits set forth in this permit.</p>	<p>Reg. II, Rule 201.1</p>

	Federally Enforceable Conditions	Reg/Rule
	<p><u>Right of Entry</u></p> <p>The source shall allow entry of District, CARB, or U.S. EPA officials for purpose of inspection and sampling, including:</p> <p>A. Inspection of the stationary source, including equipment, work practices, operations, and emission-related activity;</p> <p>B. Inspection and duplication of records required by the permit to operate; and</p> <p>C. Source sampling or other monitoring activities.</p>	<p>Reg. II, Rule 201.1</p>
	<p><u>Periodic Monitoring</u></p> <p><u>Non-Point</u></p> <p>Ridgecrest Recycling and Sanitary Landfill shall conduct testing semi-annually, in accordance with the methodology contained in EPA Method 22 for all non-point sources. This testing will be the basis for determining compliance with the visible emission standard in District Rule 401.</p> <p>If no emissions are observed utilizing Method 22, the non-point source shall be deemed to be in compliance with the visible emission standard. If emissions are observed from any non-point source and that source is not operating under breakdown condition as defined in and allowed for in District Rule 111, Ridgecrest Recycling and Sanitary Landfill shall conduct testing on that non-point source within 24 hours of the Method 22 testing in accordance with EPA Method 9 to verify compliance with the visible emission standard.</p> <p>NOTE: This requirement does not apply to fugitive emissions resulting from activities not covered by a permit to operate unless the source is subject to District Rule 210.1 (NSR) requirements.</p> <p><u>Point</u></p> <p>The permittee shall conduct testing semi-annually, in accordance with the methodology contained in EPA Method 22 for all point sources. This testing will be the basis for determining compliance with the visible emission standard in District Rule 401. If no emissions are observed utilizing Method 22, the point source shall be deemed to be in compliance with the visible emission standard. If emissions are observed from any point source and that point source is not operating under breakdown condition as defined in and allowed for in District Rule 111, Ridgecrest Recycling and Sanitary Landfill shall conduct testing on that point source:</p>	

	Federally Enforceable Conditions	Reg/Rule
	<p>A. Within 24 hours of the Method 22 testing in accordance with EPA Method 9 to verify compliance with the visible emission standard. If compliance is not documented:</p> <p>B. Within 30 days of the Method 9 testing in accordance with EPA Method 5 or 5D to verify compliance with the requirements of District Rules 404.1 and/or 210.1.</p>	
	<p><u>Additional Monitoring</u></p> <p>All control equipment shall be inspected annually for proper operation. The permittee shall maintain all records of control equipment maintenance for a period of five years.</p> <p>Monitoring shall be the responsibility of the source; however, a visible emissions inspection or Method 9 conducted by a District inspector may be counted as meeting the requirement for the source to conduct same if the information and records generated by the inspector meets the requirements of the permit and a copy of the records are maintained by the source for a period of five years.</p> <p>Record keeping provisions associated with all monitoring requirements shall include the following information:</p> <p>A. Identification of stack or emission point being monitored;</p> <p>B. Operational conditions at the time of monitoring;</p> <p>C. Records of any monitoring conducted, including records of emission or operational parameter values and the date, place and time of sampling or measurement; and</p> <p>D. Where corrective action is triggered, description of the corrective action and the date, time and results of any corrective action.</p> <p><u>Testing</u></p> <p>The permittee shall conduct stack testing annually and at other times as specified by U.S. EPA or the District, in accordance with the methodology outlined in EPA Method 18 or equivalent, to verify compliance with emission limits and the accuracy of any continuous in-stack monitors. The District and U.S. EPA shall be notified at least 30 days in advance of the testing to allow an observer to be present and the report of results shall be transmitted to the District as soon as they are available. (District Rule 210.1)</p>	

	Federally Enforceable Conditions	Reg/Rule
	<p><u>Conditional Approval</u></p> <p>The Control Officer shall issue an Authority to Construct or a Permit to Operate, subject to conditions to insure compliance of the operation of any article, machine, equipment or other contrivance within the standards of Rule 208 and 208.1, in which case the conditions shall be specified in writing. Commencing work under such Authority to Construct or operation under such Permit to Operate shall be deemed acceptance of all conditions so specified. The Control Officer shall issue an Authority to Construct or Permit to Operate with revised conditions upon receipt of a new application, if the applicant demonstrates the article, machine, equipment or other contrivance can be operated within the standards of Rule 208 and 208.1 under the revised conditions.</p>	Reg. II, Rule 209
	<p><u>Standards for Authority to Construct</u></p> <p>A. The Permittee may make a change to this permitted facility that is not addressed or prohibited by the federally enforceable conditions of this Part 70 permit without obtaining a Part 70 permit revision if:</p> <ol style="list-style-type: none"> 1) The Permittee has obtained all permits and approvals required by District Rules 201 and 210.1 (unless the change is exempt under District Rule 202); 2) The change is not subject to any requirements under Title IV of the Clean Air Act; 3) The change is not a Title I modification; and 4) The change does not violate an applicable requirement of the Clean Air Act or a federally enforceable term or condition of this permit. <p>B. For a change that qualified under this section, the Permittee shall provide contemporaneous written notice to the District and the U.S. EPA (except for a change that is exempt under District Rule 202). This written notice shall describe the change, including the date it was made, and shall contain other information as required to determine new applicable requirements of the Clean Air Act that apply as a result of the change;</p> <p>C. Upon satisfying the requirements of paragraph B above, the Permittee may make the proposed change;</p> <p>D. Changes that qualify under this section are not subject to the requirements for Part 70 revisions;</p> <p>E. The Permittee shall include each off-permit change made under this section in the application for renewal of this Part 70 permit; and</p> <p>F. The permit shield(s) provided in this permit do not apply to off-permit changes made under this section.</p>	Reg. II, Rule 210.1

	Federally Enforceable Conditions	Reg/Rule
	<p><u>Prevention of Significant Deterioration (PSD)</u></p> <p>Facility may be subject to District Rule 210.4, Prevention of Significant Deterioration (PSD) if it undergoes major modification(s).</p>	Reg. II, Rule 210.4
	<p><u>Permit Fees</u></p> <p>Every applicant for an Authority to Construct or a Permit to Operate shall pay a filing fee. For issuance of an Authority to Construct, or an initial Permit to Operate, the applicant shall pay fees as prescribed in Rule 301. For issuance of an Authority to Construct, application processing fees shall also be paid as prescribed in Rule 303. The applicant shall receive credit for filing fees paid.</p> <p>Annually on the anniversary of issuance of a Permit to Operate, the permittee shall pay a renewal fee as prescribed in Rule 301. Fees collected pursuant to Rule 201.1, Section VII.A. shall supplement applicable Rules 301 and 301.3 fee requirements.</p>	Reg. III, Rule 301
	<p><u>Payment of Supplemental Fee</u></p> <p>An owner or operator, or his designee, shall pay an annual supplemental fee for a permit to operate pursuant to this Rule as determined by the calculation method in Subsection C., to provide a District-wide fee rate of \$25 per ton of fee-based emissions (CPI-adjusted) for all facilities subject to Rule 201.1, unless Rule 201.1 VII.B. applies.</p>	Rule 201.1
	<p><u>Greenhouse Gas Fee</u></p> <p>Any stationary source that has actual GHG emissions, in the prior calendar year, greater than or equal to 100,000 tons of CO₂e, as calculated in accordance with 40 CFR Part 98, shall pay a Consumer Price Index (CPI) adjusted GHG fee per ton of CO₂e being emitted. Sources subject to this Rule shall submit an annual report of GHG emissions to the District no later than the thirty-first day of March.</p>	Reg. III, Rule 301.4
	<p><u>Visible Emissions Limits</u></p> <p>A person shall not discharge into the atmosphere, from any single source of emission whatsoever, any air contaminant for a period or periods aggregating more than three minutes in any one hour which is:</p> <p>A. As dark or darker in shade as that designated as No. 1 on the Ringelmann Chart, as published by the United States Bureau of Mines; or</p> <p>B. Of such opacity as to obscure an observer’s view to a degree equal to or greater than does smoke described in Subsection A.</p>	Reg. IV, Rule 401

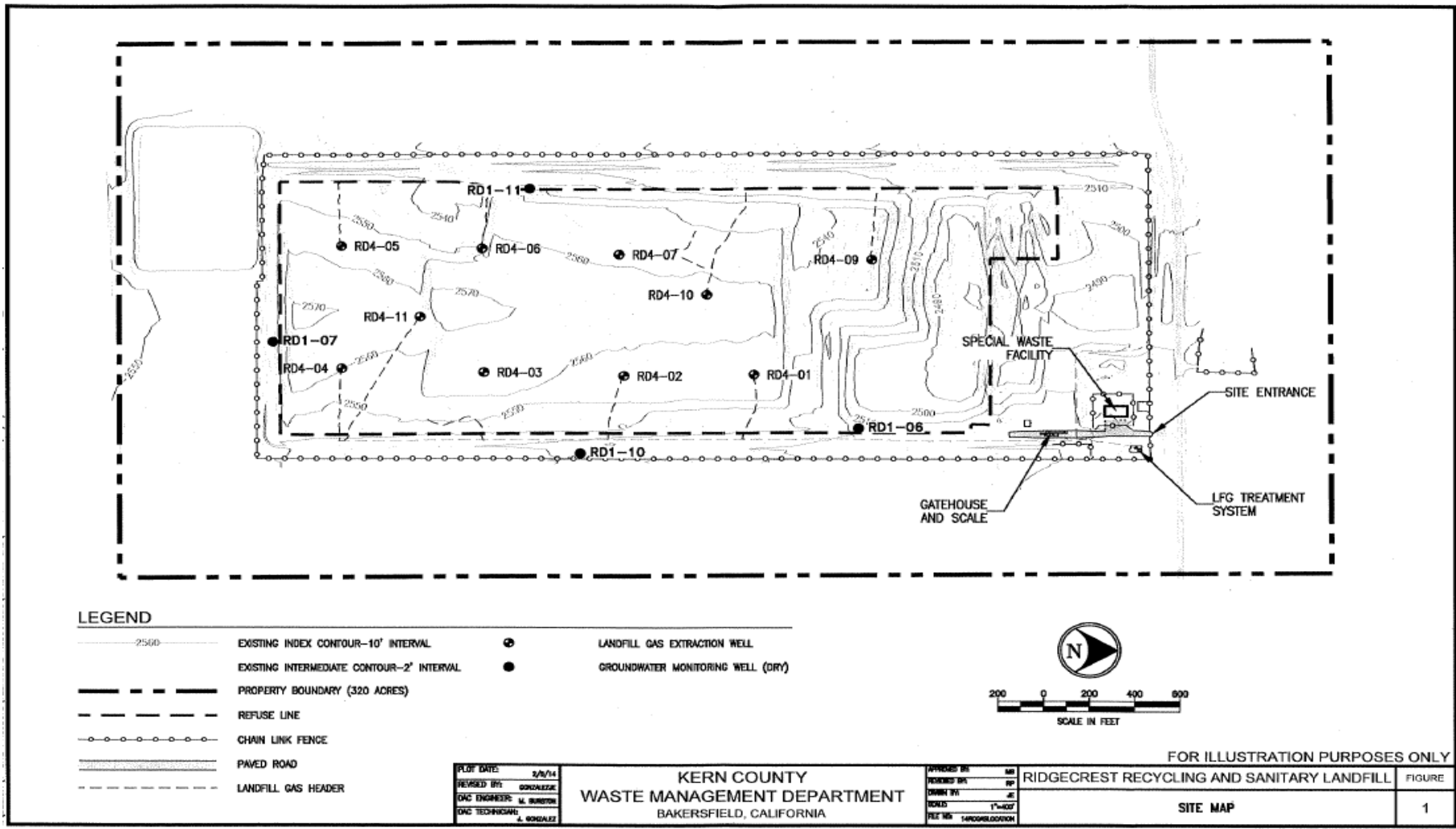
	Federally Enforceable Conditions	Reg/Rule
	<p><u>Particulate Matter Concentration - Desert Basin</u></p> <p>A person shall not discharge into the atmosphere from any single source operation, in service on the date this Rule is adopted, particulate matter in excess of 0.1 grains per cubic foot of gas at standard conditions.</p>	Reg. IV, Rule 404.1
	<p><u>Sulfur Compounds</u></p> <p>A person shall not discharge into the atmosphere sulfur compounds, which would exist as a liquid or gas at standard conditions, exceeding in concentration at the point of discharge: 0.2 percent by volume calculated as sulfur dioxide (SO₂).</p>	Reg. IV, Rule 407
	<p><u>Federal New Source Performance Standards (NSPS)</u></p> <p>Provisions of Part 60, Chapter 1, Title 40, Code of Federal Regulations, in effect January 11, 2018, are hereby adopted by reference and made a part hereof. All new and modified sources shall comply with standards, criteria and requirements therein.</p> <p>All applicable requirements of 40 CFR Part 60, Subparts A, Cf, and WWW apply to this facility.</p>	Reg. IV, Rule 422
	<p><u>National Emission Standards for Hazardous Air Pollutants and Source Categories (NESHAPS)</u></p> <p>Provisions of Title 40, Chapter 1, Parts 61 and 63, Code of Federal Regulations, in effect January 11, 2018, are hereby adopted by reference and made a part hereof. All sources of hazardous air pollution shall comply with applicable standards, criteria and requirements set forth herein.</p> <p>Pursuant to 40 CFR §70.6(f), the Eastern Kern Air Pollution Control District expressly states that a Permit Shield is incorporated herein that determined 40 CFR Part 63 Subpart AAAA - National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills (“Subpart AAAA”) is not applicable to this Source. This permit shield does not apply if the facility meets any one of the following criteria in accordance with 40 CFR §63.1935:</p> <ol style="list-style-type: none"> a. The landfill is a major source as defined in 40 CFR 63.2 of subpart A. b. The landfill is collocated with a major source as defined in 40 CFR 63.2 of subpart A. c. The landfill is an area source landfill that has a design capacity equal to or greater than 2.5 million megagrams (Mg) and 2.5 million cubic meters (m³) and has estimated uncontrolled emissions equal to or greater than 50 megagrams per year (Mg/yr) NMOC as calculated according to §60.754(a) of the MSW landfills new source performance standards in 40 CFR part 60, subpart WWW. (Rule 201.) 	Reg. IV, Rule 423

