PIMA COUNTY DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR PROGRAM

33 N. Stone Avenue, Suite 700 • Tucson, Arizona 85701 • Phone: (520) 724-7400

AIR QUALITY PERMIT

(As required by Title 17.12, Article II, Pima County Code)

ISSUED TO

CITY OF TUCSON
ENVIRONMENTAL SERVICES

LOS REALES MUNICIPAL
SOLID WASTE LANDFILL
5300 EAST LOS REALES ROAD
TUCSON, AZ 85706

This air quality permit does not relieve applicant of responsibility for meeting all air pollution regulations

THIS PERMIT ISSUED SUBJECT TO THE FOLLOWING: **Conditions contained in Parts A, B, & C and Attachments 1 through- 4.**

PERMIT NUMBER **3618**

PERMIT CLASS **I**

PERMIT ISSUED: **January 28, 2020**

EXPIRATION DATE: **January 27, 2025**

Rupesh Patel

SIGNATURE

Rupesh Patel, Air Permit Manageer, PDEQ

TITLE

SUMMARY

The Los Reales landfill is a Municipal Solid Waste (MSW) Landfill owned and operated by the City of Tucson Environmental Services (COTES) Department. The site began operation in 1967 and covers 1,087 acres, of which 428 acres include the existing waste disposal footprint and areas declared for expansion of that footprint.

The decomposition of solid waste generates landfill gases (LFG) containing methane (CH4), carbon dioxide (CO_2) and non-methane organic compounds (NMOC). The facility extracts LFG from wells across the site. These wells form part of a comprehensive extraction wellfield including compressor station and a blower/flare station. LFG collected for energy purposes bypasses the backup blower/flare station, is cooled, dried, and compressed at the compressor station, and then transported via underground pipeline to the Tucson Electric Power (TEP) Irvington Generating Station. At the TEP station, the LFG is used as a supplementary fuel to heat boiler(s) that provide steam to turbines for electrical power generation. COTES has contracted with a third party to operate both a well-collection system and the industrial flare to burn the collected LFG that is not sold to the TEP.

Regulated pollutants emitted from the flare burning of the LFG include nitrogen oxides (NO_X), carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter (PM), volatile organic compounds (VOC), and hazardous air pollutants (HAP). While the landfill, including its associated facilities, is a True Minor source of all criteria and hazardous air pollutants, it is a Class I stationary source pursuant to Pima County Code (PCC) 17.11.090.B.1.d and Code of Federal Regulations (CFR) 40 CFR 70.3(a)(5). Though an "existing" source subject to 40 CFR 60, Subpart Cc, Pima County regulations PCC 17.16.390.A.1 and PCC 17.16.390.C amend that applicability to include 40 CFR 60, Subpart WWW. Pursuant to that subpart (40 CFR 60.752(b)), any MSW landfill with a design capacity "greater than, or equal to 2.5 million megagrams" is subject to Part 70 permitting requirements. This landfill has declared a total design capacity of 50 million (short) tons (45.4 million megagrams).

This MSW landfill is also subject to 40 CFR 60, Subpart A, and 40 CFR 63, Subparts A and AAAA.

The active area of the landfill operates with internal, unpaved haul roads. Municipal and private hauler garbage trucks travel these roads along with private vehicles of various sizes. The source also performs continuous earthmoving activity, intermittent land clearing, trenching and unpaved road construction. The facility has a variety of equipment powered by small diesel engines. These engines are Non-Road engines determined to be 'Insignificant Activities'. A subsurface leachate collection system stores the byproduct of precipitation that drains through the buried refuse. Collected leachate is used for dust control over lined areas of the landfill.

The following emission numbers are for reference purposes only and are used to establish baseline emissions for the source. They are not intended to be enforceable emission limits unless specified in Part B of this permit. The estimates are a result of information submitted in the renewal application resubmitted April 23, 2019 and updated through the drafting of the permit.

Emission Source	Facility-Wide Regulated Pollutant Emissions (tons/yr)									
	PM_{10}	$PM_{2.5}$	NO_X	SO_2	CO	VOC	NMOC As Hexane	HAP Total	HAP Single	GHG [1]
Landfill GCS, Flare & (Nonfugitive)	3.21	3.21	13.09	3.34	59.11	0.20	0.52	1.75	< 1.75	93.25
Landfill Surface, Fugitive Dust & Landfill Leachate (Fugitive)	78.57	48.54	---	---	---	8.40	21.53	2.29	< 2.29	28,367

[1] GHG emissions are reported in metric tons carbon dioxide equivalent (CO_2e). GHG emissions summarized above assume 100% of LFG collected is destructed at the landfill. Biogenic emissions are not regulated under the CAA, and are excluded from the total GHG emissions shown above.

All terms and Conditions of this permit are Federally Enforceable by the Administrator of the United States Environmental Protection Agency (U.S.EPA) under the Clean Air Act, except as otherwise noted.

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PART A: GENERAL CONDITIONS

(Unless otherwise noted, references in this permit are to Title 17 of the Pima County Code (PCC), Arizona Revised Statutes (ARS), Arizona Administrative Code (AAC), or the Pima County State Implementation Plan (SIP). Underlined text are hyperlinked references to either definitions in this permit, Conditions within the permit, or to external web servers that contain the referenced provision)

1. Permit Expiration and Renewal

[PCC 17.11.090.A & PCC 17.12.010.D.1]

a. This permit is valid for a period of five years from the date of issuance.

b. The Permittee shall submit an application for renewal of this permit at least 6 months, but not more than 18 months prior to the date of permit expiration.