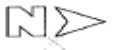
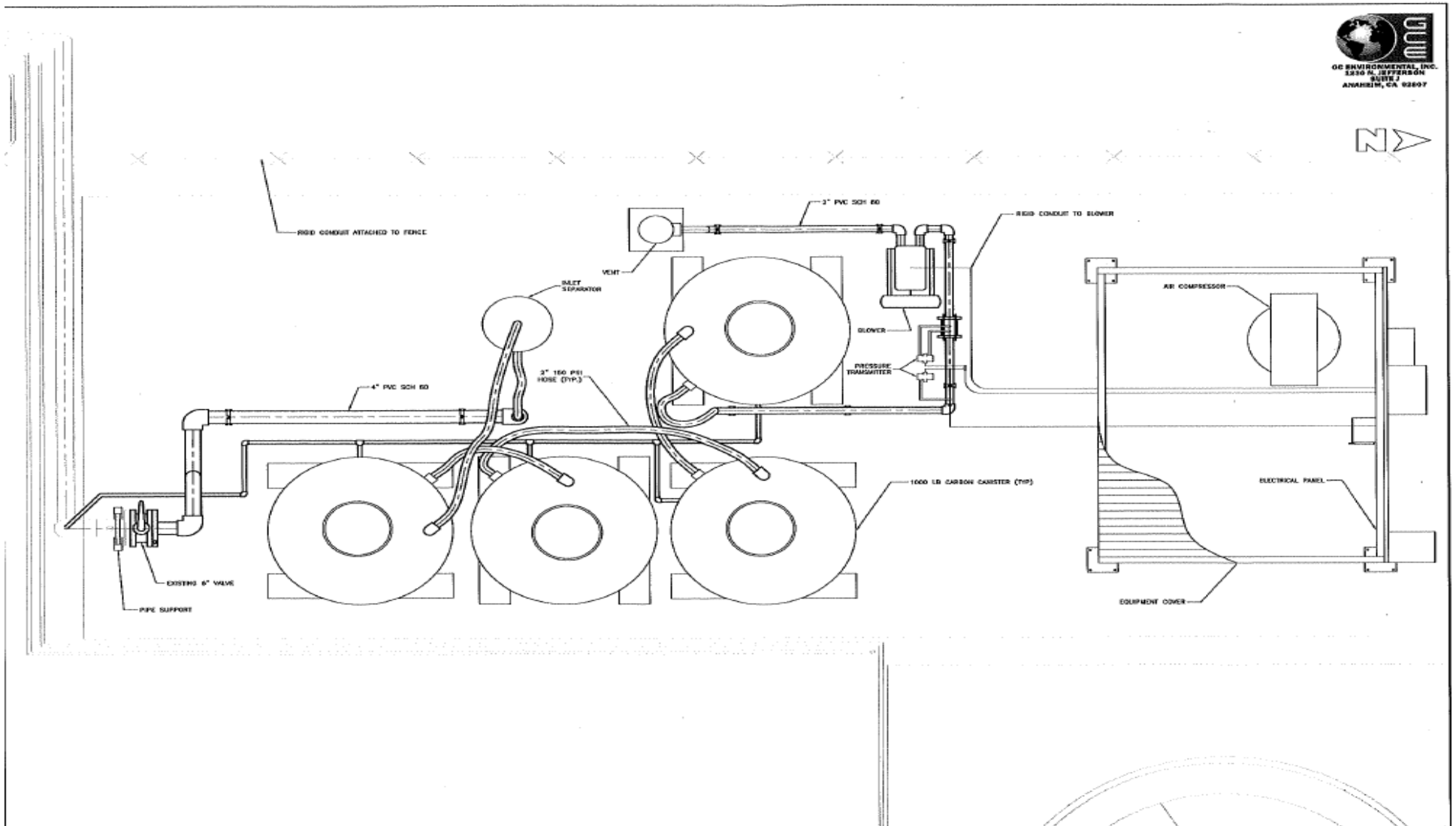
	Federally Enforceable Conditions	Reg/Rule
	<p>Nothing in this permit shall alter or effect the following:</p> <ul style="list-style-type: none"> a. The provisions of section 303 of the Clean Air Act (emergency orders), including the authority of the Administrator under that section. b. The liability of an owner or operator for any violation of applicable requirements prior to or at the time of permit issuance. c. The applicable requirements of the acid rain program, consistent with section 408(a) of the Clean Air Act. 	
	<p><u>Compliance Certification</u></p> <p>The owner/operator shall comply with the following procedures for compliance certification:</p> <ul style="list-style-type: none"> A. Submittal of a compliance certification by the owner or operator to the U.S. EPA and copy to the APCO within 60 days after end of compliance certification period; B. Compliance certification period shall begin July 1 of each year and end June 30 of the following year; C. Such compliance certification shall identify the basis for each permit term or condition, e.g., specify the emissions limitation, standard or work practice, and a means of monitoring compliance with the term or condition; D. Such compliance certification shall include compliance status and method(s) used to determine compliance for the current time period and over entire reporting period; and E. Such compliance certification shall include any additional inspection, monitoring or entry requirement promulgated pursuant to Sections 114(a) and 504(b) of the CAA. <p>Any application form, report, or compliance certification submitted pursuant to these regulations shall contain certification by a responsible official of truth, accuracy, and completeness. This certification and any other certification required under this part shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.</p> <p>U.S. EPA's Mailing Address: Director, Air Division 75 Hawthorne Street AIR-3 San Francisco, CA 94105</p>	<p>40 CFR 70.5d</p>

	Federally Enforceable Conditions	Reg/Rule
	<p><u>Protection of Stratospheric Ozone</u></p> <p>Persons opening appliances for maintenance, service, repair, or disposal must comply with the required practices pursuant to 40 CFR §82.156. Equipment used during maintenance, service, repair, or disposal of appliances must meet the standards for recycling and recovery equipment in accordance with 40 CFR §82.158. Persons performing maintenance, service, repair or disposal of appliances must be certified by a certified technician pursuant to 40 CFR §82.161</p>	

	District Only Rules	Reg/Rule
1.	<p><u>Equipment Breakdown</u></p> <p>An occurrence which constitutes a breakdown condition, and which persists only until the end of the production run or 24-hours, whichever is sooner (except for continuous monitoring equipment, for which the period shall be ninety-six (96) hours), shall constitute a violation of any applicable emission limitation or restriction prescribed by these Rules and Regulations; however, no enforcement action may be taken provided the owner or operator demonstrates to the Control Officer that a breakdown condition exists and the proper requirements are met.</p>	Reg. I, Rule 111
2.	<p><u>Nuisance</u></p> <p>A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance or annoyance to any considerable number of persons or to the public or which endanger the comfort, repose, health or safety of any such persons or the public or which cause or have a natural tendency to cause injury or damage to business or property.</p>	Reg. IV, Rule 419

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List of Insignificant Air Pollutant Emitting Equipment

Storage Tanks less than 250 gallons

Aboveground Diesel Storage Tanks less than 19,800 gallons

Storage of refined oil and grease

Brazing, Soldering, and Welding Equipment

Unvented Pressure Vessels

Comfort Air Conditioning or Ventilation

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Emission Unit 004 Permit Conditions

<u>Facility Number</u>	<u>Emissions Unit</u>	<u>Description of Source</u>
0027	004	Class III Sanitary Landfill

Emission Unit Equipment Description/Permit Conditions

Federally Enforceable Conditions

EQUIPMENT DESCRIPTION: Class III Sanitary Landfill (Ridgecrest), including following equipment:

- A. Landfill cells;
- B. Access roads;
- C. Borrow pits and/or dirt stockpiles;
- D. Earth moving equipment (permit exempt); and
- E. Gas monitoring probe.

Emission Unit 004 Permit Conditions

OPERATIONAL CONDITIONS:

- 1. Visible emissions at property line shall be less than 20% opacity except for: 1) not more than three minutes in any one hour. (Rules 401 and 419).
- 2. No emission shall cause injury, detriment, nuisance, annoyance to or endanger comfort, repose, health, or safety of any persons or have natural tendency to cause injury or damage to business or property. (CH&SC, Sec 41700 & Rule 419)
- 3. Category I and II asbestos containing material in good condition may be received and disposed, provided material is covered with at least 6 inches of non-asbestos containing cover prior to compaction activities. (Rule 423 and 40 CFR 61, Subpart M)
- 4. Landfill tarps shall be used as daily cover unless alternative is approved by District prior to use. (Rule 210.1)
- 5. Landfill operation shall be subject to District PM₁₀ Fugitive Dust policy. (93-01)
- 6. Conformity with CCR 20540 and 20800 of Title 27 shall be maintained to maintain exemption provided in Rule 402. (Rule 402)

COMPLIANCE TESTING REQUIREMENTS:

Should visible emissions indicate non-compliance with dust collector emission limits, compliance with hourly and concentration emission limits for particulates shall be verified pursuant to Rule 108.1 and District Guidelines for Compliance Testing, within 30 days of District request. (Rule 108.1)

Emission Unit 005C Permit Conditions

<u>Facility Number</u>	<u>Emissions Unit</u>	<u>Description of Source</u>
0027	005D	Landfill Gas Extraction and Disposal System

Emission Unit Equipment Description/Permit Conditions

Federally Enforceable Conditions

EQUIPMENT DESCRIPTION: Landfill Gas Extraction and Disposal System, including the following equipment:

Landfill Gas Extraction and Disposal System including:

- A. Landfill Gas (LFG) collection system,
- B. 3,000 gallon capacity blow-down water tank,
- C. Activated carbon adsorption VOC control system including 250 scfm regenerative blower with 5 hp motor and exhaust stack; and
- D. Spark ignited open flare

Emission Unit 005 Permit Conditions

OPERATIONAL CONDITIONS:

- 1. Carbon canisters shall be equipped with non-condensable gas volumetric flow meter. (Rule 210.1)
- 2. Carbon canisters volume shall not be less than 8,600 cubic feet. (Rule 210.1 BACT Requirement)
- 3. Exhaust stack shall be equipped with adequate provisions for collection of samples consistent with EPA test methods (e.g. capped sample port in assessable location of uniform flow, etc.). (Rule 108.1)
- 4. Visible emissions from carbon canisters and spark ignited flare shall not equal or exceed 0% opacity for more than 5 minutes in any two hour period. (Rule 210.1 BACT Requirement)
- 5. Exhaust gas particulate matter concentration shall not exceed 0.1 grains/ft³ of gas at standard conditions. (Rule 404.1)
- 6. Condensate collected by LFG collection wells shall be disposed by transport to waste treatment facility, recycled into carbon canisters, or re-injected into the lined portion of the landfill. (Rule 210.1)
- 7. VOC concentration from carbon canisters exhaust shall not exceed 4.4 ppmv (as hexane). (Rule 210.1)
- 8. Hydrogen sulfide (H₂S) concentration from carbon canisters exhaust shall not exceed 5 ppmv. (Rule 210.1)
- 9. Landfill gas to carbon canisters shall not exceed 250 standard cubic feet per minute (scfm). (Rule 210.1)
- 10. Only LFG shall be used to fire flare flame. (Rule 210.1)
- 11. Flare shall be equipped with spark ignition system. (Rule 209 and 210.1)
- 12. Equipment shall be maintained according to manufacturer's specifications to ensure compliance with emissions limitations. (Rule 210.1 and Rule 209)
- 13. Compliance with all operational conditions shall be verified by appropriate record keeping, including records of operational data needed to demonstrate compliance. Such records shall be kept on site in readily available format. (Rule 209)

STATE OF CALIFORNIA AIR TOXICS HOT SPOTS REQUIREMENTS:

Facility shall comply with California Health and Safety Code, Sections 44300 through 44384. (Rule 208.1)

COMPLIANCE TESTING REQUIREMENTS:

Should inspection reveal conditions indicative of non-compliance, compliance with emission limitations shall be verified, within 60 days of District request. Test results shall be submitted to EKAPCD within 60 days after test completion. (Rule 108.1)

EMISSION LIMITS:

Maximum emission rate of each air contaminant from this emission unit shall not exceed following limits:

<u>Particulate Matter (PM₁₀):</u>	0.13	lb/hr
	3.06	lb/day
	0.57	ton/year
<u>Sulfur Oxides (SO_x as SO₂):</u>	0.02	lb/hr
	0.28	lb/day
	0.06	ton/year
<u>Oxides of Nitrogen (NO_x as NO₂)</u>	0.30	lb/hr
	7.20	lb/day
	1.31	ton/year
<u>Volatile Organic Compounds (VOC):</u> (as defined in Rule 210.1)	0.02	lb/hr
	0.36	lb/day
	0.07	ton/year
<u>Carbon Monoxide (CO):</u>	5.63	lb/hr
	135.00	lb/day
	24.66	ton/year

(Emission limits established pursuant to Rule 210.1, unless otherwise noted.)

Compliance with maximum daily emission limits shall be verified by source operator (with appropriate operational data and record keeping to document maximum daily emission rate) each day source is operated and such documentation of compliance shall be retained and made readily available to District for period of five years. (Rules 201.1, 209 and 210.1)

**FEDERAL REGULATIONS
40 CFR 60 SUBPART A
General Provisions**

Applicable provisions of 40 CFR 60 Subpart A shall apply.

[40 FR 53346, Nov. 17, 1975, as amended at 55 FR 51382, Dec. 13, 1990; 59 FR 12427, Mar. 16, 1994; 62 FR 52641, Oct. 8, 1997]

Applicability

§60.1(a)	Except as provided in subparts B and C, the provisions of this part apply to the owner or operator of any stationary source which contains an affected facility, the construction or modification of which is commenced after the date of publication in this part of any standard (or, if earlier, the date of publication of any proposed standard) applicable to that facility.
§60.1(b)	Any new or revised standard of performance promulgated pursuant to section 111(b) of the Act shall apply to the owner or operator of any stationary source which contains an affected facility, the construction or modification of which is commenced after the date of publication in this part of such new or revised standard (or, if earlier, the date of publication of any proposed standard) applicable to that facility.
§60.1(c)	In addition to complying with the provisions of this part, the owner or operator of an affected facility may be required to obtain an operating permit issued to stationary sources by an authorized State air pollution control agency or by the Administrator of the U.S. Environmental Protection Agency (EPA) pursuant to Title V of the Clean Air Act (Act) as amended November 15, 1990 (42 U.S.C. 7661). For more information about obtaining an operating permit see part 70 of this chapter.
§60.1(a)(2)	Except for compliance with 40 CFR 60.49b(u), the site shall have the option of either complying directly with the requirements of this part, or reducing the site-wide emissions caps in accordance with the procedures set forth in a permit issued pursuant to 40 CFR 52.2454. If the site chooses the option of reducing the site-wide emissions caps in accordance with the procedures set forth in such permit, the requirements of such permit shall apply in lieu of the otherwise applicable requirements of this part.
§60.1(a)(3)	Notwithstanding the provisions of paragraph (d)(2) of this section, for any provisions of this part except for Subpart Kb, the owner/operator of the site shall comply with the applicable provisions of this part if the Administrator determines that compliance with the provisions of this part is necessary for achieving the objectives of the regulation and the Administrator notifies the site in accordance with the provisions of the permit issued pursuant to 40 CFR 52.2454.

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FEDERAL REGULATIONS
40 CFR 60 SUBPART Cf
Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills

Applicable provisions of 40 CFR 60 Subpart Cf shall apply.

[81 FR 59313, Aug. 29, 2016, as amended at 85 FR 17260, Mar. 26, 2020]

Designated Facilities

§60.31f	<p>(a) The designated facility to which these Emission Guidelines apply is each existing MSW landfill for which construction, reconstruction or modification was commenced on or before July 17, 2014.</p> <p>(b) Physical or operational changes made to an existing MSW landfill solely to comply with an emission guideline are not considered a modification or reconstruction and would not subject an existing MSW landfill to the requirements of subpart WWW [see §60.750 of subpart WWW].</p> <p>(c) For purposes of obtaining an operating permit under title V of the Act, the owner or operator of a MSW landfill subject to this subpart with a design capacity less than 2.5 million megagrams or 2.5 million cubic meters is not subject to the requirement to obtain an operating permit for the landfill under part 70 or 71 of this chapter, unless the landfill is otherwise subject to either part 70 or 71. For purposes of submitting a timely application for an operating permit under part 70 or 71, the owner or operator of a MSW landfill subject to this subpart with a design capacity greater than or equal to 2.5 million megagrams and 2.5 million cubic meters on the effective date of EPA approval of the State's program under section 111(d) of the Act, and not otherwise subject to either part 70 or 71, becomes subject to the requirements of §70.5(a)(1)(i) or §71.5(a)(1)(i) of this chapter 90 days after the effective date of such section 111(d) program approval, even if the design capacity report is submitted earlier.</p> <p>(d) When a MSW landfill subject to this subpart is closed as defined in this subpart, the owner or operator is no longer subject to the requirement to maintain an operating permit under part 70 or 71 of this chapter for the landfill if the landfill is not otherwise subject to the requirements of either part 70 or 71 and if either of the following conditions are met.</p> <p>(1) The landfill was never subject to the requirement for a control system under §60.33f of this subpart; or</p> <p>(2) The landfill meets the conditions for control system removal specified in §60.33f(f)</p> <p>(e) When an MSW landfill subject to this subpart is in the closed landfill subcategory, the owner or operator is not subject to the following reports of this subpart, provided the owner or operator submitted these reports under the provisions of subpart WWW of this part; 40 CFR part 62, subpart GGG; or a state plan implementing subpart Cc of this part on or before July 17, 2014:</p> <p>(1) Initial design capacity report specified in §60.38f(a).</p> <p>(2) Initial or subsequent NMOC emission rate report specified in §60.38f(c), provided that the most recent NMOC emission rate report indicated the NMOC emissions were below 50 Mg/yr.</p> <p>(3) Collection and control system design plan specified in §60.38f(d).</p> <p>(4) Closure report specified in §60.38f(f).</p> <p>(5) Equipment removal report specified in §60.38f(g).</p> <p>(6) Initial annual report specified in §60.38f(h).</p> <p>(7) Initial performance test report in §60.38f(i).</p>
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Compliance Times

§60.32f	Planning, awarding of contracts, installing, and starting up MSW landfill air emission collection and control equipment that is capable of meeting the Emission Guidelines under §60.33f must be completed within 30 months after the date an NMOC emission rate report shows NMOC emissions equal or exceed 34 megagrams per year (50 megagrams per year for the closed landfill subcategory); or within 30 months after the date of the most recent NMOC emission rate report that shows NMOC emissions equal or exceed 34 megagrams per year (50 megagrams per year for the closed landfill subcategory), if Tier 4 surface emissions monitoring shows a surface emission concentration of 500 parts per million methane or greater.
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Emission Guidelines

§60.33f	<p>(a) Landfills. For approval, a State plan must require each owner or operator of an MSW landfill having a design capacity greater than or equal to 2.5 million megagrams by mass and 2.5 million cubic meters by volume to collect and control MSW landfill emissions at each MSW landfill that meets the following conditions:</p> <ol style="list-style-type: none"> (1) The landfill has accepted waste at any time since November 8, 1987, or has additional design capacity available for future waste deposition; (2) The landfill has a design capacity greater than or equal to 2.5 million megagrams and 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 with the design capacity report; and (3) The landfill has an NMOC emission rate greater than or equal to 34 megagrams per year or Tier 4 surface emissions monitoring shows a surface emission concentration of 500 parts per million methane or greater. (4) The landfill in the closed landfill subcategory and has an NMOC emission rate greater than or equal to 50 megagrams per year or Tier 4 surface emissions monitoring shows a surface emission concentration of 500 parts per million methane or greater. <p>(b) Collection system. For approval, a State plan shall include the installation of a gas collection and control system meeting requirements in paragraphs (b)(1) through (3) and (c) of this section at each MSW landfill meeting the conditions in paragraph (a) of this section.</p> <ol style="list-style-type: none"> (1) Collection system. Install and start up a collection and control system that captures the gas generated within the landfill within 30 months after: <ol style="list-style-type: none"> (i) The first annual report in which the NMOC emission rate equals or exceeds 34 megagrams per year, unless Tier 2 or Tier 3 sampling demonstrates that the NMOC emission rate is less than 34 megagrams per year, as specified in §60.38f(d)(4); or (ii) The first annual NMOC emission rate report for a landfill in the closed landfill subcategory in which the NMOC emission rate equals or exceeds 50 megagrams per year, unless Tier 2 or Tier 3 sampling demonstrates that the NMOC emission rate is less than 50 megagrams per year, as specified in §60.38f(d)(4); or (iii) The most recent NMOC emission rate report in which the NMOC emission rate equals or exceeds 34 megagrams per year based on Tier 2, if the Tier 4 surface emissions monitoring shows a surface methane emission concentration of 500 parts per million methane or greater as specified in §60.38f(d)(4)(iii).
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§60.33f

(2) **Active.** An active collection system must:

- (i) Be designed to handle the maximum expected gas flow rate from the entire area of the landfill that warrants control over the intended use period of the gas control system equipment.
- (ii) Collect gas from each area, cell, or group of cells in the landfill in which the initial solid waste has been placed for a period of 5 years or more if active; or 2 years or more if closed or at final grade.
- (iii) Collect gas at a sufficient extraction rate.
- (iv) Be designed to minimize off-site migration of subsurface gas.

(3) **Passive.** A passive collection system must:

- (i) Comply with the provisions specified in paragraphs (b)(2)(i), (ii), and (iv) of this section.
- (ii) Be installed with liners on the bottom and all sides in all areas in which gas is to be collected. The liners must be installed as required under §258.40 of this chapter.

(c) **Control system.** For approval, a State plan shall include provisions for the control of collected gas from within the landfill through the use of control devices meeting the following requirements, except as provided in §60.24.

- (1) A non-enclosed flare designed and operated in accordance with the parameters established in §60.18 except as noted in §60.37f(d); or
- (2) 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 parts per million by volume, dry basis as hexane at 3 percent oxygen or less. The reduction efficiency or concentration in parts per million by volume must be established by an initial performance test to be completed no later than 180 days after the initial startup of the approved control system using the test methods specified in §60.35f(d). The performance test is not required for boilers and process heaters with design heat input capacities equal to or greater than 44 megawatts that burn landfill gas for compliance with this subpart.
 - (i) If a boiler or process heater is used as the control device, the landfill gas stream must be introduced into the flame zone.
 - (ii) The control device must be operated within the parameter ranges established during the initial or most recent performance test. The operating parameters to be monitored are specified in §60.37f.
 - (iii) For the closed landfill subcategory, the initial or most recent performance test conducted to comply with subpart WWW of this part; 40 CFR part 62, subpart GGG; or a state plan implementing subpart Cc of this part on or before July 17, 2014 is sufficient for compliance with this subpart.
- (3) Route the collected gas to a treatment system that processes the collected gas for subsequent sale or beneficial use such as fuel for combustion, production of vehicle fuel, production of high-Btu gas for pipeline injection, or use as a raw material in a chemical manufacturing process. Venting of treated landfill gas to the ambient air is not allowed. If the treated landfill gas cannot be routed for subsequent sale or beneficial use, then the treated landfill gas must be controlled according to either paragraph (c)(1) or (2) of this section.
- (4) All emissions from any atmospheric vent from the gas treatment system are subject to the requirements of paragraph (b) or (c) of this section. For purposes of this subpart, atmospheric vents located on the condensate storage tank are not part of the treatment system and are exempt from the requirements of paragraph (b) or (c) of this section.

<p>§60.33f</p>	<p>(d) Design capacity. For approval, a State plan must require each owner or operator of an MSW landfill having a design capacity less than 2.5 million megagrams by mass or 2.5 million cubic meters by volume to submit an initial design capacity report to the Administrator as provided in §60.38f(a). The landfill may calculate design capacity in either megagrams or cubic meters for comparison with the exemption values. Any density conversions shall be documented and submitted with the report. Submittal of the initial design capacity report shall fulfill the requirements of this subpart except as provided in paragraph (d)(1) and (d)(2) of this section.</p> <p>(1) The owner or operator shall submit an amended design capacity report as provided in §60.38f(b). [Guidance: Note that if the design capacity increase is the result of a modification, as defined in this subpart, that was commenced on or after July 17, 2014, then the landfill becomes subject to subpart XXX of this part instead of this subpart. If the design capacity increase is the result of a change in operating practices, density, or some other change that is not a modification as defined, the landfill remains subject to this subpart.]</p> <p>(2) When an increase in the maximum design capacity of a landfill with an initial design capacity less than 2.5 million megagrams or 2.5 million cubic meters results in a revised maximum design capacity equal to or greater than 2.5 million megagrams and 2.5 million cubic meters, the owner or operator must comply with paragraph (e) of this section.</p> <p>(e) Emissions. For approval, a State plan shall require each owner or operator of an MSW landfill having a design capacity equal to or greater than 2.5 million megagrams and 2.5 million cubic meters to either install a collection and control system as provided in paragraphs (b) and (c) of this section or calculate an initial NMOC emission rate for the landfill using the procedures specified in §60.35f(a). The NMOC emission rate shall be recalculated annually, except as provided in §60.38f(c)(3).</p> <p>(1) If the calculated NMOC emission rate is less than 34 megagrams per year, the owner or operator shall:</p> <p>(i) Submit an annual NMOC emission rate report according to §60.38f(c), except as provided in §60.38f(c)(3); and</p> <p>(ii) Recalculate the NMOC emission rate annually using the procedures specified in §60.35f(a) until such time as the calculated NMOC emission rate is equal to or greater than 34 megagrams per year, or the landfill is closed.</p> <p>(A) If the calculated NMOC emission rate, upon initial calculation or annual recalculation required in paragraph (e)(1)(ii) of this section, is equal to or greater than 34 megagrams per year, the owner or operator must either: Comply with paragraphs (b) and (c) of this section; calculate NMOC emissions using the next higher tier in §60.35f; or conduct a surface emission monitoring demonstration using the procedures specified in §60.35f(a)(6).</p> <p>(B) If the landfill is permanently closed, a closure report must be submitted to the Administrator as provided in §60.38f(f), except for exemption allowed under §60.31f(e)(4).</p> <p>(C) For the closed landfill subcategory, if the most recently calculated NMOC emission rate is equal to or greater than 50 megagrams per year, the owner or operator must either: Submit a gas collection and control system design plan as specified in §60.38f(d), except for exemptions allowed under §60.31f(e)(3), and install a collection and control system as provided in paragraphs (b) and (c) of this section; calculate NMOC emissions using the next higher tier in §60.35f; or conduct a surface emission monitoring demonstration using the procedures specified in §60.35f(a)(6).</p>
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<p>§60.33f</p>	<p>(2) If the calculated NMOC emission rate is equal to or greater than 34 megagrams per year using Tier 1, 2, or 3 procedures, the owner or operator must either: submit a collection and control system design plan prepared by a professional engineer to the Administrator within 1 year as specified in §60.38f(d), except for exemptions allowed under §60.31f(e)(3); calculate NMOC emissions using a higher tier in §60.35f; or conduct a surface emission monitoring demonstration using the procedures specified in §60.35f(a)(6).</p> <p>(3) For the closed landfill subcategory, if the calculated NMOC emission rate is equal to or greater than 50 megagrams per year using Tier 1, 2, or 3 procedures, the owner or operator must either: Submit a collection and control system design plan as specified in §60.38f(d), except for exemptions allowed under §60.31f(e)(3); calculate NMOC emissions using a higher tier in §60.35f; or conduct a surface emission monitoring demonstration using the procedures specified in §60.35f(a)(6).</p> <p>(f) Removal criteria. The collection and control system may be capped, removed, or decommissioned if the following criteria are met:</p> <p>(1) The landfill is a closed landfill (as defined in §60.41f). A closure report must be submitted to the Administrator as provided in §60.38f(f).</p> <p>(2) The collection and control system has been in operation a minimum of 15 years or the landfill owner or operator demonstrates that the GCCS will be unable to operate for 15 years due to declining gas flow.</p> <p>(3) Following the procedures specified in §60.35f(b), the calculated NMOC emission rate at the landfill is less than 34 megagrams per year on three successive test dates. The test dates must be no less than 90 days apart, and no more than 180 days apart.</p> <p>(4) For the closed landfill subcategory (as defined in §60.41), following the procedures specified in §60.35f(b), the calculated NMOC emission rate at the landfill is less than 50 megagrams per year on three successive test dates. The test dates must be no less than 90 days apart, and no more than 180 days apart.</p>
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Test Methods and Procedures

<p>§60.35f</p>	<p>(a)</p> <p>(1) NMOC Emission Rate. The landfill owner or operator must calculate the NMOC emission rate using either Equation 1 provided in paragraph (a)(1)(i) of this section or Equation 2 provided in paragraph (a)(1)(ii) of this section. Both Equation 1 and Equation 2 may be used if the actual year-to-year solid waste acceptance rate is known, as specified in paragraph (a)(1)(i) of this section, for part of the life of the landfill and the actual year-to-year solid waste acceptance rate is unknown, as specified in paragraph (a)(1)(ii) of this section, for part of the life of the landfill. The values to be used in both Equation 1 and Equation 2 are 0.05 per year for k, 170 cubic meters per megagram for Lo, and 4,000 parts per million by volume as hexane for the CNMOC. For landfills located in geographical areas with a 30-year annual average precipitation of less than 25 inches, as measured at the nearest representative official meteorologic site, the k value to be used is 0.02 per year.</p> <p>(i)</p> <p>(A) Equation 1 must be used if the actual year-to-year solid waste acceptance rate is known.</p>
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$$M_{\text{NMOC}} = \sum_{i=1}^n 2kL_oM_i(e^{-kt_i}) (C_{\text{NMOC}}) (3.6 \times 10^{-9}) \text{ (Eq. 1)}$$

Where:

M^{NMOC} = Total NMOC emission rate from the landfill, megagrams per year.
 k = Methane generation rate constant, year⁻¹.
 L^o = Methane generation potential, cubic meters per megagram solid waste.
 M^i = Mass of solid waste in the i^{th} section, megagrams.
 t^i = Age of the i^{th} section, years.
 C^{NMOC} = Concentration of NMOC, parts per million by volume as hexane.
 3.6×10^{-9} = Conversion factor.

(B) The 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.

(ii)

(A) Equation 2 must be used if the actual year-to-year solid waste acceptance rate is unknown.

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

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 an active landfill $c = 0$ and $e^{-kc} = 1$.
 3.6×10^{-9} = Conversion factor.

(B) 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 of R , if documentation of the nature and amount of such wastes is maintained.

(2) **Tier 1.** The owner or operator must compare the calculated NMOC mass emission rate to the standard of 34 megagrams per year.

(i) If the NMOC emission rate calculated in paragraph (a)(1) of this section is less than 34 megagrams per year, then the owner or operator must submit an NMOC emission rate report according to §60.38f(c), and must recalculate the NMOC mass emission rate annually as required under §60.33f(e).

(ii) If the NMOC emission rate calculated in paragraph (a)(1) of this section is equal to or greater than 34 megagrams per year, then the landfill owner or operator must either:

(A) Submit a gas collection and control system design plan within 1 year as specified in §60.38f(d) and install and operate a gas collection and control system within 30 months according to §60.33f(b) and (c);

(B) Determine a site-specific NMOC concentration and recalculate the NMOC emission rate using the Tier 2 procedures provided in paragraph (a)(3) of this section; or

(C) Determine a site-specific methane generation rate constant and recalculate the NMOC emission rate using the Tier 3 procedures provided in paragraph (a)(4) of this section.

(3) **Tier 2.** The landfill owner or operator must determine the site-specific NMOC concentration using the following sampling procedure. The landfill owner or operator must install at least two sample probes per hectare, evenly distributed over the 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 probes should be evenly distributed across the sample area. The sample probes should be located to avoid known areas of nondegradable solid waste. The owner or operator must collect and analyze one sample of landfill gas from each probe to determine the NMOC concentration using Method 25 or 25C of appendix A of this part. Taking composite samples from different probes into a single cylinder is allowed; however, equal sample volumes must be taken from each probe. For each composite, the sampling rate, collection times, beginning and ending cylinder vacuums, or alternative volume measurements must be recorded to verify that composite volumes are equal. Composite sample volumes should not be less than one liter unless evidence can be provided to substantiate the accuracy of smaller volumes. Terminate compositing before the cylinder approaches ambient pressure where measurement accuracy diminishes. If more than the required number of samples is taken, all samples must be used in the analysis. The landfill owner or operator must divide the NMOC concentration from Method 25 or 25C by six to convert from CNMOC as carbon to CNMOC as hexane. If the landfill has an active or passive gas removal system in place, Method 25 or 25C samples may be collected from these systems instead of surface probes provided the removal system can be shown to provide sampling as representative as the two sampling probe per hectare requirement. For active collection systems, samples may be collected from the common header pipe. The sample location on the common header pipe must be before any gas moving, condensate removal, or treatment system equipment. For active collection systems, a minimum of three samples must be collected from the header pipe.

- (i) Within 60 days after the date of determining the NMOC concentration and corresponding NMOC emission rate, the owner or operator must submit the results according to §60.38f(j)(2).
- (ii) The landfill owner or operator must recalculate the NMOC mass emission rate using Equation 1 or Equation 2 provided in paragraph (a)(1)(i) or (ii) of this section using the average site-specific NMOC concentration from the collected samples instead of the default value provided in paragraph (a)(1) of this section.
- (iii) If the resulting NMOC mass emission rate is less than 34 megagrams per year, then the owner or operator must submit a periodic estimate of NMOC emissions in an NMOC emission rate report according to §60.38f(c), and must recalculate the NMOC mass emission rate annually as required under §60.33f(e). The site-specific NMOC concentration must be retested every 5 years using the methods specified in this section.
- (iv) If the NMOC mass emission rate as calculated using the Tier 2 site-specific NMOC concentration is equal to or greater than 34 megagrams per year, the owner or operator must either:
 - (A) Submit a gas collection and control system design plan within 1 year as specified in §60.38f(d) and install and operate a gas collection and control system within 30 months according to §60.33f(b) and (c);
 - (B) Determine a site-specific methane generation rate constant and recalculate the NMOC emission rate using the site-specific methane generation rate using the Tier 3 procedures specified in paragraph (a)(4) of this section; or
 - (C) Conduct a surface emission monitoring demonstration using the Tier 4 procedures specified in paragraph (a)(6) of this section.