2. Compliance with Permit Conditions

[PCC 17.12.040.A.8.a & b]

a. The Permittee shall comply with all Conditions of this permit including all applicable requirements of the Arizona air quality statutes A.R.S, Title 49, Chapter 3 and Pima County air quality rules. Any permit noncompliance constitutes a violation of the Arizona Revised Statutes and is grounds for enforcement action; for permit termination, revocation and reissuance, or revision; or for denial of a permit renewal application. In addition, noncompliance with any federally enforceable requirement constitutes a violation of the Clean Air Act.

b. It shall not be a defense for a Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the Conditions of this permit.

3. Permit Revision, Reopening, Revocation and Reissuance, or Termination for Cause

[PCC 17.12.040.A.8.c & PCC 17.12.130]

a. The permit may be revised, reopened, revoked and reissued, or terminated for cause. The filing of a request by the Permittee for a permit revision, revocation and reissuance, termination; or of a notification of planned changes or anticipated noncompliance does not stay any permit Condition.

b. The permit shall be reopened and revised under any of the following circumstances:

i. Additional applicable requirements under the Clean Air Act become applicable to a major source. Such a reopening be completed no later than 18 months after promulgation of the applicable requirement. No such opening is required if the effective date of the requirement is later than the date on which the permit is due to expire, unless the original permit or any of its terms and Conditions has been extended pursuant to PCC 17.12.140.B. Any permit reopening required pursuant to this paragraph shall comply with provisions in PCC 17.12.140 for permit renewal and shall reset the five-year permit term.

ii. Additional requirements, including excess emissions requirements, become applicable to an affected source under the acid rain program. Upon approval by the Administrator, excess emissions offset plans shall be deemed to be incorporated into the Class I permit.

iii. The Control Officer or the Administrator determines that the permit contains a material mistake or that inaccurate statements were made in establishing the emissions standards or other terms or Conditions of the permit.

iv. The Control Officer or the Administrator determines that the permit needs to be revised or revoked to assure compliance with the applicable requirements.

c. Proceedings to reopen and reissue a permit, including appeal of any final action relating to a permit reopening, shall follow the same procedures as apply to initial permit issuance and shall affect only those parts of the permit for which cause to reopen exists. Such reopenings shall, except for reopenings under Condition 3.b.i above, affect only those parts of the permit for which cause to reopen exist. Such reopenings shall be made as expeditiously as practicable. Permit reopenings for reasons other than those stated in Condition 3.b.i above shall not result in a resetting of the five-year permit term.

4. Posting of Permit [PCC 17.11.060, SIP Rule 222 & ARS 49-485]

The Permittee shall maintain a complete copy of this permit onsite. If it is not feasible to maintain a copy of the permit onsite, the Permittee may request, in writing, to maintain a copy of the permit at an alternate location. Upon written approval by the Control Officer, the Permittee must maintain a complete copy of the permit at the approved alternative location.

5. Fee Payment [PCC 17.12.040.A.9 & PCC 17.12.220, SIP Reg 24]

The Permittee shall pay fees to the Control Officer pursuant to PCC 17.12.220.

6. Annual Emissions Inventory Questionnaire [PCC 17.12.160 & SIP Rule 623]

a. The Permittee shall complete and submit to the Control Officer an annual emissions inventory questionnaire. The questionnaire is due by March 31 or ninety days after the Control Officer makes the inventory form available, whichever occurs later, and shall include emission information for the previous calendar year. These requirements apply whether or not a permit has been issued and whether or not a permit application has been filed.

b. The questionnaire shall be on a form provided by or approved by the Control Officer and shall include the information required by PCC 17.12.160.

7. Compliance Certification [PCC 17.12.040.A.5 & PCC 17.12.080.A.2]

The Permittee shall submit to the Control Officer a compliance certification that describes the compliance status of the source with respect to each permit Condition. Certifications shall be submitted on the dates and frequency specified in Condition 51 of this permit.

a. The compliance certification shall include the following:

i. Identification of each term or Condition contained in the permit including emission limitations, standards, work practice, or management practices that are the basis of the certification;

ii. Identification of the method(s) or other means used by the Permittee for determining the compliance status of the source with each term and Condition during the certification period. Such methods and other means shall include, at a minimum, the methods and means required under PCC 17.12.040 (A)(3), (monitoring including the related recordkeeping and reporting requirements that verify compliance with monitoring). If necessary, the Permittee also shall identify any other material information that must be included in the certification to comply with § 113(c)(2) of the Clean Air Act, which prohibits knowingly making a false certification or omitting material information;

iii. The status of compliance with the terms and Conditions of the permit for the period covered by the certification, including whether compliance during the period was continuous or intermittent. The certification shall be based on the methods or means in Condition 7.a.ii above. The certification shall identify each deviation and take it into account in the compliance certification;

iv. For emission units subject to 40 CFR 64, the certification shall also identify as possible exceptions to compliance any period during which compliance is required and in which an excursion or exceedance defined under 40 CFR 64 occurred;

v. All instances of deviations from permit requirements reported pursuant to Condition 11.b as well as progress reports on all outstanding compliance schedules submitted pursuant to PCC 17.12.080; and

vi. Other facts the Control Officer may require to determine the compliance status of the facility.

b. A copy of all compliance certifications for Class I permits shall also be submitted to the EPA Administrator. The address for the EPA Administrator is:

EPA Region 9 Enforcement Office, 75 Hawthorne St (Air-5), San Francisco, CA 94105

8. Certification of Truth, Accuracy and Completeness [PCC 17.12.080.A.3]

Any document required to be submitted by this permit, including reports, shall contain a certification by a responsible official of truth, accuracy, and completeness. This certification and any other certification required by this permit shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

9. Inspection and Entry [PCC 17.12.080.A.4]

The Permittee shall allow the Control Officer or the authorized representative of the Control Officer upon presentation of proper credentials to:

a. Enter upon the Permittee's premises where a source is located, or emissions-related activity is conducted, or where records are required to be kept under the Conditions of the permit;

b. Have access to and copy, at reasonable times, any records that are required to be kept under the Conditions of the permit;

c. Inspect, at reasonable times, any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under the permit;

d. Sample or monitor, at reasonable times, substances or parameters for the purpose of assuring compliance with the permit or other applicable requirements; and

e. Record any inspection by use of written, electronic, magnetic and photographic media.

10. Permit Revision Pursuant to Federal Hazardous Air Pollutant Standard [PCC 17.12.010.D.3]

If this source becomes subject to a standard promulgated by the Administrator pursuant to § 112(d) of the Clean Air Act (Hazardous Air Pollutants), then the Permittee shall, within twelve months of the date on which the standard is promulgated, submit an application for a permit revision demonstrating how the source will comply with the standard.

11. Excess Emissions, Permit Deviations, and Emergency Reporting

a. Excess Emissions Reporting [PCC 17.12.170]

i. Excess emissions shall be reported as follows:

(a) The Permittee shall report to the Control Officer any emissions in excess of the limits established by this permit. Such report shall be in two parts as specified below:

(i) Notification by telephone, facsimile or e-mail within 24 hours of the time when the Permittee first learned of the occurrence of excess emissions including all available information in Condition 11.a.i.(b) below. The number to call to report excess emissions is **520-724-7400.** The facsimile number to report excess emissions is **520-838-7432.** The e-mail to report excess emissions is **Air.Permits@pima.gov**

(ii) Detailed written notification by submission of an excess emissions report within 72 hours of the notification in Condition 11.a.i.(a)(i) above. Notifications should be sent to:

PDEQ Air Program 33 N. Stone Avenue, Suite 700, Tucson, Arizona 85701.
Air.Permits@pima.gov

(b) The report shall contain the following information:

(i) The identity of each stack or other emission point where the excess emission occurred;

(ii) The magnitude of the excess emissions expressed in the units of the applicable emission limitation and the operating data and calculations used in determining the magnitude of the excess emissions;

(iii) The date, time, and duration or expected duration of the excess emissions;

(iv) The identity of the equipment from which the excess emissions emanated;

(v) The nature and cause of the emissions;

(vi) If the excess emissions were the result of a malfunction, the steps taken to remedy the malfunction and the steps taken or planned to prevent the recurrence of the malfunctions; and

(vii) The steps that were or are being taken to limit the excess emissions; If this permit contains procedures governing source operation during periods of startup or malfunction and the excess emissions resulted from start-up or malfunction, a list of the steps taken to comply with permit procedures.

ii. In the case of continuous or recurring excess emissions, the notification requirements shall be satisfied if the source provides the required notification after excess emissions are first detected and includes in the notification an estimate of the time the excess emissions will continue. Excess emissions occurring after the estimated time period or changes in the nature of the emissions as originally reported shall require additional notification pursuant to Condition 11.a.i above.

b. Permit Deviations Reporting [PCC 17.12.040.A.5.b]

The Permittee shall promptly report deviations from permit requirements, including those attributable to upset Conditions as defined in the permit, the probable cause of such deviations, and any corrective actions or preventive measures taken. Prompt reporting shall mean that the report was submitted to the Control Officer by certified mail, facsimile, e-mail (Air.Permits@pima.gov) or hand delivery within two working days of the time when emission limitations were exceeded due to an emergency or within two working days of the time when the Permittee first learned of the occurrence of a deviation from a permit requirement.

c. Emergency Provision [PCC 17.13.020.C]

i. An "Emergency" means any situation arising from sudden and reasonably unforeseeable events beyond the control of the source, including acts of God, that require immediate corrective action to restore normal operation and that causes the source to exceed a technology-based emission limitation under the permit, due to unavoidable increases in emission attributable to the emergency. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventive maintenance, careless or improper operation, or operator error.

ii. An emergency constitutes an affirmative defense to an action brought for noncompliance with the technology-based emission limitations if Condition 11.c.iii below is met.

iii. The affirmative defense of emergency shall be demonstrated through properly signed, contemporaneous operating logs, or other relevant evidence that:

(a) An emergency occurred and that the Permittee can identify the cause or causes of the emergency;

(b) At the time of the emergency, the permitted facility was being properly operated;

(c) During the period of the emergency the Permittee took all reasonable steps to minimize levels of emissions that exceeded the emissions standards or other requirements in the permit; and

(d) The Permittee submitted notice of the emergency to the Control Officer by certified mail, hand delivery, e-mail (Air.Permits@pima.gov) or facsimile transmission within two working days of the time when emission limitations were exceeded due to the emergency. This notice shall contain a description of the emergency, any steps taken to mitigate emissions, and corrective action taken.

iv. In any enforcement proceeding, the Permittee seeking to establish the occurrence of an emergency has the burden of proof.

v. This provision is in addition to any emergency or upset provision contained in any applicable requirement.

d. Compliance Schedule [ARS § 49-480.F.3 & 5]

For any excess emission or permit deviation that cannot be corrected within 72 hours, the Permittee is required to submit a compliance schedule to the Control Officer within 21 days of such occurrence. The compliance schedule shall include a schedule of remedial measures, including an enforceable sequence of actions with milestones, leading to compliance with the permit terms or Conditions that have been violated.

e. Affirmative Defenses for Excess Emissions Due to Malfunctions, Startup, and Shutdown [PCC 17.12.180]

i. Applicability

This rule establishes affirmative defenses for certain emissions in excess of an emission standard or limitation and applies to all emission standards or limitations except for standards or limitations:

(a) Promulgated pursuant to §§ 111 or 112 of the Clean Air Act;

(b) Promulgated pursuant to Titles IV or VI of the Clean Air Act;

(c) Contained in any Prevention of Significant Deterioration (PSD) or New Source Review (NSR) permit issued by the U.S. E.P.A., or