	<p>(4) Tier 3. The site-specific methane generation rate constant must be determined using the procedures provided in Method 2E of appendix A of this part. The landfill owner or operator must estimate the NMOC mass emission rate using Equation 1 or Equation 2 in paragraph (a)(1)(i) or (ii) of this section and using a site-specific methane generation rate constant, 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 must compare the resulting NMOC mass emission rate to the standard of 34 megagrams per year.</p> <p>(i) If the NMOC mass emission rate as calculated using the Tier 2 site-specific NMOC concentration and Tier 3 site-specific methane generation rate is equal to or greater than 34 megagrams per year, the owner or operator must either:</p> <p>(A) Submit a gas collection and control system design plan within 1 year as specified in §60.38f(d) and install and operate a gas collection and control system within 30 months according to §60.33f(b) and (c); or</p> <p>(B) Conduct a surface emission monitoring demonstration using the Tier 4 procedures specified in paragraph (a)(6) of this section.</p> <p>(ii) If the NMOC mass emission rate is less than 34 megagrams per year, then the owner or operator must recalculate the NMOC mass emission rate annually using Equation 1 or Equation 2 in paragraph (a)(1) of this section and using the site-specific Tier 2 NMOC concentration and Tier 3 methane generation rate constant and submit a periodic NMOC emission rate report as provided in §60.38f(c). The calculation of the methane generation rate constant is performed only once, and the value obtained from this test must be used in all subsequent annual NMOC emission rate calculations.</p> <p>(b) After the installation and startup of a collection and control system in compliance with this subpart, the owner or operator must calculate the NMOC emission rate for purposes of determining when the system can be capped, removed, or decommissioned as provided in §60.33f(f), using Equation 3: $M_{\text{NMOC}} = 1.89 \times 10^{-3} Q_{\text{LFG}} C_{\text{NMOC}} \text{ (Eq. 3)}$ <div style="background-color: #e0f0ff; padding: 5px; margin: 5px 0;"> <p>Where:</p> <p>M_{NMOC} = Mass emission rate of NMOC, megagrams per year.</p> <p>Q_{LFG} = Flow rate of landfill gas, cubic meters per minute.</p> <p>C_{NMOC} = NMOC concentration, parts per million by volume as hexane.</p> </div> <p>(1) The flow rate of landfill gas, QLFG, must be determined by measuring the total landfill gas flow rate at the common header pipe that leads to the control system using a gas flow measuring device calibrated according to the provisions of section 10 of Method 2E of appendix A of this part.</p> <p>(2) The average NMOC concentration, CNMOC, must 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 25 or Method 25C of appendix A of this part. The sample location on the common header pipe must be before any condensate removal or other gas refining units. The landfill owner or operator must divide the NMOC concentration from Method 25 or Method 25C by six to convert from CNMOC as carbon to CNMOC as hexane.</p> <p>(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 Administrator.</p> <p>(i) Within 60 days after the date of calculating the NMOC emission rate for purposes of determining when the system can be capped or removed, the owner or operator must submit the results according to §60.38f(j)(2).</p> <p>(ii) [Reserved]</p> </p>
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	<p>(c) When calculating emissions for Prevention of Significant Deterioration purposes, the owner or operator of each MSW landfill subject to the provisions of this subpart must estimate the NMOC emission rate for comparison to the Prevention of Significant Deterioration major source and significance levels in §51.166 or §52.21 of this chapter using Compilation of Air Pollutant Emission Factors, Volume I: Stationary Point and Area Sources (AP-42) or other approved measurement procedures.</p> <p>(d) For the performance test required in §60.33f(c)(1), the net heating value of the combusted landfill gas as determined in §60.18(f)(3) is calculated from the concentration of methane in the landfill gas as measured by Method 3C. A minimum of three 30-minute Method 3C samples are determined. The measurement of other organic components, hydrogen, and carbon monoxide is not applicable. Method 3C may be used to determine the landfill gas molecular weight for calculating the flare gas exit velocity under §60.18(f)(4).</p> <p>(1) Within 60 days after the date of completing each performance test (as defined in §60.8), the owner or operator must submit the results of the performance tests required by paragraph (b) or (d) of this section, including any associated fuel analyses, according to §60.38f(j)(1).</p> <p>(2) [Reserved]</p> <p>(e) For the performance test required in §60.33f(c)(2), Method 25 or 25C (Method 25C may be used at the inlet only) of appendix A of this part must be used to determine compliance with the 98 weight-percent efficiency or the 20 parts per million by volume outlet NMOC concentration level, unless another method to demonstrate compliance has been approved by the Administrator as provided by §60.38f(d)(2). Method 3, 3A, or 3C must be used to determine oxygen for correcting the NMOC concentration as hexane to 3 percent. In cases where the outlet concentration is less than 50 ppm NMOC as carbon (8 ppm NMOC as hexane), Method 25A should be used in place of Method 25. Method 18 may be used in conjunction with Method 25A on a limited basis (compound specific, e.g., methane) or Method 3C may be used to determine methane. The methane as carbon should be subtracted from the Method 25A total hydrocarbon value as carbon to give NMOC concentration as carbon. The landfill owner or operator must divide the NMOC concentration as carbon by 6 to convert the CNMOC as carbon to CNMOC as hexane. Equation 4 must be used to calculate efficiency: $\text{Control Efficiency} = (\text{NMOC}_{\text{in}} - \text{NMOC}_{\text{out}}) / (\text{NMOC}_{\text{in}}) \text{ (Eq. 4)}$ <p>Where: NMOC_{in} = Mass of NMOC entering control device. NMOC_{out} = Mass of NMOC exiting control device.</p> </p> <p>(1) Within 60 days after the date of completing each performance test (as defined in §60.8), the owner or operator must submit the results of the performance tests, including any associated fuel analyses, according to §60.38f(j)(1).</p> <p>(2) [Reserved]</p>
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Compliance Provisions

§60.36f	<p>For approval, a state plan must include the compliance provisions in this section (as well as the provisions in §§60.34f and 60.37f), or the compliance provisions in §63.1960 of this chapter (as well as the provisions in §§63.1958 of this chapter and 63.1961 of this chapter), or both as alternative means of compliance, for an MSW landfill with a gas collection and control system used to comply with the provisions of §60.33f(b) and (c). Once the owner or operator begins to comply with the provisions of §63.1960 of this chapter, the owner or operator must continue to operate the collection and control device according to those provisions and cannot return to the provisions of this section.</p>
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§60.36f

(a) Except as provided in §60.38f(d)(2), the specified methods in paragraphs (a)(1) through (6) of this section must be used to determine whether the gas collection system is in compliance with §60.33f(b)(2).

(1) For the purposes of calculating the maximum expected gas generation flow rate from the landfill to determine compliance with §60.33f(b)(2)(i), either Equation 5 or Equation 6 in paragraph (a)(1)(i) or (ii) of this section must be used. The methane generation rate constant (k) and methane generation potential (L_o) kinetic factors should be those published in the most recent AP-42 or other site-specific values demonstrated to be appropriate and approved by the Administrator. If k has been determined as specified in §60.35f(a)(4), the value of k determined from the test must be used. A value of no more than 15 years must 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:

$$Q_m = 2L_oR(e^{-kc} - e^{-kt}) \text{ (Eq. 5)}$$

Where:

Q^m = Maximum expected gas generation flow rate, cubic meters per year.
 L^o = Methane generation potential, cubic meters per megagram solid waste.
 R = Average annual acceptance rate, megagrams per year.
 k = Methane generation rate constant, year⁻¹.
 t = Age of the landfill at equipment installation plus the time the owner or operator intends to use the gas mover equipment or active life of the landfill, whichever is less. If the equipment is installed after closure, t is the age of the landfill at installation, years.
 c = Time since closure, years (for an active landfill c = 0 and e^{-kc} = 1).

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

$$Q_M = \sum_{i=1}^n 2kL_oM_i(e^{-kt_i}) \text{ (Eq. 6)}$$

Where:

Q^M = Maximum expected gas generation flow rate, cubic meters per year.
 k = Methane generation rate constant, year⁻¹.
 L^o = Methane generation potential, cubic meters per megagram solid waste.
 Mⁱ = Mass of solid waste in the ith section, megagrams.
 tⁱ = Age of the ith 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, Equation 5 or Equation 6 in paragraph (a)(1)(i) or (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 Equation 5 or Equation 6 or other methods must 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 §60.33f(b)(2)(ii), the owner or operator must design a system of vertical wells, horizontal collectors, or other collection devices, satisfactory to the Administrator, 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 §60.33f(b)(2)(iii), the owner or operator must measure gauge pressure in the gas collection header applied to each individual well monthly. If a positive pressure exists, action must be initiated to correct the exceedance within 5 calendar days, except for the three conditions allowed under §60.34f(b). Any attempted corrective measure must not cause exceedances of other operational or performance standards.

§60.36f

- (i) If negative pressure cannot be achieved without excess air infiltration within 15 calendar days of the first measurement of positive pressure, the owner or operator must conduct a root cause analysis and correct the exceedance as soon as practicable, but not later than 60 days after positive pressure was first measured. The owner or operator must keep records according to §60.39f(e)(3).
 - (ii) If corrective actions cannot be fully implemented within 60 days following the positive pressure or elevated temperature measurement for which the root cause analysis was required, the owner or operator must also conduct a corrective action analysis and develop an implementation schedule to complete the corrective action(s) as soon as practicable, but no more than 120 days following the measurement of landfill gas temperature greater than 55 degrees Celsius (131 degrees Fahrenheit) or positive pressure. The owner or operator must submit the items listed in §60.38f(h)(7) as part of the next annual report. The owner or operator must keep records according to §60.39f(e)(4).
 - (iii) If corrective action is expected to take longer than 120 days to complete after the initial exceedance, the owner or operator must submit the root cause analysis, corrective action analysis, and corresponding implementation timeline to the Administrator, according to §60.38f(h)(7) and (k). The owner or operator must keep records according to §60.39f(e)(5).
- (4) [Reserved]
- (5) For the purpose of identifying whether excess air infiltration into the landfill is occurring, the owner or operator must monitor each well monthly for temperature as provided in §60.34f(c). If a well exceeds the operating parameter for temperature, action must be initiated to correct the exceedance within 5 calendar days. Any attempted corrective measure must not cause exceedances of other operational or performance standards.
- (i) If a landfill gas temperature less than 55 degrees Celsius (131 degrees Fahrenheit) cannot be achieved within 15 calendar days of the first measurement of landfill gas temperature greater than 55 degrees Celsius (131 degrees Fahrenheit), the owner or operator must conduct a root cause analysis and correct the exceedance as soon as practicable, but no later than 60 days after a landfill gas temperature greater than 55 degrees Celsius (131 degrees Fahrenheit) was first measured. The owner or operator must keep records according to §60.39f(e)(3).
 - (ii) If corrective actions cannot be fully implemented within 60 days following the positive pressure measurement for which the root cause analysis was required, the owner or operator must also conduct a corrective action analysis and develop an implementation schedule to complete the corrective action(s) as soon as practicable, but no more than 120 days following the measurement of landfill gas temperature greater than 55 degrees Celsius (131 degrees Fahrenheit). The owner or operator must submit the items listed in §60.38f(h)(7) as part of the next annual report. The owner or operator must keep records according to §60.39f(e)(4).
 - (iii) If corrective action is expected to take longer than 120 days to complete after the initial exceedance, the owner or operator must submit the root cause analysis, corrective action analysis, and corresponding implementation timeline to the Administrator, according to §60.38f(h)(7) and (k). The owner or operator must keep records according to §60.39f(e)(5).
- (6) An owner or operator seeking to demonstrate compliance with §60.33f(b)(2)(iv) through the use of a collection system not conforming to the specifications provided in §60.40f must provide information satisfactory to the Administrator as specified in §60.38f(d)(3) demonstrating that off-site migration is being controlled.

<p>§60.36f</p>	<p>(b) For purposes of compliance with §60.34f(a), each owner or operator of a controlled landfill must place each well or design component as specified in the approved design plan as provided in §60.38f(d). Each well must be installed no later than 60 days after the date on which the initial solid waste has been in place for a period of:</p> <ol style="list-style-type: none">(1) Five (5) years or more if active; or(2) Two (2) years or more if closed or at final grade. <p>(c) The following procedures must be used for compliance with the surface methane operational standard as provided in §60.34f(d):</p> <ol style="list-style-type: none">(1) After installation and startup of the gas collection system, the owner or operator must monitor surface concentrations of methane along the entire perimeter of the collection area and along a pattern that traverses the landfill at no more than 30-meter intervals (or a site-specific established spacing) for each collection area on a quarterly basis using an organic vapor analyzer, flame ionization detector, or other portable monitor meeting the specifications provided in paragraph (d) of this section.(2) The background concentration must 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 be performed in accordance with section 8.3.1 of Method 21 of appendix A of this part, except that the probe inlet must be placed within 5 to 10 centimeters of the ground. Monitoring must be performed during typical meteorological conditions.(4) Any reading of 500 parts per million or more above background at any location must be recorded as a monitored exceedance and the actions specified in paragraphs (c)(4)(i) through (v) of this section must be taken. As long as the specified actions are taken, the exceedance is not a violation of the operational requirements of §60.34f(d).<ol style="list-style-type: none">(i) The location of each monitored exceedance must be marked and the location and concentration recorded. For location, you must determine the latitude and longitude coordinates using an instrument with an accuracy of at least 4 meters. The coordinates must be in decimal degrees with at least five decimal places.(ii) Cover maintenance or adjustments to the vacuum of the adjacent wells to increase the gas collection in the vicinity of each exceedance must be made and the location must 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 must be taken and the location must 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 must be taken, and no further monitoring of that location is required until the action specified in paragraph (c)(4)(v) of this section has been taken.(iv) Any location that initially showed an exceedance but has a methane concentration less than 500 parts per million methane above background at the 10-day re-monitoring specified in paragraph (c)(4)(ii) or (iii) of this section must be re-monitored 1 month from the initial exceedance. If the 1-month re-monitoring 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 re-monitoring shows an exceedance, the actions specified in paragraph (c)(4)(iii) or (v) of this section must be taken.
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§60.36f	<p>(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 must 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 Administrator for approval.</p> <p>(5) The owner or operator must implement a program to monitor for cover integrity and implement cover repairs as necessary on a monthly basis.</p> <p>(d) Each owner or operator seeking to comply with the provisions in paragraph (c) of this section or §60.35f(a)(6) must comply with the following instrumentation specifications and procedures for surface emission monitoring devices:</p> <p>(1) The portable analyzer must meet the instrument specifications provided in section 6 of Method 21 of appendix A of this part, except that “methane” replaces all references to “VOC”.</p> <p>(2) The calibration gas must be methane, diluted to a nominal concentration of 500 parts per million in air.</p> <p>(3) To meet the performance evaluation requirements in section 8.1 of Method 21 of appendix A of this part, the instrument evaluation procedures of section 8.1 of Method 21 must be used.</p> <p>(4) The calibration procedures provided in sections 8 and 10 of Method 21 of appendix A of this part must be followed immediately before commencing a surface monitoring survey.</p> <p>(e) The provisions of this subpart apply at all times, including periods of startup, shutdown, or malfunction. During periods of startup, shutdown, and malfunction, you must comply with the work practice specified in §60.34f(e) in lieu of the compliance provisions in §60.36f.</p>
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Monitoring of Operations

§60.37f	<p>For approval, a state plan must include the monitoring provisions in this section, (as well as the provisions in §§60.34f and 60.36f) except as provided in §60.38f(d)(2), or the monitoring provisions in §63.1961 of this chapter (as well as the provisions in §§63.1958 of this chapter and 63.1960 of this chapter), or both as alternative means of compliance, for an MSW landfill with a gas collection and control system used to comply with the provisions of §60.33f(b) and (c). Once the owner or operator begins to comply with the provisions of §63.1961 of this chapter, the owner or operator must continue to operate the collection and control device according to those provisions and cannot return to the provisions of this section.</p> <p>(a) Each owner or operator seeking to comply with §60.33f(b)(2) for an active gas collection system must install a sampling port and a thermometer, other temperature measuring device, or an access port for temperature measurements at each wellhead and:</p> <p>(1) Measure the gauge pressure in the gas collection header on a monthly basis as provided in §60.36f(a)(3); and</p> <p>(2) Monitor nitrogen or oxygen concentration in the landfill gas on a monthly basis as follows:</p> <p>(i) The nitrogen level must be determined using Method 3C, unless an alternative test method is established as allowed by §60.38f(d)(2).</p>
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§60.37f

(ii) Unless an alternative test method is established as allowed by §60.38f(d)(2), the oxygen level must be determined by an oxygen meter using Method 3A, 3C, or ASTM D6522-11 (incorporated by reference, see §60.17). Determine the oxygen level by an oxygen meter using Method 3A, 3C, or ASTM D6522-11 (if sample location is prior to combustion) except that:

- (A) The span must be set between 10 and 12 percent oxygen;
- (B) A data recorder is not required;
- (C) Only two calibration gases are required, a zero and span;
- (D) A calibration error check is not required; and
- (E) The allowable sample bias, zero drift, and calibration drift are ± 10 percent.