(d) Included in a permit to meet the requirements of PCC 17.16.590.A.5.

ii. Affirmative Defense for Malfunctions

Emissions in excess of an applicable emission limitation due to malfunction shall constitute a violation. The Owner or operator of a source with emissions in excess of an applicable emission limitation due to malfunction, has an affirmative defense to a civil or administrative enforcement proceeding based on that violation, other than a judicial action seeking injunctive relief, if the owner or operator of the source has complied with the reporting requirements in Condition 11.a above and has demonstrated all of the following:

(a) The excess emissions resulted from a sudden and unavoidable breakdown of process equipment or air pollution control equipment beyond the reasonable control of the operator;

(b) The air pollution control equipment, process equipment, or processes were at all times maintained and operated in a manner consistent with good practice for minimizing emissions;

(c) If repairs were required, the repairs were made in an expeditious fashion when the applicable emission limitations were being exceeded. Off-shift labor and overtime were utilized where practicable to ensure that the repairs were made as expeditiously as possible. If off-shift labor and overtime were not utilized, the owner or operator satisfactorily demonstrated that the measures were impracticable;

(d) The amount and duration of the excess emissions (including any bypass operation) were minimized to the maximum extent practicable during periods of such emissions;

(e) All reasonable steps were taken to minimize the impact of the excess emissions on ambient air quality;

(f) The excess emissions were not part of a recurring pattern indicative of inadequate design, operation, or maintenance;

(g) During the period of excess emissions there were no exceedances of the relevant ambient air quality standards established in PCC Chapter 17.08 that could be attributed to the emitting source;

(h) The excess emissions did not stem from any activity or event that could have been foreseen and avoided, or planned, and could not have been avoided by better operations and maintenance practices;

(i) All emissions monitoring systems were kept in operation if at all practicable; and

(j) The Permittee's actions in response to the excess emissions were documented by contemporaneous records.

iii. Affirmative Defense for Startup and Shutdown

(a) Except as provided in Condition 11.e.iii.(b) below, and unless otherwise provided for in the applicable requirement, emissions in excess of an applicable emission limitation due to startup and shutdown shall constitute a violation. The Permittee of a source with emissions in excess of an applicable emission limitation due to startup and shutdown, has an affirmative defense to a civil or administrative enforcement proceeding based on that violation, other than a judicial action seeking injunctive relief, if the owner or operator of the source has complied with the reporting requirements of Condition 11.a above and has demonstrated all of the following:

(i) The excess emissions could not have been prevented through careful and prudent planning and design;

(ii) If the excess emissions were the result of a bypass of control equipment, the bypass was unavoidable to prevent loss of life, personal injury, or severe damage to air pollution control equipment, production equipment, or other property;

(iii) The source's air pollution control equipment, process equipment, or processes were at all times maintained and operated in a manner consistent with good practice for minimizing emissions;

(iv) The amount and duration of the excess emissions (including any bypass operation) were minimized to the maximum extent practicable during periods of such emissions;

(v) All reasonable steps were taken to minimize the impact of the excess emissions on ambient air quality;

(vi) During the period of excess emissions there were no exceedances of the relevant ambient air quality standards established in PCC Chapter 17.08 that could be attributed to the emitting source;

(vii) All emissions monitoring systems were kept in operation if at all practicable; and

(viii) The Permittee's actions in response to the excess emissions were documented by contemporaneous records.

(b) If excess emissions occur due to a malfunction during routine startup and shutdown, then those instances shall be treated as other malfunctions subject to Condition above.

iv. Affirmative Defense for Malfunctions during Scheduled Maintenance

If excess emissions occur due to a malfunction during scheduled maintenance, then those instances will be treated as other malfunctions subject to Condition 11.e.ii above.

v. Demonstration of Reasonable and Practicable Measures

For an affirmative defense under Condition 11.e.ii or iii above, the Permittee of the source shall demonstrate, through submission of the data and information required by Conditions 11.e.i through v and Condition 11.a above, that all reasonable and practicable measures within the owner or operator's control were implemented to prevent the occurrence of the excess emissions.

12. Recordkeeping Requirements [PCC 17.12.040.A.4]

a. The Permittee shall keep records of all required monitoring information including recordkeeping requirements established pursuant to PCC 17.12.080, where applicable, for the following:

i. The date, place as defined in the permit, and time of sampling or measurements;

ii. The date(s) analyses were performed;

iii. The name of the company or entity that performed the analyses;

iv. A description of the analytical techniques or methods used;

v. The results of such analyses; and

vi. The operating conditions as existing at the time of sampling or measurement.

b. The Permittee shall retain records of all required monitoring data and support information for a period of at least 5 years from the date of the monitoring sample, measurement, report, or application. Support information includes all calibration and maintenance records and all original strip-chart recordings or other data recordings for continuous monitoring instrumentation, and copies of all reports required by the permit.

c. All required records shall be maintained either in an unchangeable electronic format or printed records including hand written forms or logbooks utilizing indelible ink.

13. Reporting Requirements [PCC 17.12.040.A.5]

The Permittee shall comply with all of the reporting requirements of this permit. These include:

a. Compliance certifications pursuant to Condition 7 above.

b. Excess emissions; permit deviations, and emergency reports in accordance with Condition 11 above.

c. Performance test results in accordance with Condition 17.g below.

d. Other reports required by any of the Conditions in Part B of this permit.

14. Duty to Provide Information [PCC 17.12.040.A.8.e, PCC 17.12.010.H, & PCC 17.12.010.I, SIP Rule 621]

a. The Permittee shall furnish to the Control Officer, within a reasonable time, any information that the Control Officer may request in writing to determine whether cause exists for revising, revoking and reissuing, or terminating the permit or to determine compliance with the permit. Upon request, the Permittee shall also furnish to the Control Officer copies of records required to be kept by the permit. For information claimed to be confidential, the Permittee for Class I sources, shall furnish an additional copy of such records directly to the Administrator along with a claim of confidentiality.

b. If the Permittee has failed to submit any relevant facts or if the Permittee has submitted incorrect information in the permit application, the Permittee shall, upon becoming aware of such failure or incorrect submittal, promptly submit such supplementary facts or corrected information. In addition, an applicant shall provide additional information as necessary to address any requirements that become applicable to the source after the date it filed a complete application but prior to release of a proposed permit.

15. Permit Amendment or Revision [PCC 17.12.100, PCC 17.12.110 & PCC 17.12.120]

The Permittee shall apply for a permit amendment or revision for changes to the facilities which do not qualify for a facility change without revision under Condition 16 below as follows:

a. Administrative Permit Amendment (PCC 17.12.100);

b. Minor Permit Revision (PCC 17.12.110);

c. Significant Permit Revision (PCC 17.12.120).

The applicability and requirements for such action are defined in the referenced regulations.

16. Facility Changes Allowed Without Permit Revisions [PCC 17.12.090]

a. The Permittee may make changes without a permit revision if all of the following apply:

(i) The changes are not modifications under any provision of Title I of the Clean Air Act (Air Pollution Prevention and Control) or under modifications as defined in A.R.S. 49-401.01(24);

(ii) The changes do not exceed the emissions allowable under the permit whether expressed therein as a rate of emissions or in terms of total emissions;

(iii) The changes do not violate any applicable requirements or trigger any additional applicable requirements;

(iv) The changes satisfy all requirements for a minor permit revision under PCC 17.12.110; and

(v) The changes do not contravene federally enforceable permit terms and Conditions that are monitoring (including test methods), record keeping, reporting, or compliance certification requirements.

b. The substitution of an item of process or pollution control equipment for an identical or substantially similar item of process or pollution control equipment shall qualify as a change that does not require a permit revision, if the substitution meets all of the requirements of Conditions 16.a, d, and e.

c. Except for sources with authority to operate under general permits, permitted sources may trade increases and decreases in emissions within the permitted facility, as established in the permit under PCC 17.12.040.A.12 if an applicable implementation plan provides for the emissions trades, without applying for a permit revision and based on the seven working days' notice prescribed in Condition 16.d below. This provision is available if the permit does not provide for the emissions trading as a minor permit revision.

d. For each change under Conditions 16.a through c above, a written notice, by certified mail or hand delivery, shall be received by the Control Officer and the Administrator a minimum of seven (7) working days in advance of the change. Notifications of changes associated with emergency conditions, such as malfunctions necessitating the replacement of equipment, may be provided less than 7 working days in advance of the change but must be provided as far in advance of the change, or if advance notification is not practicable as soon after the change as possible.

e. Each notification shall include:

(i) When the proposed change will occur;

(ii) A description of the change;

(iii) Any change in emissions of regulated air pollutants;

(iv) The pollutants emitted subject to the emissions trade, if any;

(v) The provisions in the implementation plan that provide for the emissions trade with which the source will comply and any other information as may be required by the provisions in the implementation plan authorizing the trade;

(vi) If the emissions trading provisions of the implementation plan are invoked, then the permit requirements with which the source will comply; and

(vii) Any permit term or Condition that is no longer applicable as a result of the change.

f. The permit shield described in Condition 20 below shall not apply to any change made under this Condition. Compliance with the permit requirements that the source will meet using the emissions trade shall be determined according to requirements of the implementation plan authorizing the emissions trade.

g. Except as otherwise provided for in the permit, making a change from one alternative operating scenario to another as provided under PCC 17.12.040.A11 shall not require any prior notice under this section.

h. Notwithstanding any other part of this Condition, the Control Officer may require a permit to be revised for any change that when considered together with any other changes submitted by the same source under these provisions over the term of the permit, do not satisfy the requirements in Condition 16.a.

17. Testing Requirements [PCC 17.11.210, SIP Reg 50, SIP Rule 212]

a. New sources required to conduct performance testing shall do so within 60 days after the source has achieved the capability to operate at its maximum production rate on a sustained basis but no later than 180 days after initial startup of such sources. The Permittee shall conduct performance testing as specified in Part B of this permit and at such other times as may be required by the Control Officer. The Permittee shall furnish the Control Officer a written report or the results of the tests.

b. Operational Conditions

Performance tests shall be conducted while the unit is operating at full load under representative operational conditions unless other conditions are required by the applicable test method or in this permit. With prior written approval from the Control Officer, testing may be performed at a lower rate. Operations during start-up, shutdown, and malfunction (as defined in PCC 17.04.340.A) shall not constitute representative operational conditions unless otherwise specified in the applicable requirement.

c. Tests shall be conducted and data reduced in accordance with the test methods and procedures contained in the Arizona Testing Manual, 40 CFR 52; Appendices D and E, 40 CFR 60; Appendices A through F; and 40 CFR 61, Appendices B and C unless modified by the Control Officer pursuant to PCC 17.11.210.B.

d. Test Plan

At least 14 calendar days prior to performing a test, the Permittee shall submit a test plan to the Control Officer, in accordance with PCC 17.11.210.D and the Arizona Testing Manual. This test plan must include the test duration, test location(s), test methods, and source operation and other parameters that may affect the test results.

e. Stack Sampling Facilities

The Permittee shall provide or cause to be provided, performance testing facilities as follows:

i. Sampling ports adequate for test methods applicable to the facility;

ii. Safe sampling platform(s);

iii. Safe access to sampling platform(s); and,

iv. Utilities for sampling and testing equipment.

f. Interpretation of Final Results *(Please see Part B of the permit for Specific Conditions)*