(iii) A portable gas composition analyzer may be used to monitor the oxygen levels provided:

- (A) The analyzer is calibrated; and
- (B) The analyzer meets all quality assurance and quality control requirements for Method 3A or ASTM D6522-11 (incorporated by reference, see §60.17).

(3) Monitor temperature of the landfill gas on a monthly basis as provided in §60.36f(a)(5). The temperature measuring device must be calibrated annually using the procedure in this part 60, appendix A-1, Method 2, Section 10.3.

(b) Each owner or operator seeking to comply with §60.33f(c) using an enclosed combustor must calibrate, maintain, and operate according to the manufacturer's specifications, the following equipment:

(1) A temperature monitoring device equipped with a continuous recorder and having a minimum accuracy of ± 1 percent of the temperature being measured expressed in degrees Celsius or ± 0.5 degrees Celsius, whichever is greater. A temperature monitoring device is not required for boilers or process heaters with design heat input capacity equal to or greater than 44 megawatts.

(2) A device that records flow to the control device and bypass of the control device (if applicable). The owner or operator must:

- (i) Install, calibrate, and maintain a gas flow rate measuring device that must record the flow to the control device at least every 15 minutes; and
- (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 must 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 §60.33f(c) using a non-enclosed flare must 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 the flare and bypass of the flare (if applicable). The owner or operator must:

§60.37f

- (i) Install, calibrate, and maintain a gas flow rate measuring device that records the flow to the control device at least every 15 minutes; and
 - (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 must 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 §60.33f(c) using a device other than a non-enclosed flare or an enclosed combustor or a treatment system must provide information satisfactory to the Administrator as provided in §60.38f(d)(2) describing the operation of the control device, the operating parameters that would indicate proper performance, and appropriate monitoring procedures. The Administrator must review the information and either approve it, or request that additional information be submitted. The Administrator may specify additional appropriate monitoring procedures.
- (e) Each owner or operator seeking to install a collection system that does not meet the specifications in §60.40f or seeking to monitor alternative parameters to those required by §§60.34f through 60.37f must provide information satisfactory to the Administrator as provided in §60.38f(d)(2) and (3) describing the design and operation of the collection system, the operating parameters that would indicate proper performance, and appropriate monitoring procedures. The Administrator may specify additional appropriate monitoring procedures.
- (f) Each owner or operator seeking to demonstrate compliance with the 500 parts per million surface methane operational standard in §60.34f(d) must monitor surface concentrations of methane according to the procedures provided in §60.36f(c) and the instrument specifications in §60.36f(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 parts per million or more above background detected during the annual monitoring returns the frequency for that landfill to quarterly monitoring.
- (g) Each owner or operator seeking to demonstrate compliance with the control system requirements in §60.33f(c) using a landfill gas treatment system must maintain and operate all monitoring systems associated with the treatment system in accordance with the site-specific treatment system monitoring plan required in §60.39f(b)(5)(ii) and must calibrate, maintain, and operate according to the manufacturer's specifications a device that records flow to the treatment system and bypass of the treatment system (if applicable). The owner or operator must:
- (1) Install, calibrate, and maintain a gas flow rate measuring device that records the flow to the treatment system at least every 15 minutes; and
 - (2) 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 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.
- (h) The monitoring requirements of paragraphs (b), (c) (d) and (g) of this section apply at all times the affected source is operating, except for periods of monitoring system malfunctions, repairs associated with monitoring system malfunctions, and required monitoring system quality assurance or quality control activities. A monitoring system malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring system to provide valid data. Monitoring system failures that are caused in part by poor maintenance or careless operation are not malfunctions. You are required to complete monitoring system repairs in response to monitoring system malfunctions and to return the monitoring system to operation as expeditiously as practicable.

Reporting Guidelines

<p>§60.38f</p>	<p>For approval, a state plan must include the reporting provisions listed in this section, as applicable, except as provided under §§60.24 and 60.38f(d)(2).</p> <p>(a) <i>Design capacity report.</i> For existing MSW landfills subject to this subpart, the initial design capacity report must be submitted no later than 90 days after the effective date of EPA approval of the state's plan under section 111(d) of the Clean Air Act. The initial design capacity report must contain the following information:</p> <ol style="list-style-type: none"> (1) A map or plot of the landfill, providing the size and location of the landfill, and identifying all areas where solid waste may be landfilled according to the permit issued by the state, local, or tribal agency responsible for regulating the landfill. (2) The maximum design capacity of the landfill. Where the maximum design capacity is specified in the permit issued by the state, local, or tribal agency responsible for regulating the landfill, a copy of the permit specifying the maximum design capacity may be submitted as part of the report. If the maximum design capacity of the landfill is not specified in the permit, the maximum design capacity must be calculated using good engineering practices. The calculations must be provided, along with the relevant parameters as part of the report. The landfill may calculate design capacity in either megagrams or cubic meters for comparison with the exemption values. 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 megagrams or 2.5 million cubic meters, the calculation must include a site-specific density, which must be recalculated annually. Any density conversions must be documented and submitted with the design capacity report. The state, local, or tribal agency or the Administrator may request other reasonable information as may be necessary to verify the maximum design capacity of the landfill. <p>(b) <i>Amended design capacity report.</i> An amended design capacity report must be submitted providing notification of an increase in the design capacity of the landfill, within 90 days of an increase in the maximum design capacity of the landfill to meet or exceed 2.5 million megagrams and 2.5 million cubic meters. This increase in design capacity may result from an increase in the permitted volume of the landfill or an increase in the density as documented in the annual recalculation required in §60.39f(f).</p> <p>(c) <i>NMOC emission rate report.</i> For existing MSW landfills covered by this subpart with a design capacity equal to or greater than 2.5 million megagrams and 2.5 million cubic meters, the NMOC emission rate report must be submitted following the procedure specified in paragraph (j)(2) of this section no later than 90 days after the effective date of EPA approval of the state's plan under section 111(d) of the Clean Air Act. The NMOC emission rate report must be submitted to the Administrator annually following the procedure specified in paragraph (j)(2) of this section, except as provided for in paragraph (c)(3) of this section. The Administrator may request such additional information as may be necessary to verify the reported NMOC emission rate.</p> <ol style="list-style-type: none"> (1) The NMOC emission rate report must contain an annual or 5-year estimate of the NMOC emission rate calculated using the formula and procedures provided in §60.35f(a) or (b), as applicable. (2) The NMOC emission rate report must include all the data, calculations, sample reports and measurements used to estimate the annual or 5-year emissions.
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<p>§60.38f</p>	<p>(3) If the estimated NMOC emission rate as reported in the annual report to the Administrator is less than 34 megagrams per year in each of the next 5 consecutive years, the owner or operator may elect to submit, following the procedure specified in paragraph (j)(2) of this section, an estimate of the NMOC emission rate for the next 5-year period in lieu of the annual report. This estimate must include the current amount of solid waste-in-place and the estimated waste acceptance rate for each year of the 5 years for which an NMOC emission rate is estimated. All data and calculations upon which this estimate is based must be provided to the Administrator. This estimate must 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 must be submitted to the Administrator. The revised estimate must cover the 5-year period beginning with the year in which the actual waste acceptance rate exceeded the estimated waste acceptance rate.</p> <p>(4) Each owner or operator subject to the requirements of this subpart is exempted from the requirements to submit an NMOC emission rate report, after installing a collection and control system that complies with §60.33f(b) and (c), during such time as the collection and control system is in operation and in compliance with §§60.34f and 60.36f.</p> <p>(d) Collection and control system design plan. The state plan must include a process for state review and approval of the site-specific design plan for each gas collection and control system. The collection and control system design plan must be prepared and approved by a professional engineer and must meet the following requirements:</p> <p>(1) The collection and control system as described in the design plan must meet the design requirements in §60.33f(b) and (c).</p> <p>(2) The collection and control system design plan must include any alternatives to the operational standards, test methods, procedures, compliance measures, monitoring, recordkeeping, or reporting provisions of §§60.34f through 60.39f proposed by the owner or operator.</p> <p>(3) The collection and control system design plan must either conform to specifications for active collection systems in §60.40f or include a demonstration to the Administrator's satisfaction of the sufficiency of the alternative provisions to §60.40f.</p> <p>(4) Each owner or operator of an MSW landfill having a design capacity equal to or greater than 2.5 million megagrams and 2.5 million cubic meters must submit a copy of the collection and control system design plan cover page that contains the engineer's seal to the Administrator within 1 year of the first NMOC emission rate report in which the NMOC emission rate equals or exceeds 34 megagrams per year, except as follows:</p> <p>(i) If the owner or operator elects to recalculate the NMOC emission rate after Tier 2 NMOC sampling and analysis as provided in §60.35f(a)(3) and the resulting rate is less than 34 megagrams per year, annual periodic reporting must be resumed, using the Tier 2 determined site-specific NMOC concentration, until the calculated NMOC emission rate is equal to or greater than 34 megagrams per year or the landfill is closed. The revised NMOC emission rate report, with the recalculated NMOC emission rate based on NMOC sampling and analysis, must be submitted, following the procedures in paragraph (j)(2) of this section, within 180 days of the first calculated exceedance of 34 megagrams per year.</p>
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<p>§60.38f</p>	<p>(ii) 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 §60.35f(a)(4), and the resulting NMOC emission rate is less than 34 megagrams per year, annual periodic reporting must be resumed. The resulting site-specific methane generation rate constant k must be used in the NMOC emission rate calculation until such time as the emissions rate calculation results in an exceedance. The revised NMOC emission rate report based on the provisions of §60.35f(a)(4) and the resulting site-specific methane generation rate constant k must be submitted, following the procedure specified in paragraph (j)(2) of this section, to the Administrator within 1 year of the first calculated NMOC emission rate equaling or exceeding 34 megagrams per year.</p> <p>(iii) If the owner or operator elects to demonstrate that site-specific surface methane emissions are below 500 parts per million methane, based on the provisions of §60.35f(a)(6), then the owner or operator must submit annually a Tier 4 surface emissions report as specified in this paragraph (d)(4)(iii) following the procedure specified in paragraph (j)(2) of this section until a surface emissions readings of 500 parts per million methane or greater is found. If the Tier 4 surface emissions report shows no surface emissions readings of 500 parts per million methane or greater for four consecutive quarters at a closed landfill, then the landfill owner or operator may reduce Tier 4 monitoring from a quarterly to an annual frequency. The Administrator may request such additional information as may be necessary to verify the reported instantaneous surface emission readings. The Tier 4 surface emissions report must clearly identify the location, date and time (to the nearest second), average wind speeds including wind gusts, and reading (in parts per million) of any value 500 parts per million methane or greater, other than non-repeatable, momentary readings. For location, you must determine the latitude and longitude coordinates using an instrument with an accuracy of at least 4 meters. The coordinates must be in decimal degrees with at least five decimal places. The Tier 4 surface emission report should also include the results of the most recent Tier 1 and Tier 2 results in order to verify that the landfill does not exceed 50 Mg/yr of NMOC.</p> <p>(A) The initial Tier 4 surface emissions report must be submitted annually, starting within 30 days of completing the fourth quarter of Tier 4 surface emissions monitoring that demonstrates that site-specific surface methane emissions are below 500 parts per million methane, and following the procedure specified in paragraph (j)(2) of this section.</p> <p>(B) The Tier 4 surface emissions rate report must be submitted within 1 year of the first measured surface exceedance of 500 parts per million methane, following the procedure specified in paragraph (j)(2) of this section.</p> <p>(iv) If the landfill is in the closed landfill subcategory, the owner or operator must submit a collection and control system design plan to the Administrator within 1 year of the first NMOC emission rate report in which the NMOC emission rate equals or exceeds 50 megagrams per year, except as follows:</p> <p>(A) If the owner or operator elects to recalculate the NMOC emission rate after Tier 2 NMOC sampling and analysis as provided in §60.35f(a)(3) and the resulting rate is less than 50 megagrams per year, annual periodic reporting must be resumed, using the Tier 2 determined site-specific NMOC concentration, until the calculated NMOC emission rate is equal to or greater than 50 megagrams per year or the landfill is closed. The revised NMOC emission rate report, with the recalculated NMOC emission rate based on NMOC sampling and analysis, must be submitted, following the procedure specified in paragraph (j)(2) of this section, within 180 days of the first calculated exceedance of 50 megagrams per year.</p>
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<p>§60.38f</p>	<p>(B) 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 §60.35f(a)(4), and the resulting NMOC emission rate is less than 50 megagrams per year, annual periodic reporting must be resumed. The resulting site-specific methane generation rate constant k must be used in the NMOC emission rate calculation until such time as the emissions rate calculation results in an exceedance. The revised NMOC emission rate report based on the provisions of §60.35f(a)(4) and the resulting site-specific methane generation rate constant k must be submitted, following the procedure specified in paragraph (j)(2) of this section, to the Administrator within 1 year of the first calculated NMOC emission rate equaling or exceeding 50 megagrams per year.</p> <p>(C) The landfill owner or operator elects to demonstrate surface emissions are low, consistent with the provisions in paragraph (d)(4)(iii) of this section.</p> <p>(D) The landfill has already submitted a gas collection and control system design plan consistent with the provisions of subpart WWW of this part; 40 CFR part 62, subpart GGG; or a state plan implementing subpart Cc of this part.</p> <p>(5) The landfill owner or operator must notify the Administrator that the design plan is completed and submit a copy of the plan's signature page. The Administrator has 90 days to decide whether the design plan should be submitted for review. If the Administrator chooses to review the plan, the approval process continues as described in paragraph (c)(6) of this section. However, if the Administrator indicates that submission is not required or does not respond within 90 days, the landfill owner or operator can continue to implement the plan with the recognition that the owner or operator is proceeding at their own risk. In the event that the design plan is required to be modified to obtain approval, the owner or operator must take any steps necessary to conform any prior actions to the approved design plan and any failure to do so could result in an enforcement action.</p> <p>(6) Upon receipt of an initial or revised design plan, the Administrator must review the information submitted under paragraphs (d)(1) through (3) of this section and either approve it, disapprove it, or request that additional information be submitted. Because of the many site-specific factors involved with landfill gas system design, alternative systems may be necessary. A wide variety of system designs are possible, such as vertical wells, combination horizontal and vertical collection systems, or horizontal trenches only, leachate collection components, and passive systems. If the Administrator does not approve or disapprove the design plan, or does not request that additional information be submitted within 90 days of receipt, then the owner or operator may continue with implementation of the design plan, recognizing they would be proceeding at their own risk.</p> <p>(7) If the owner or operator chooses to demonstrate compliance with the emission control requirements of this subpart using a treatment system as defined in this subpart, then the owner or operator must prepare a site-specific treatment system monitoring plan as specified in §60.39f(b)(5).</p> <p>(e) Revised design plan. The owner or operator who has already been required to submit a design plan under paragraph (d) of this section, or under subpart WWW of this part; 40 CFR part 62, subpart GGG; or a state plan implementing subpart Cc of this part, must submit a revised design plan to the Administrator for approval as follows:</p> <p>(1) At least 90 days before expanding operations to an area not covered by the previously approved design plan.</p> <p>(2) Prior to installing or expanding the gas collection system in a way that is not consistent with the design plan that was submitted to the Administrator according to paragraph (d) of this section.</p>
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<p>§60.38f</p>	<p>(f) Closure report. Each owner or operator of a controlled landfill must submit a closure report to the Administrator within 30 days of ceasing waste acceptance. The Administrator may request additional information as may be necessary to verify that permanent closure has taken place in accordance with the requirements of 40 CFR 258.60. If a closure report has been submitted to the Administrator, no additional wastes may be placed into the landfill without filing a notification of modification as described under §60.7(a)(4).</p> <p>(g) Equipment removal report. Each owner or operator of a controlled landfill must submit an equipment removal report to the Administrator 30 days prior to removal or cessation of operation of the control equipment.</p> <p>(1) The equipment removal report must contain the following items:</p> <ul style="list-style-type: none">(i) A copy of the closure report submitted in accordance with paragraph (f) of this section; and(ii) A copy of the initial performance test report demonstrating that the 15-year minimum control period has expired, unless the report of the results of the performance test has been submitted to the EPA via the EPA's CDX, or information that demonstrates that the GCCS will be unable to operate for 15 years due to declining gas flows. In the equipment removal report, the process unit(s) tested, the pollutant(s) tested, and the date that such performance test was conducted may be submitted in lieu of the performance test report if the report has been previously submitted to the EPA's CDX; and(iii) Dated copies of three successive NMOC emission rate reports demonstrating that the landfill is no longer producing 34 megagrams or greater of NMOC per year, unless the NMOC emission rate reports have been submitted to the EPA via the EPA's CDX. If the NMOC emission rate reports have been previously submitted to the EPA's CDX, a statement that the NMOC emission rate reports have been submitted electronically and the dates that the reports were submitted to the EPA's CDX may be submitted in the equipment removal report in lieu of the NMOC emission rate reports; or(iv) For the closed landfill subcategory, dated copies of three successive NMOC emission rate reports demonstrating that the landfill is no longer producing 50 megagrams or greater of NMOC per year, unless the NMOC emission rate reports have been submitted to the EPA via the EPA's CDX. If the NMOC emission rate reports have been previously submitted to the EPA's CDX, a statement that the NMOC emission rate reports have been submitted electronically and the dates that the reports were submitted to the EPA's CDX may be submitted in the equipment removal report in lieu of the NMOC emission rate reports. <p>(2) The Administrator may request such additional information as may be necessary to verify that all of the conditions for removal in §60.33f(f) have been met.</p>
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<p>§60.38f</p>	<p>(h) Annual report. The owner or operator of a landfill seeking to comply with §60.33f(e)(2) using an active collection system designed in accordance with §60.33f(b) must submit to the Administrator, following the procedures specified in paragraph (j)(2) of this section, an annual report of the recorded information in paragraphs (h)(1) through (7) of this section. The initial annual report must be submitted within 180 days of installation and startup of the collection and control system. The initial annual report must include the initial performance test report required under §60.8, as applicable, unless the report of the results of the performance test has been submitted to the EPA via the EPA's CDX. In the initial annual report, the process unit(s) tested, the pollutant(s) tested and the date that such performance test was conducted may be submitted in lieu of the performance test report if the report has been previously submitted to the EPA's CDX. The initial performance test report must be submitted, following the procedure specified in paragraph (j)(1) of this section, no later than the date that the initial annual report is submitted. For enclosed combustion devices and flares, reportable exceedances are defined under §60.39f(c)(1). If complying with the operational provisions of §§63.1958, 63.1960, and 63.1961 of this chapter, as allowed at §§60.34f, 60.36f, and 60.37f, the owner or operator must follow the semi-annual reporting requirements in §63.1981(h) of this chapter in lieu of this paragraph.</p> <ol style="list-style-type: none"> (1) Value and length of time for exceedance of applicable parameters monitored under §60.37f(a)(1), (b), (c), (d), and (g). (2) Description and duration of all periods when the gas stream was diverted from the control device or treatment system through a bypass line or the indication of bypass flow as specified under §60.37f. (3) Description and duration of all periods when the control device or treatment system was not operating and length of time the control device or treatment system was not operating. (4) All periods when the collection system was not operating. (5) The location of each exceedance of the 500 parts per million methane concentration as provided in §60.34f(d) and the concentration recorded at each location for which an exceedance was recorded in the previous month. For location, you must determine the latitude and longitude coordinates using an instrument with an accuracy of at least 4 meters. The coordinates must be in decimal degrees with at least five decimal places. (6) The date of installation and the location of each well or collection system expansion added pursuant to §60.36f(a)(3), (a)(5), (b), and (c)(4). (7) For any corrective action analysis for which corrective actions are required in §60.36f(a)(3) or (5) and that take more than 60 days to correct the exceedance, the root cause analysis conducted, including a description of the recommended corrective action(s), the date for corrective action(s) already completed following the positive pressure or elevated temperature reading, and, for action(s) not already completed, a schedule for implementation, including proposed commencement and completion dates. <p>(i) Initial performance test report. Each owner or operator seeking to comply with §60.33f(c) must include the following information with the initial performance test report required under §60.8:</p> <ol style="list-style-type: none"> (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;
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<p>§60.38f</p>	<p>(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;</p> <p>(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</p> <p>(6) The provisions for the control of off-site migration.</p> <p>(j) Electronic reporting. The owner or operator must submit reports electronically according to paragraphs (j)(1) and (2) of this section.</p> <p>(1) Within 60 days after the date of completing each performance test (as defined in §60.8), the owner or operator must submit the results of each performance test according to the following procedures:</p> <p>(i) For data collected using test methods supported by the EPA's Electronic Reporting Tool (ERT) as listed on the EPA's ERT Web site (https://www3.epa.gov/ttn/chief/ert/ert_info.html) at the time of the test, you must submit the results of the performance test to the EPA via the Compliance and Emissions Data Reporting Interface (CEDRI). CEDRI can be accessed through the EPA's Central Data Exchange (CDX) (https://cdx.epa.gov/). Performance test data must be submitted in a file format generated through the use of the EPA's ERT or an alternative file format consistent with the extensible markup language (XML) schema listed on the EPA's ERT Web site, once the XML schema is available. If you claim that some of the performance test information being submitted is confidential business information (CBI), you must submit a complete file generated through the use of the EPA's ERT or an alternate electronic file consistent with the XML schema listed on the EPA's ERT Web site, including information claimed to be CBI, on a compact disc, flash drive or other commonly used electronic storage media to the EPA. The electronic media must be clearly marked as CBI and mailed to U.S. EPA/OAQPS/CORE CBI Office, Attention: Group Leader, Measurement Policy Group, MD C404-02, 4930 Old Page Rd., Durham, NC 27703. The same ERT or alternate file with the CBI omitted must be submitted to the EPA via the EPA's CDX as described earlier in this paragraph (j)(1)(i).</p> <p>(ii) For data collected using test methods that are not supported by the EPA's ERT as listed on the EPA's ERT Web site at the time of the test, you must submit the results of the performance test to the Administrator at the appropriate address listed in §60.4.</p> <p>(2) Each owner or operator required to submit reports following the procedure specified in this paragraph must submit reports to the EPA via the CEDRI. (CEDRI can be accessed through the EPA's CDX.) The owner or operator must use the appropriate electronic report in CEDRI for this subpart or an alternate electronic file format consistent with the XML schema listed on the CEDRI Web site (https://www3.epa.gov/ttn/chief/cedri/index.html). If the reporting form specific to this subpart is not available in CEDRI at the time that the report is due, the owner or operator must submit the report to the Administrator at the appropriate address listed in §60.4. Once the form has been available in CEDRI for 90 calendar days, the owner or operator must begin submitting all subsequent reports via CEDRI. The reports must be submitted by the deadlines specified in this subpart, regardless of the method in which the reports are submitted.</p> <p>(k) Corrective action and the corresponding timeline. The owner or operator must submit according to paragraphs (k)(1) and (2) of this section. If complying with the operational provisions of §§63.1958, 63.1960, and 63.1961 of this chapter, as allowed at §§60.34f, 60.36f, and 60.37f, the owner or operator must follow the corrective action and the corresponding timeline reporting requirements in §63.1981(j) of this chapter in lieu of paragraphs (k)(1) and (2) of this section.</p>
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<p>§60.38f</p>	<p>(1) For corrective action that is required according to §60.36f(a)(3)(iii) or (a)(5)(iii) and is expected to take longer than 120 days after the initial exceedance to complete, you must submit the root cause analysis, corrective action analysis, and corresponding implementation timeline to the Administrator as soon as practicable but no later than 75 days after the first measurement of positive pressure or temperature monitoring value of 55 degrees Celsius (131 degrees Fahrenheit) or above. The Administrator must approve the plan for corrective action and the corresponding timeline.</p> <p>(2) For corrective action that is required according to §60.36f(a)(3)(iii) or (a)(5)(iii) and is not completed within 60 days after the initial exceedance, you must submit a notification to the Administrator as soon as practicable but no later than 75 days after the first measurement of positive pressure or temperature exceedance.</p> <p>(l) Liquids addition. The owner or operator of an affected landfill with a design capacity equal to or greater than 2.5 million megagrams and 2.5 million cubic meters that has employed leachate recirculation or added liquids based on a Research, Development, and Demonstration permit (issued through Resource Conservation and Recovery Act, subtitle D, part 258) within the last 10 years must submit to the Administrator, annually, following the procedure specified in paragraph (j)(2) of this section, the following information:</p> <p>(1) Volume of leachate recirculated (gallons per year) and the reported basis of those estimates (records or engineering estimates).</p> <p>(2) Total volume of all other liquids added (gallons per year) and the reported basis of those estimates (records or engineering estimates).</p> <p>(3) Surface area (acres) over which the leachate is recirculated (or otherwise applied).</p> <p>(4) Surface area (acres) over which any other liquids are applied.</p> <p>(5) The total waste disposed (megagrams) in the areas with recirculated leachate and/or added liquids based on on-site records to the extent data are available, or engineering estimates and the reported basis of those estimates.</p> <p>(6) The annual waste acceptance rates (megagrams per year) in the areas with recirculated leachate and/or added liquids, based on on-site records to the extent data are available, or engineering estimates.</p> <p>(7) The initial report must contain items in paragraph (l)(1) through (6) of this section per year for the most recent 365 days as well as for each of the previous 10 years, to the extent historical data are available in on-site records, and the report must be submitted no later than:</p> <p>(i) September 27, 2017, for landfills that commenced construction, modification, or reconstruction after July 17, 2014 but before August 29, 2016; or</p> <p>(ii) 365 days after the date of commenced construction, modification, or reconstruction for landfills that commence construction, modification, or reconstruction after August 29, 2016.</p> <p>(8) Subsequent annual reports must contain items in paragraph (l)(1) through (6) of this section for the 365-day period following the 365-day period included in the previous annual report, and the report must be submitted no later than 365 days after the date the previous report was submitted.</p> <p>(9) Landfills in the closed landfill subcategory are exempt from reporting requirements contained in paragraphs (l)(1) through (7) of this section.</p> <p>(10) Landfills may cease annual reporting of items in paragraphs (l)(1) through (6) of this section once they have submitted the closure report in §60.38f(f).</p>
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Recordkeeping Guidelines

<p>§60.39f</p>	<p>For approval, a state plan must include the recordkeeping provisions in this section.</p> <p>(a) Except as provided in §60.38f(d)(2), each owner or operator of an MSW landfill subject to the provisions of §60.33f(e) must keep for at least 5 years up-to-date, readily accessible, on-site records of the design capacity report that triggered §60.33f(e), 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.</p> <p>(b) Except as provided in §60.38f(d)(2), each owner or operator of a controlled landfill must keep up-to-date, readily accessible records for the life of the control system equipment of the data listed in paragraphs (b)(1) through (5) of this section as measured during the initial performance test or compliance determination. Records of subsequent tests or monitoring must be maintained for a minimum of 5 years. Records of the control device vendor specifications must be maintained until removal.</p> <p>(1) Where an owner or operator subject to the provisions of this subpart seeks to demonstrate compliance with §60.33f(b):</p> <ul style="list-style-type: none">(i) The maximum expected gas generation flow rate as calculated in §60.36f(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 Administrator.(ii) The density of wells, horizontal collectors, surface collectors, or other gas extraction devices determined using the procedures specified in §60.40f(a)(1). <p>(2) Where an owner or operator subject to the provisions of this subpart seeks to demonstrate compliance with §60.33f(c) through use of an enclosed combustion device other than a boiler or process heater with a design heat input capacity equal to or greater than 44 megawatts:</p> <ul style="list-style-type: none">(i) The average 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 §60.33f(c)(2) achieved by the control device. <p>(3) Where an owner or operator subject to the provisions of this subpart seeks to demonstrate compliance with §60.33f(c)(2)(i) 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.</p> <p>(4) Where an owner or operator subject to the provisions of this subpart seeks to demonstrate compliance with §60.33f(c)(1) through use of a non-enclosed flare, the flare type (i.e., steam-assisted, air-assisted, or non-assisted), 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 §60.18; and continuous records of the flare pilot flame or flare flame monitoring and records of all periods of operations during which the pilot flame or the flare flame is absent.</p> <p>(5) Where an owner or operator subject to the provisions of this subpart seeks to demonstrate compliance with §60.33f(c)(3) through use of a landfill gas treatment system:</p> <ul style="list-style-type: none">(i) Bypass records. Records of the flow of landfill gas to, and bypass of, the treatment system.(ii) Site-specific treatment monitoring plan, to include:
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	<p>(A) Monitoring records of parameters that are identified in the treatment system monitoring plan and that ensure the treatment system is operating properly for each intended end use of the treated landfill gas. At a minimum, records should include records of filtration, dewatering, and compression parameters that ensure the treatment system is operating properly for each intended end use of the treated landfill gas.</p> <p>(B) Monitoring methods, frequencies, and operating ranges for each monitored operating parameter based on manufacturer's recommendations or engineering analysis for each intended end use of the treated landfill gas.</p> <p>(C) Documentation of the monitoring methods and ranges, along with justification for their use.</p> <p>(D) Identify who is responsible (by job title) for data collection.</p> <p>(E) Processes and methods used to collect the necessary data.</p> <p>(F) Description of the procedures and methods that are used for quality assurance, maintenance, and repair of all continuous monitoring systems.</p> <p>(c) Except as provided in §60.38f(d)(2), each owner or operator of a controlled landfill subject to the provisions of this subpart must keep for 5 years up-to-date, readily accessible continuous records of the equipment operating parameters specified to be monitored in §60.37f 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.</p> <p>(1) The following constitute exceedances that must be recorded and reported under §60.38f:</p> <p>(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 temperature was more than 28 degrees Celsius (82 degrees Fahrenheit) below the average combustion temperature during the most recent performance test at which compliance with §60.33f(c) was determined.</p> <p>(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) of this section.</p> <p>(2) Each owner or operator subject to the provisions of this subpart must keep up-to-date, readily accessible continuous records of the indication of flow to the control system and 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 §60.37f.</p> <p>(3) Each owner or operator subject to the provisions of this subpart who uses a boiler or process heater with a design heat input capacity of 44 megawatts or greater to comply with §60.33f(c) must 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.)</p> <p>(4) Each owner or operator seeking to comply with the provisions of this subpart by use of a non-enclosed flare must keep up-to-date, readily accessible continuous records of the flame or flare pilot flame monitoring specified under §60.37f(c), and up-to-date, readily accessible records of all periods of operation in which the flame or flare pilot flame is absent.</p> <p>(5) Each owner or operator of a landfill seeking to comply with §60.33f(e) using an active collection system designed in accordance with §60.33f(b) must keep records of periods when the collection system or control device is not operating.</p>
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	<p>(d) Except as provided in §60.38f(d)(2), each owner or operator subject to the provisions of this subpart must 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 on each collector that matches the labeling on the plot map.</p> <ol style="list-style-type: none">(1) Each owner or operator subject to the provisions of this subpart must keep up-to-date, readily accessible records of the installation date and location of all newly installed collectors as specified under §60.36f(b).(2) Each owner or operator subject to the provisions of this subpart must 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 §60.40f(a)(3)(i) as well as any nonproductive areas excluded from collection as provided in §60.40f(a)(3)(ii). <p>(e) Except as provided in §60.38f(d)(2), each owner or operator subject to the provisions of this subpart must keep for at least 5 years up-to-date, readily accessible records of the items in paragraphs (e)(1) through (5) of this section. Each owner or operator that chooses to comply with the provisions in §§63.1958, 63.1960, and 63.1961 of this chapter, as allowed in §§60.34f, 60.36f, and 60.37f, must keep the records in paragraph (e)(6) of this section and must keep records according to §63.1983(e)(1) through (5) of this chapter in lieu of paragraphs (e)(1) through (5) of this section.</p> <ol style="list-style-type: none">(1) All collection and control system exceedances of the operational standards in §60.34f, the reading in the subsequent month whether or not the second reading is an exceedance, and the location of each exceedance.(2) Each owner or operator subject to the provisions of this subpart must also keep records of each wellhead temperature monitoring value of 55 degrees Celsius (131 degrees Fahrenheit) or above, each wellhead nitrogen level at or above 20 percent, and each wellhead oxygen level at or above 5 percent.(3) For any root cause analysis for which corrective actions are required in §60.36f(a)(3) or (5), keep a record of the root cause analysis conducted, including a description of the recommended corrective action(s) taken, and the date(s) the corrective action(s) were completed.(4) For any root cause analysis for which corrective actions are required in §60.36f(a)(3)(ii) or (a)(5)(ii), keep a record of the root cause analysis conducted, the corrective action analysis, the date for corrective action(s) already completed following the positive pressure reading or high temperature reading, and, for action(s) not already completed, a schedule for implementation, including proposed commencement and completion dates.(5) For any root cause analysis for which corrective actions are required in §60.36f(a)(3)(iii) or (a)(5)(iii), keep a record of the root cause analysis conducted, the corrective action analysis, the date for corrective action(s) already completed following the positive pressure reading or high temperature reading, for action(s) not already completed, a schedule for implementation, including proposed commencement and completion dates, and a copy of any comments or final approval on the corrective action analysis or schedule from the regulatory agency.(6) Each owner or operator that chooses to comply with the provisions in §§63.1958, 63.1960, and 63.1961 of this chapter, as allowed in §§60.34f, 60.36f, and 60.37f, must keep records of the date upon which the owner or operator started complying with the provisions in §§63.1958, 63.1960, and 63.1961.
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- (f) Landfill owners or operators who convert design capacity from volume to mass or mass to volume to demonstrate that landfill design capacity is less than 2.5 million megagrams or 2.5 million cubic meters, as provided in the definition of “design capacity”, must keep readily accessible, on-site records of the annual recalculation of site-specific density, design capacity, and the supporting documentation. Off-site records may be maintained if they are retrievable within 4 hours. Either paper copy or electronic formats are acceptable.
- (g) Landfill owners or operators seeking to demonstrate that site-specific surface methane emissions are below 500 parts per million by conducting surface emission monitoring under the Tier 4 procedures specified in §60.35f(a)(6) must keep for at least 5 years up-to-date, readily accessible records of all surface emissions monitoring and information related to monitoring instrument calibrations conducted according to sections 8 and 10 of Method 21 of appendix A of this part, including all of the following items:
- (1) Calibration records:
 - (i) Date of calibration and initials of operator performing the calibration.
 - (ii) Calibration gas cylinder identification, certification date, and certified concentration.
 - (iii) Instrument scale(s) used.
 - (iv) A description of any corrective action taken if the meter readout could not be adjusted to correspond to the calibration gas value.
 - (v) If an owner or operator makes their own calibration gas, a description of the procedure used.
 - (2) Digital photographs of the instrument setup. The photographs must be time and date-stamped and taken at the first sampling location prior to sampling and at the last sampling location after sampling at the end of each sampling day, for the duration of the Tier 4 monitoring demonstration.
 - (3) Timestamp of each surface scan reading:
 - (i) Timestamp should be detailed to the nearest second, based on when the sample collection begins.
 - (ii) A log for the length of time each sample was taken using a stopwatch (e.g., the time the probe was held over the area).
 - (4) Location of each surface scan reading. The owner or operator must determine the coordinates using an instrument with an accuracy of at least 4 meters. Coordinates must be in decimal degrees with at least five decimal places.
 - (5) Monitored methane concentration (parts per million) of each reading.
 - (6) Background methane concentration (parts per million) after each instrument calibration test.
 - (7) Adjusted methane concentration using most recent calibration (parts per million).
 - (8) For readings taken at each surface penetration, the unique identification location label matching the label specified in paragraph (d) of this section.
 - (9) Records of the operating hours of the gas collection system for each destruction device.