Unless otherwise specified in Part B or Part C of this permit, each performance test shall consist of three separate runs using the applicable test method. Each run shall be conducted for the time and under the conditions specified in the applicable standard. For the purpose of determining compliance with an applicable standard, the arithmetic mean of the results of the three runs shall apply. In the event that a sample is accidentally lost or conditions occur in which one of the three runs is required to be discontinued because of forced shutdown, failure of an irreplaceable portion of the sample train, extreme meteorological conditions, or other circumstances beyond the Permittee's control, compliance may, upon the Control Officer's approval, be determined using the arithmetic mean of the results of the other two runs. If the Control Officer or the Control Officer's designee is present, tests may only be stopped with the Control Officer's or such designee's approval. If the Control Officer or the Control Officer's designee is not present, tests may only be stopped for good cause. Good cause includes: forced shutdown, failure of an irreplaceable portion of the sample train, extreme meteorological conditions, or other circumstances beyond the Permittee's control. Termination of any test without good cause after the first run is commenced shall constitute a failure of the test. Supporting documentation, which demonstrates good cause, must be submitted.

g. Report of Final Test Results

A written report of the results of all performance tests shall be submitted to the Control Officer within 30 days after the test is performed. The report shall be submitted in accordance with the Arizona Testing Manual and PCC 17.11.210.A. If additional time is needed to submit the results, the Permittee shall send a written request for an extension describing the circumstances and specifying the time needed to submit the report for approval by the Control Officer.

[AZ Testing Manual Page 8 (4 weeks ~ 30 days)]

18. Property Rights

[PCC 17.12.040.A.8.d]

This permit does not convey any property rights of any sort, or any exclusive privilege to the Permittee.

19. Severability Clause [PCC 17.12.040.A.7]

The provisions of this permit are severable. In the event of a challenge to any portion of this permit, that results in any permit term or Condition of this permit being held invalid, the remainder of this permit shall not be affected thereby.

20. Permit Shield [PCC 17.11.080]

Compliance with the Conditions of this permit shall be deemed compliance with the applicable requirements identified in the permit as of the date of permit issuance, provided that such applicable requirements are included and expressly identified in the permit. The permit shield shall not apply to any change made in accordance with Conditions 15.b and 16 above.

21. Accident Prevention Requirements under The Clean Air Act (CAA § 112(r))

Should this stationary source, as defined in 40 CFR Part 68.3, become subject to the accidental release prevention regulations in Part 68, then the Permittee shall submit a risk management plan (RMP) by the date specified in §68.10 and shall certify compliance with the requirements of Part 68 as part of the annual compliance certification as required by 40 CFR Part 70 and Part B of this permit.

22. Requirement to Obtain Activity Permits [PCC Chapter 17.14]

a. The Permittee shall not allow or commence demolition or renovation of any NESHAP facility, as defined in 40 CFR Part 61, Subpart M, National Emission Standards for Hazardous Air Pollutants – Asbestos, without first obtaining an activity permit from the Control Officer in accordance with PCC 17.14.060. Should this stationary source, pursuant to 40 CFR Part 61, Subpart M, become subject to asbestos regulations when conducting any renovation or demolition at this premises, then the Permittee or operator shall submit proper notification as described in 40 CFR Part 61, Subpart M and shall comply with all other applicable requirements of Subpart M. The Permittee shall keep a record of all relevant paperwork on file. [PCC 17.14.060 & 40 CFR 61, Subpart M]

b. The Permittee shall not ignite, cause to be ignited, permit to be ignited, allow or maintain any open outdoor fire without first obtaining an activity permit from the Control Officer or delegated authority unless exempted under PCC 17.14.080.C. [PCC 17.14.080]

23. Stratospheric Ozone Depleting Substances [40 CFR 82 & PCC 17.16.710]

The Permittee shall not use, sell, or offer for sale any fluid as a substitute material for use in any motor vehicle, residential, commercial, or industrial air conditioning system, refrigerator or freezer unit, or other cooling or heating device designed to use a chlorofluorocarbon (CFC) or hydrochlorofluorocarbon (HCFC) compound as a working fluid, unless such fluid has been approved for sale and such use by the Administrator. The Permittee shall keep a record of all paperwork relevant to the applicable requirements of 40 CFR 82, Subpart F onsite.

PART B: SPECIFIC CONDITIONS

(Unless otherwise noted, references in this permit are to Title 17 of the Pima County Code (PCC), Arizona Revised Statutes (ARS), Arizona Administrative Code (AAC), or the Pima County State Implementation Plan (SIP). Underlined text are hyperlinked references to either definitions or Conditions within this permit, or to external web servers that contain the text of the referenced provision.)

§ 1: Applicability

24. This is a renewal to the five-year, Title V, Class I permit due to expire on October 27, 2019 and issued to the City of Tucson (COT) Environmental Services for the Los Reales Municipal Solid Waste Landfill located at 5300 E. Los Reales Road, Tucson, AZ 85706.

    a. As of the date of issuance of this permit, this Part B contains all the requirements that apply to the landfill gas (LFG) collection and control system, and to various fugitive dust producing activities on-site. Applicable regulatory standards include:

        i. New Source Performance Standards (NSPS) 40 CFR Part 60 Subparts A, Cc, and WWW; and National Emission Standards for Hazardous Air Pollutants (NESHAP) 40 CFR Part 63 Subparts A and AAAA which applies exclusively to the LFG collection system, flare and Emergency Generator.

        ii. Title 17 of the Pima County Code (PCC), section 17.16.390, "Standards of Performance for Municipal Solid Waste Landfills" applies, as do the fugitive dust rules found in both Title 17 and in the State Implementation Plan (SIP).

        A complete set of applicable regulations may be found in Attachment 1.

    b. Upon approval by the Administrator of the EPA of a state plan or federal plan to implement 40 CFR Part 60, Supbart Cf – Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills, the Permittee shall be subject to the terms and Conditions in Part C of this permit with respect to the requirements for the MSW landfill, the LFG collection system, the LFG control system, the landfill design capacity, the LFG emissions, and the LFG collection and control system removal criteria. Upon approval by the Administrator of the EPA of a state plan or federal plan, the terms and Conditions in Part C of this permit shall supersede the terms and Conditions in § 3B through § 3H in this Part B, except for the provisions in Conditions 26.c, 38, 39.c and 40.

    c. If more than one emission limit or emission standard in this permit is applicable to the same source, the more stringent standard or emission limit shall apply.

§ 2: Definitions

The following definitions shall have the meaning as defined in the Clean Act or Title 17 of the Pima County Code, and NSPS Subpart WWW unless otherwise provided in this permit. Terms below marked with an asterisk (*****) are terms defined in NSPS Subpart WWW. Terms marked with a double asterisk (******) are terms defined in NESHAP Subpart AAAA. If a term is not otherwise defined, it shall be interpreted in accordance with normal business use.

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

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

Administrator* means the Administrator of the U.S. Environmental Protection Agency or his/her authorized representative or the Administrator of a state air pollution control agency. Contact Information: Phone (415) 947-8715; Website: www.epa.gov/region9

Air Pollution or Air Pollutant means the presence in the outdoor atmosphere of one or more air contaminants or combination thereof, in sufficient quantities, which either alone or in connection with other substances, by reason of their concentration and duration are or tend to be injurious to human, plant, or animal life; or causes damage to property; or unreasonably interferes with the enjoyment of life or property of a substantial part of a community, or obscures visibility; or which in any way degrades the quality of the ambient air below the standards established by the board of supervisors.

Cause means with respect to the Control Officer's ability to deny a permit application or terminate a permit that:

a. The Control Officer has reasonable cause to believe that the permit was obtained by fraud or misrepresentation.

b. The Control Officer determines that an applicant has failed to disclose a material fact required by the permit application form or the regulation applicable to the permit, of which the applicant had or should have had knowledge at the time the application was submitted.

c. The terms and Conditions of the permit have been or are being violated.

Closed landfill* means a landfill in which solid waste is no longer being placed, and in which no additional solid wastes will be placed without first filing a notification of modification as prescribed under §60.7(a)(4). Once a notification of modification has been filed, and additional solid waste is placed in the landfill, the landfill is no longer closed.

Closure* means that point in time when a landfill becomes a closed landfill.

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

Controlled landfill* means any landfill at which collection and control systems are required under this subpart as a result of the nonmethane organic compounds emission rate. The landfill is considered controlled at the time a collection and control system design plan is submitted in compliance with §60.752(b)(2)(i).

Control Officer means the director of Pima County Department of Environmental Quality who shall serve as the executive head of the Pima County air quality control district, or one of his authorized agents. Contact Information: Phone: (520) 724-7400; Pima County DEQ - air.

Design capacity* means the maximum amount of solid waste a landfill can accept, as indicated in terms of volume or mass in the most recent permit issued by the State, local, or Tribal agency responsible for regulating the landfill, plus any in-place waste not accounted for in the most recent permit. If the owner or operator chooses to convert the design capacity from volume to mass or from mass to volume to demonstrate its design capacity is less than 2.5 million megagrams or 2.5 million cubic meters, the calculation must include a site specific density, which must be recalculated annually.

Deviation** means any instance in which an affected source, subject to this permit, or an owner or operator of such a source, fails to meet any requirement or obligation established by this permit, including but not limited to any emission limitation or work practice standard; or fails to meet any emission limitation, (including any operating limit), or work practice standard in 40 CFR Part 63, Subpart AAAA during startup, Shutdown, or Malfuntion (SSM), regardless of whether or not such failure is permitted by 40 CFR Part 63, Subpart AAAA.

For the purposes of the landfill monitoring and SSM plan requirements, deviations include the items in paragraphs a. through d. below. [40 CFR 63. 1965 & Table 1 to Subpart AAAA of Part 63]

a. A deviation occurs when the control device operating parameter boundaries described in Condition 39.c are exceeded.

b. A deviation occurs when 1 hour or more of the hours during the 3-hour block averaging period does not constitute a valid hour of data. A valid hour of data must have measured values for at least three 15-minute monitoring periods within the hour.

c. A deviation occurs when an SSM plan is not developed or maintained on site.

d. Any time an action taken during a startup, shutdown, and malfunction plan that is not consistent with the startup, shutdown, and malfunction plan, the Permittee shall submit a deviation report as provided in Condition 11.b followed by a letter 7 days after the event.

Disposal facility* means all contiguous land and structures, other appurtenances, and improvements on the land used for the disposal of solid waste.

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

Enclosed combustor* means an enclosed firebox which maintains a relatively constant limited peak temperature generally using a limited supply of combustion air. An enclosed flare is considered an enclosed combustor.

EPA approved State plan** means a State plan that EPA has approved based on the requirements in 40 CFR Part 60, subpart B to implement and enforce 40 CFR Part 60, Subpart Cf (Proposed April 11, 2017). An approved State plan becomes effecting on the date specified in the notice published in the Federal Register announcing EPA's approval.

Federal Plan** means the EPA plan to implement 40 CFR part 60, Subpart Cc and Cf (as proposed) for existing MSW landfills located in States and Indian Country where State plans or tribal plans are not currently in effect. On the effective date of an EPA approved State or tribal plan, the Federal plan no longer applies. The current federal plan for Subpart Cc is found at 40 CFR part 62, subpart GGG.

Flare* means an open combustor without enclosure or shroud.

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

Household waste* means any solid waste (including garbage, trash, and sanitary waste in septic tanks) derived from households (including, but not limited to, single and multiple residences, hotels and motels, bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds, and day-use recreation areas).