	<p>(h) Except as provided in §60.38f(d)(2), each owner or operator subject to the provisions of this subpart must keep for at least 5 years up-to-date, readily accessible records of all collection and control system monitoring data for parameters measured in §60.37f(a)(1), (2), and (3).</p> <p>(i) Any records required to be maintained by this subpart that are submitted electronically via the EPA's CDX may be maintained in electronic format.</p> <p>(j) For each owner or operator reporting leachate or other liquids addition under §60.38f(1), keep records of any engineering calculations or company records used to estimate the quantities of leachate or liquids added, the surface areas for which the leachate or liquids were applied, and the estimates of annual waste acceptance or total waste in place in the areas where leachate or liquids were applied.</p>
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Specifications for Active Collection Systems

<p>§60.40f</p>	<p>For approval, a state plan must include the specifications for active collection systems in this section.</p> <p>(a) Each owner or operator seeking to comply with §60.33f(b) must site active collection wells, horizontal collectors, surface collectors, or other extraction devices at a sufficient density throughout all gas producing areas using the following procedures unless alternative procedures have been approved by the Administrator.</p> <p>(1) The collection devices within the interior must be certified to achieve comprehensive control of surface gas emissions by a professional engineer. The following issues must be addressed in the design: depths of refuse, refuse gas generation rates and flow characteristics, cover properties, gas system expandability, leachate and condensate management, accessibility, compatibility with filling operations, integration with closure end use, air intrusion control, corrosion resistance, fill settlement, resistance to the refuse decomposition heat, and ability to isolate individual components or sections for repair or troubleshooting without shutting down entire collection system.</p> <p>(2) The sufficient density of gas collection devices determined in paragraph (a)(1) of this section must address landfill gas migration issues and augmentation of the collection system through the use of active or passive systems at the landfill perimeter or exterior.</p> <p>(3) The placement of gas collection devices determined in paragraph (a)(1) of this section must control all gas producing areas, except as provided by paragraphs (a)(3)(i) and (ii) of this section.</p> <p>(i) Any segregated area of asbestos or nondegradable material may be excluded from collection if documented as provided under §60.39f(d). The documentation must provide the nature, date of deposition, location and amount of asbestos or nondegradable material deposited in the area, and must be provided to the Administrator upon request.</p> <p>(ii) Any nonproductive area of the landfill may be excluded from control, provided that the total of all excluded areas can be shown to contribute less than 1 percent of the total amount of NMOC emissions from the landfill. The amount, location, and age of the material must be documented and provided to the Administrator upon request. A separate NMOC emissions estimate must be made for each section proposed for exclusion, and the sum of all such sections must be compared to the NMOC emissions estimate for the entire landfill.</p>
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(A) The NMOC emissions from each section proposed for exclusion must be computed using Equation 7:

$$Q_i = 2kL_oM_i(e^{-kt_i})(C_{NMOC})(3.6 \times 10^{-9})(Eq. 7)$$

Where:

Q^i = NMOC emission rate from the i^{th} section, megagrams per year.

k = Methane generation rate constant, year⁻¹.

L^o = Methane generation potential, cubic meters per megagram solid waste.

M^i = Mass of the degradable solid waste in the i^{th} section, megagram.

t^i = Age of the solid waste in the i^{th} section, years.

C_{NMOC} = Concentration of NMOC, parts per million by volume.

3.6×10^{-9} = Conversion factor.

(B) If the owner or operator is proposing to exclude, or cease gas collection and control from, nonproductive physically separated (e.g., separately lined) closed areas that already have gas collection systems, NMOC emissions from each physically separated closed area must be computed using either Equation 3 in §60.35f or Equation 7 in paragraph (a)(3)(ii)(A) of this section.

(iii) The values for k and C_{NMOC} determined in field testing must be used if field testing has been performed in determining the NMOC emission rate or the radii of influence (the distance from the well center to a point in the landfill where the pressure gradient applied by the blower or compressor approaches zero). If field testing has not been performed, the default values for k , L_o , and C_{NMOC} provided in §60.35f or the alternative values from §60.35f must be used. The mass of nondegradable solid waste contained within the given section may be subtracted from the total mass of the section when estimating emissions provided the nature, location, age, and amount of the nondegradable material is documented as provided in paragraph (a)(3)(i) of this section.

(b) Each owner or operator seeking to comply with §60.33f(b) must construct the gas collection devices using the following equipment or procedures:

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

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

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

	<p>(c) Each owner or operator seeking to comply with §60.33f(c) must convey the landfill gas to a control system in compliance with §60.33f(c) through the collection header pipe(s). The gas mover equipment must be sized to handle the maximum gas generation flow rate expected over the intended use period of the gas moving equipment using the following procedures:</p> <ol style="list-style-type: none">(1) For existing collection systems, the flow data must be used to project the maximum flow rate. If no flow data exist, the procedures in paragraph (c)(2) of this section must be used.(2) For new collection systems, the maximum flow rate must be in accordance with §60.36f(a)(1).
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DRAFT

FEDERAL REGULATIONS
40 CFR PART 60 SUBPART WWW
Standards of Performance for Municipal Solid Waste Landfills

Applicable provisions of 40 CFR Part 60 Subpart WWW shall apply.

[61 FR 9919, Feb. 25, 2020]

Standards for air emissions from municipal solid waste landfills

§60.752	<p>(a) Each owner or operator of an MSW landfill having a design capacity less than 2.5 million megagrams by mass or 2.5 million cubic meters by volume shall submit an initial design capacity report to the Administrator as provided in §60.757(a). The landfill may calculate design capacity in either megagrams or cubic meters for comparison with the exemption values. Any density conversions shall be documented and submitted with the report. Submittal of the initial design capacity report shall fulfill the requirements of this subpart except as provided for in paragraphs (a)(1) and (a)(2) of this section.</p> <p>(1) The owner or operator shall submit to the Administrator an amended design capacity report, as provided for in §60.757(a)(3).</p> <p>(2) When an increase in the maximum design capacity of a landfill exempted from the provisions of §§60.752(b) through 60.759 of this subpart on the basis of the design capacity exemption in paragraph (a) of this section results in a revised maximum design capacity equal to or greater than 2.5 million megagrams and 2.5 million cubic meters, the owner or operator shall comply with the provision of paragraph (b) of this section.</p> <p>(b) Each owner or operator of an MSW landfill having a design capacity equal to or greater than 2.5 million megagrams and 2.5 million cubic meters, shall either comply with paragraph (b)(2) of this section or calculate an NMOC emission rate for the landfill using the procedures specified in §60.754. The NMOC emission rate shall be recalculated annually, except as provided in §60.757(b)(1)(ii) of this subpart. The owner or operator of an MSW landfill subject to this subpart with a design capacity greater than or equal to 2.5 million megagrams and 2.5 million cubic meters is subject to part 70 or 71 permitting requirements.</p> <p>(1) If the calculated NMOC emission rate is less than 50 megagrams per year, the owner or operator shall:</p> <p>(i) Submit an annual emission report to the Administrator, except as provided for in §60.757(b)(1)(ii); and</p> <p>(ii) Recalculate the NMOC emission rate annually using the procedures specified in §60.754(a)(1) until such time as the calculated NMOC emission rate is equal to or greater than 50 megagrams per year, or the landfill is closed.</p> <p>(A) If the NMOC emission rate, upon recalculation required in paragraph (b)(1)(ii) of this section, is equal to or greater than 50 megagrams per year, the owner or operator shall install a collection and control system in compliance with paragraph (b)(2) of this section.</p> <p>(B) If the landfill is permanently closed, a closure notification shall be submitted to the Administrator as provided for in §60.757(d).</p>
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	<p>(2) If the calculated NMOC emission rate is equal to or greater than 50 megagrams per year, the owner or operator shall:</p> <p>(i) Submit a collection and control system design plan prepared by a professional engineer to the Administrator within 1 year:</p> <p>(A) The collection and control system as described in the plan shall meet the design requirements of paragraph (b)(2)(ii) of this section.</p> <p>(B) The collection and control system design plan shall include any alternatives to the operational standards, test methods, procedures, compliance measures, monitoring, recordkeeping or reporting provisions of §§60.753 through 60.758 proposed by the owner or operator.</p> <p>(C) The collection and control system design plan shall either conform with specifications for active collection systems in §60.759 or include a demonstration to the Administrator's satisfaction of the sufficiency of the alternative provisions to §60.759.</p> <p>(D) The Administrator shall review the information submitted under paragraphs (b)(2)(i)(A),(B) and (C) of this section and either approve it, disapprove it, or request that additional information be submitted. Because of the many site-specific factors involved with landfill gas system design, alternative systems may be necessary. A wide variety of system designs are possible, such as vertical wells, combination horizontal and vertical collection systems, or horizontal trenches only, leachate collection components, and passive systems.</p> <p>(ii) Install a collection and control system that captures the gas generated within the landfill as required by paragraphs (b)(2)(i)(A) or (B) and (b)(2)(iii) of this section within 30 months after the first annual report in which the emission rate equals or exceeds 50 megagrams per year, unless Tier 2 or Tier 3 sampling demonstrates that the emission rate is less than 50 megagrams per year, as specified in §60.757(c)(1) or (2).</p> <p>(A) An active collection system shall:</p> <p>(1) Be designed to handle the maximum expected gas flow rate from the entire area of the landfill that warrants control over the intended use period of the gas control or treatment system equipment;</p> <p>(2) Collect gas from each area, cell, or group of cells in the landfill in which the initial solid waste has been placed for a period of:</p> <p>(i) 5 years or more if active; or</p> <p>(ii) 2 years or more if closed or at final grade.</p> <p>(3) Collect gas at a sufficient extraction rate;</p> <p>(4) Be designed to minimize off-site migration of subsurface gas.</p> <p>(B) A passive collection system shall:</p> <p>(1) Comply with the provisions specified in paragraphs (b)(2)(ii)(A)(1), (2), and (2)(ii)(A)(4) of this section.</p> <p>(2) Be installed with liners on the bottom and all sides in all areas in which gas is to be collected. The liners shall be installed as required under §258.40.</p>
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	<p>(iii) Route all the collected gas to a control system that complies with the requirements in either paragraph (b)(2)(iii) (A), (B) or (C) of this section.</p> <p>(A) An open flare designed and operated in accordance with §60.18 except as noted in §60.754(e);</p> <p>(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 parts per million by volume, dry basis as hexane at 3 percent oxygen. The reduction efficiency or parts per million by volume shall be established by an initial performance test to be completed no later than 180 days after the initial startup of the approved control system using the test methods specified in §60.754(d).</p> <p>(1) If a boiler or process heater is used as the control device, the landfill gas stream shall be introduced into the flame zone.</p> <p>(2) The control device shall be operated within the parameter ranges established during the initial or most recent performance test. The operating parameters to be monitored are specified in §60.756;</p> <p>(C) Route the collected gas to a treatment system that processes the collected gas for subsequent sale or use. All emissions from any atmospheric vent from the gas treatment system shall be subject to the requirements of paragraph (b)(2)(iii) (A) or (B) of this section.</p> <p>(iv) Operate the collection and control device installed to comply with this subpart in accordance with the provisions of §§60.753, 60.755 and 60.756.</p> <p>(v) The collection and control system may be capped or removed provided that all the conditions of paragraphs (b)(2)(v) (A), (B), and (C) of this section are met:</p> <p>(A) The landfill shall be a closed landfill as defined in §60.751 of this subpart. A closure report shall be submitted to the Administrator as provided in §60.757(d);</p> <p>(B) The collection and control system shall have been in operation a minimum of 15 years; and</p> <p>(C) Following the procedures specified in §60.754(b) of this subpart, the calculated NMOC gas produced by the landfill shall be less than 50 megagrams per year on three successive test dates. The test dates shall be no less than 90 days apart, and no more than 180 days apart.</p> <p>(c) For purposes of obtaining an operating permit under title V of the Act, the owner or operator of a MSW landfill subject to this subpart with a design capacity less than 2.5 million megagrams or 2.5 million cubic meters is not subject to the requirement to obtain an operating permit for the landfill under part 70 or 71 of this chapter, unless the landfill is otherwise subject to either part 70 or 71. For purposes of submitting a timely application for an operating permit under part 70 or 71, the owner or operator of a MSW landfill subject to this subpart with a design capacity greater than or equal to 2.5 million megagrams and 2.5 million cubic meters, and not otherwise subject to either part 70 or 71, becomes subject to the requirements of §§70.5(a)(1)(i) or 71.5(a)(1)(i) of this chapter, regardless of when the design capacity report is actually submitted, no later than:</p> <p>(1) June 10, 1996 for MSW landfills that commenced construction, modification, or reconstruction on or after May 30, 1991 but before March 12, 1996;</p>
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	<p>(2) Ninety days after the date of commenced construction, modification, or reconstruction for MSW landfills that commence construction, modification, or reconstruction on or after March 12, 1996.</p> <p>(d) When a MSW landfill subject to this subpart is closed, the owner or operator is no longer subject to the requirement to maintain an operating permit under part 70 or 71 of this chapter for the landfill if the landfill is not otherwise subject to the requirements of either part 70 or 71 and if either of the following conditions are met:</p> <p>(1) The landfill was never subject to the requirement for a control system under paragraph (b)(2) of this section; or</p> <p>(2) The owner or operator meets the conditions for control system removal specified in paragraph (b)(2)(v) of this section.</p>
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Operational Standards for Collection and Control System

<p>§60.753</p>	<p>Each owner or operator of an MSW landfill with a gas collection and control system used to comply with the provisions of § 60.752(b)(2)(ii) of this subpart shall:</p> <p>(a) Operate the collection system such that gas is collected from each area, cell, or group of cells in the MSW landfill in which solid waste has been in place for:</p> <p>(1) 5 years or more if active; or</p> <p>(2) 2 years or more if closed or at final grade;</p> <p>(b) Operate the collection system with negative pressure at each wellhead except under the following conditions:</p> <p>(1) A fire or increased well temperature. The owner or operator shall record instances when positive pressure occurs in efforts to avoid a fire. These records shall be submitted with the annual reports as provided in § 60.757(f)(1);</p> <p>(2) Use of a geomembrane or synthetic cover. The owner or operator shall develop acceptable pressure limits in the design plan;</p> <p>(3) A decommissioned well. A well may experience a static positive pressure after shut down to accommodate for declining flows. All design changes shall be approved by the Administrator;</p> <p>(c) Operate each interior wellhead in the collection system with a landfill gas temperature less than 55 °C 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 shall show supporting data that the elevated parameter does not cause fires or significantly inhibit anaerobic decomposition by killing methanogens.</p> <p>(1) The nitrogen level shall be determined using Method 3C, unless an alternative test method is established as allowed by § 60.752(b)(2)(i) of this subpart.</p> <p>(2) Unless an alternative test method is established as allowed by § 60.752(b)(2)(i) of this subpart, the oxygen shall be determined by an oxygen meter using Method 3A or 3C except that:</p> <p>(i) The span shall be set so that the regulatory limit is between 20 and 50 percent of the span;</p>
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	<p>(ii) A data recorder is not required;</p> <p>(iii) Only two calibration gases are required, a zero and span, and ambient air may be used as the span;</p> <p>(iv) A calibration error check is not required;</p> <p>(v) The allowable sample bias, zero drift, and calibration drift are ± 10 percent.</p> <p>(d) Operate the collection system so that the methane concentration is less than 500 parts per million above background at the surface of the landfill. To determine if this level is exceeded, the owner or operator shall conduct surface testing around the perimeter of the collection area 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. The owner or operator may establish an alternative traversing pattern that ensures equivalent coverage. A surface monitoring design plan shall be developed that includes a topographical map with the monitoring route and the rationale for any site-specific deviations from the 30 meter intervals. Areas with steep slopes or other dangerous areas may be excluded from the surface testing.</p> <p>(e) Operate the system such that all collected gases are vented to a control system designed and operated in compliance with § 60.752(b)(2)(iii). In the event the collection or control system is inoperable, the gas mover system shall be shut down and all valves in the collection and control system contributing to venting of the gas to the atmosphere shall be closed within 1 hour; and</p> <p>(f) Operate the control or treatment system at all times when the collected gas is routed to the system.</p> <p>(g) If monitoring demonstrates that the operational requirements in paragraphs (b), (c), or (d) of this section are not met, corrective action shall be taken as specified in § 60.755(a)(3) through (5) or § 60.755(c) of this subpart. If corrective actions are taken as specified in § 60.755, the monitored exceedance is not a violation of the operational requirements in this section.</p>
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Test Methods and Procedures

<p>§60.754</p>	<p>(a)</p> <p>(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. Both equations may be used if the actual year-to-year solid waste acceptance rate is known, as specified in paragraph (a)(1)(i), for part of the life of the landfill and the actual year-to-year solid waste acceptance rate is unknown, as specified in paragraph (a)(1)(ii), for part of the life of the landfill. The values to be used in both equations are 0.05 per year for k, 170 cubic meters per megagram for LO, and 4,000 parts per million by volume as hexane for the CNMOC. For landfills located in geographical areas with a thirty year annual average precipitation of less than 25 inches, as measured at the nearest representative official meteorologic site, the k value to be used is 0.02 per year.</p> <p>(i) The following equation shall be used if the actual year-to-year solid waste acceptance rate is known.</p>
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(ii)

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

where,
 M^{NMOC} = Total NMOC emission rate from the landfill, megagrams per year
 k = methane generation rate constant, year⁻¹
 L° = 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 documentation of the nature and amount of such wastes is maintained

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

$$M^{\text{NMOC}} = 2L^{\circ} R (e^{-kc} - e^{-kt}) C^{\text{NMOC}} (3.6 \times 10^{-9})$$

Where:
 M^{NMOC} = mass emission rate of NMOC, megagrams per year
 L° = methane generation potential, cubic meters per megagram solid waste
 R = average annual acceptance rate, megagrams per year
 k = methane generation rate constant, year⁻¹
 t = age of landfill, years
 C^{NMOC} = concentration of NMOC, parts per million by volume as hexane
 c = time since closure, years; for active landfill $c = 0$ and $e^{-kc} = 1$
 3.6×10^{-9} = conversion factor

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

(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 §60.757(b)(1), and shall recalculate the NMOC mass emission rate annually as required under §60.752(b)(1).
- (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), or determine a site-specific NMOC concentration and recalculate the NMOC emission rate using the procedures provided in paragraph (a)(3) of this section.

	<p>(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 25 or 25C of appendix A of this part. Method 18 of appendix A of this part may be used to analyze the samples collected by the Method 25 or 25C sampling procedure. Taking composite samples from different probes into a single cylinder is allowed; however, equal sample volumes must be taken from each probe. For each composite, the sampling rate, collection times, beginning and ending cylinder vacuums, or alternative volume measurements must be recorded to verify that composite volumes are equal. Composite sample volumes should not be less than one liter unless evidence can be provided to substantiate the accuracy of smaller volumes. Terminate compositing before the cylinder approaches ambient pressure where measurement accuracy diminishes. If using Method 18, the owner or operator must identify all compounds in the sample and, as a minimum, test for those compounds published in the most recent Compilation of Air Pollutant Emission Factors (AP-42), minus carbon monoxide, hydrogen sulfide, and mercury. As a minimum, the instrument must be calibrated for each of the compounds on the list. Convert the concentration of each Method 18 compound to CNMOC as hexane by multiplying by the ratio of its carbon atoms divided by six. If more than the required number of samples are taken, all samples must be used in the analysis. The landfill owner or operator must divide the NMOC concentration from Method 25 or 25C of appendix A of this part by six to convert from CNMOC as carbon to CNMOC as hexane. If the landfill has an active or passive gas removal system in place, Method 25 or 25C samples may be collected from these systems instead of surface probes provided the removal system can be shown to provide sampling as representative as the two sampling probe per hectare requirement. For active collection systems, samples may be collected from the common header pipe before the gas moving or condensate removal equipment. For these systems, a minimum of three samples must be collected from the header pipe.</p> <p>(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.</p> <p>(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), 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.</p> <p>(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 §60.757(b)(1) and retest the site-specific NMOC concentration every 5 years using the methods specified in this section.</p>
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Reporting Requirements

<p>§60.757</p>	<p>(a) Each owner or operator subject to the requirements of this subpart shall submit an initial design capacity report to the Administrator.</p> <p>(1) The initial design capacity report shall fulfill the requirements of the notification of the date construction is commenced as required by § 60.7(a)(1) and shall be submitted no later than:</p> <p>(i) June 10, 1996, for landfills that commenced construction, modification, or reconstruction on or after May 30, 1991 but before March 12, 1996 or</p>
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	<p>(ii) Ninety days after the date of commenced construction, modification, or reconstruction for landfills that commence construction, modification, or reconstruction on or after March 12, 1996.</p> <p>(2) The initial design capacity report shall contain the following information:</p> <p>(i) A map or plot of the landfill, providing the size and location of the landfill, and identifying all areas where solid waste may be landfilled according to the permit issued by the State, local, or tribal agency responsible for regulating the landfill.</p> <p>(ii) The maximum design capacity of the landfill. Where the maximum design capacity is specified in the permit issued by the State, local, or tribal agency responsible for regulating the landfill, a copy of the permit specifying the maximum design capacity may be submitted as part of the report. If the maximum design capacity of the landfill is not specified in the permit, the maximum design capacity shall be calculated using good engineering practices. The calculations shall be provided, along with the relevant parameters as part of the report. The State, Tribal, local agency or Administrator may request other reasonable information as may be necessary to verify the maximum design capacity of the landfill.</p> <p>(3) An amended design capacity report shall be submitted to the Administrator providing notification of an increase in the design capacity of the landfill, within 90 days of an increase in the maximum design capacity of the landfill to or above 2.5 million megagrams and 2.5 million cubic meters. This increase in design capacity may result from an increase in the permitted volume of the landfill or an increase in the density as documented in the annual recalculation required in § 60.758(f).</p> <p>(b) Each owner or operator subject to the requirements of this subpart shall submit an NMOC emission rate report to the Administrator initially and annually thereafter, except as provided for in paragraphs (b)(1)(ii) or (b)(3) of this section. The Administrator may request such additional information as may be necessary to verify the reported NMOC emission rate.</p> <p>(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 § 60.754(a) or (b), as applicable.</p> <p>(i) The initial NMOC emission rate report may be combined with the initial design capacity report required in paragraph (a) of this section and shall be submitted no later than indicated in paragraphs (b)(1)(i)(A) and (B) of this section. 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.</p> <p>(A) June 10, 1996, for landfills that commenced construction, modification, or reconstruction on or after May 30, 1991, but before March 12, 1996, or</p> <p>(B) Ninety days after the date of commenced construction, modification, or reconstruction for landfills that commence construction, modification, or reconstruction on or after March 12, 1996.</p> <p>(ii) If the estimated NMOC emission rate as reported in the annual report to the Administrator 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 Administrator. This estimate shall be revised at</p>
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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 Administrator. 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 subpart 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), during such time as the collection and control system is in operation and in compliance with §§ 60.753 and 60.755.
- (c) Each owner or operator subject to the provisions of § 60.752(b)(2)(i) shall submit a collection and control system design plan to the Administrator within 1 year of the first report required under paragraph (b) of this section in which the emission rate equals or exceeds 50 megagrams per year, except as follows:
- (1) If the owner or operator elects to recalculate the NMOC emission rate after Tier 2 NMOC sampling and analysis as provided in § 60.754(a)(3) and the resulting rate is less than 50 megagrams per year, annual periodic reporting shall be resumed, using the Tier 2 determined site-specific NMOC concentration, until the calculated emission rate is equal to or greater than 50 megagrams per year or the landfill is closed. The revised NMOC emission rate report, with the recalculated emission rate based on NMOC sampling and analysis, shall be submitted within 180 days of the first calculated exceedance of 50 megagrams per year.
 - (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 § 60.754(a)(4), and the resulting NMOC emission rate is less than 50 Mg/yr, annual periodic reporting shall be resumed. The resulting site-specific methane generation rate constant (k) shall be used in the emission rate calculation until such time as the emissions rate calculation results in an exceedance. The revised NMOC emission rate report based on the provisions of § 60.754(a)(4) and the resulting site-specific methane generation rate constant (k) shall be submitted to the Administrator within 1 year of the first calculated emission rate exceeding 50 megagrams per year.
- (d) Each owner or operator of a controlled landfill shall submit a closure report to the Administrator within 30 days of waste acceptance cessation. The Administrator may request additional information as may be necessary to verify that permanent closure has taken place in accordance with the requirements of 40 CFR 258.60. If a closure report has been submitted to the Administrator, no additional wastes may be placed into the landfill without filing a notification of modification as described under § 60.7(a)(4).
- (e) Each owner or operator of a controlled landfill shall submit an equipment removal report to the Administrator 30 days prior to removal or cessation of operation of the control equipment.
- (1) The equipment removal report shall contain all of the following items:
 - (i) A copy of the closure report submitted in accordance with paragraph (d) of this section;
 - (ii) A copy of the initial performance test report demonstrating that the 15 year minimum control period has expired; and
 - (iii) Dated copies of three successive NMOC emission rate reports demonstrating that the landfill is no longer producing 50 megagrams or greater of NMOC per year.

	<p>(2) The Administrator may request such additional information as may be necessary to verify that all of the conditions for removal in § 60.752(b)(2)(v) have been met.</p> <p>(f) Each owner or operator of a landfill seeking to comply with § 60.752(b)(2) using an active collection system designed in accordance with § 60.752(b)(2)(ii) shall submit to the Administrator 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 § 60.8. For enclosed combustion devices and flares, reportable exceedances are defined under § 60.758(c).</p> <ol style="list-style-type: none">(1) Value and length of time for exceedance of applicable parameters monitored under § 60.756(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 § 60.756.(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) 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 § 60.755. <p>(g) Each owner or operator seeking to comply with § 60.752(b)(2)(iii) shall include the following information with the initial performance test report required under § 60.8:</p> <ol style="list-style-type: none">(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; and(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.
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Appendix A

- I. **40 CFR 70.5d** (State Operating Permit Program) – Any application form, report, or compliance certification submitted pursuant to these regulations shall contain certification by a responsible official of truth, accuracy, and completeness. This certification and any other certification required under this part shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

Agency Notifications

All correspondence as required by this Approval to Construct/Modify shall be forwarded to:

- A. Director, Air Division (Attn: AIR-3)
U.S. Environmental Protection Agency
75 Hawthorne Street
San Francisco, CA 94105
- B. Chief, Stationary Source Division
California Air Resources Board
P.O. Box 2815
Sacramento, CA 95812
- C. Air Pollution Control Officer
Eastern Kern Air Pollution Control District
2700 M Street, Suite 302
Bakersfield, CA 93301

Appendix B

Compliance Assurance Monitoring (CAM)

In accordance with 40 CFR §64.2(a)(3), CAM does not apply because the pre-control emissions are less than or equal to 100% of the major source threshold; the following is added as reference.

Emissions Unit Equipment No.	0027004
Equipment Description	Class III Sanitary Landfill
Monitoring Procedures	EPA Methods 18, 25, or 25C in accordance with 40 CFR Part 60, Subpart WWW (Standards of Performance for Municipal Solid Waste Landfills)

Appendix C

Greenhouse Gas Facility Wide Reporting

Greenhouse Gases:

Carbon dioxide (CO₂),
 Nitrous oxide (N₂O),
 Methane (CH₄),
 Hydrofluorocarbons (HFCs),
 Perfluorocarbons (PFCs), and
 Sulfur Hexafluoride (SF₆).

Reported for the year 2018

GHG EMISSIONS (short tons per year)							
Pollutants:	CO ₂	CH ₄	N ₂ O	HFCs	PFCs	SF ₆	Total
Emissions (tpy):	0	220	0	0	0	0	
*GWP:	1	21	310	**	**	23,900	
CO ₂ e (tpy):	0	4,620	0	0	0	0	4,620

*Global Warming Potential (GWP): The capacity to heat the atmosphere, calculated as the ratio of the time-integrated radiative forcing from the instantaneous release of 1 kilogram (kg) of a substance relative to that of 1 kg of CO₂. GWP shall be calculated according to the factors for a 100-year time horizon, as stated in 40 CFR Part 98 Subpart A Table A-1 (Global Warming Potentials).

** GWP varies based on each pollutant.

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Appendix D

Fugitive Dust Requirements under the California Integrated Waste Management Board (CIWMB) Criteria for Landfills and Disposal Sites

Title 27, California Code of Regulations (27 CCR) §20540. CIWMB – Operating Criteria, Roads (prev. 14 CCR §§17659 – 17660)

Roads within the permitted facility boundary shall be designed to minimize the generation of dust and the tracking of material onto adjacent public roads. Such roads shall be kept in safe condition and maintained such that vehicle access and unloading can be conducted during inclement weather.

27 CCR §20800. CIWMB – Controls, Dust Control (prev. 14 CCR §17706)

The operator shall take adequate measures to minimize the creation of dust and prevent safety hazards due to obscured visibility.