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

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

Landfill* means an area of land or an excavation in which wastes are placed for permanent disposal, and that is not a land application unit, surface impoundment, injection well, or waste pile as those terms are defined under §257.2 of this title.

Lateral expansion* means a horizontal expansion of the waste boundaries of an existing MSW landfill. A lateral expansion is not a modification unless it results in an increase in the design capacity of the landfill.

Modification* means an increase in the permitted volume design capacity of the landfill by either horizontal or vertical expansion based on its permitted design capacity as of May 30, 1991. Modification does not occur until the owner or operator commences construction on the horizontal or vertical expansion.

Municipal solid waste landfill or MSW landfill* means an entire disposal facility in a contiguous geographical space where household waste is placed in or on land. An MSW landfill may also receive other types of RCRA Subtitle D wastes (§257.2 of this title) such as commercial solid waste, nonhazardous sludge, conditionally exempt small quantity generator waste, and industrial solid waste. Portions of an MSW landfill may be separated by access roads. An MSW landfill may be publicly or privately owned. An MSW landfill may be a new MSW landfill, an existing MSW landfill, or a lateral expansion.

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

NMOC* means nonmethane organic compounds, as measured according to the provisions of §60.754.

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

Operation means any physical or chemical action resulting in the change in location, form, physical properties or chemical character of a material.

Sludge* means any solid, semisolid, or liquid waste generated from a municipal, commercial, or industrial wastewater treatment plant, water supply treatment plant, or air pollution control facility, exclusive of the treated effluent from a wastewater treatment plant.

Solid waste* means any garbage, sludge from a wastewater treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities, but does not include solid or dissolved material in domestic sewage, or solid or dissolved materials in irrigation return flows or industrial discharges that are point sources subject to permits under 33 U.S.C. 1342, or source, special nuclear, or by-product material as defined by the Atomic Energy Act of 1954, as amended (42 U.S.C 2011 *et seq.*).

Source means any building, structure, facility or installation that may cause or contribute to air pollution or the use of which may eliminate, reduce or control the emission of air pollution. Source also means the Permittee as a facility-wide entity.

Sufficient density* means any number, spacing, and combination of collection system components, including vertical wells, horizontal collectors, and surface collectors, necessary to maintain emission and migration control as determined by measures of performance set forth in this part.

Sufficient extraction rate* means a rate sufficient to maintain a negative pressure at all wellheads in the collection system without causing air infiltration, including any wellheads connected to the system as a result of expansion or excess surface emissions, for the life of the blower.

Volatile Organic Compounds (VOC)* means any compound of carbon, excluding carbon monoxide (CO), carbon dioxide (CO_2), carbonic acid, metallic carbides, or carbonates, and ammonium carbonate, which participates in atmospheric photochemical reactions. This includes any organic compound other than those in the definition in PCC 17.04.340.A(250), which have been determined to have negligible photochemical reactivity.

Work practice standard** means any design, equipment, work practice, or operational standard, or combination thereof, that is promulgated pursuant to section 112(h) of the Clean Air Act.

§ 3: Landfill Operations

§ 3A: Applicable Equipment

25. Affected Emission Source or Process:

This § 3 contains equipment specific requirements for the operation of a LFG collection and control system.

Number of Units	Equipment Description
(1)	Make: John Zink Company candlestick flare Model: ZEF 1030 Maximum Rated Capacity: 80.7 MMBtu/Hr (2,690 scfm@50% methane) Stack Height: 30 feet Primary Use(s): Control of landfill gases by flaring.
(1)	LFG collection system constructed, planned and maintained on site.

§ 3B: Emission Limits / Standards

26. Municipal Solid Waste Landfill

a. The Permittee shall comply with the provisions of 40 CFR 60, Subpart WWW, "Standards of Performance for Municipal Solid Waste Landfills". Should the Administrator approve a state plan or federal plan under section 111(d) of the CAA and 40 CFR Part 60, Subpart Cf, the Permittee shall follow the provisions in 40 CFR 60, Subpart Cf as provided in Part C of this permit.
[40 CFR 63.1955(a)(1)&(2), PCC 17.16.390.C, 40 CFR 60, Subpart Cc, & 40 CFR60 Subpart Cf]

b. By May 7, 2000, the Permittee shall install a collection and control system that captures the gas generated within the landfill. An active collection system shall:
[40 CFR 63.1955(b), 40 CFR 60.752(b)(2)(ii) & PCC 17.16.390.C.4]
[Material Permit Condition]

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 or treatment system equipment;
[40 CFR 60.752(b)(2)(ii)(A)]

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:

(a) 5 years or more if active; or

(b) 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.

c. The Permittee shall either: [40 CFR 60.752(b)(2)(iii)(A) and (C) & PCC 17.11.190]

i. Route all the collected gas to a treatment system that processes the collected gas for subsequent sale or use, or,

ii. Route all the collected gas to an open flare designed and operated in accordance with the approved Gas Collection and Control System design Plan and the following provisions:
[Material Permit Condition]

(a) Flares shall be designed for and operated with no visible emissions as determined by the methods specified in Condition 26.c.ii.(h).(i) except for periods not to exceed a total of 5 minutes during any 2 consecutive hours. [40 CFR 60.18(c)(1)]

[Material Permit Condition]

(b) Flares shall be operated with a flame present at all times, as determined by the methods specified in Condition 26.c..ii.(h).(ii). [40 CFR 60.18(c)(2)]

(c) The Permittee has the choice of adhering to either the heat content specifications in Condition 26.c.ii.(d) and the maximum tip velocity specifications in Condition 26.c.ii(e), or adhering to the requirements in Conditions 26.c.ii.(c).(i) and (ii) below. [40 CFR 60.18(c)(3)]

(i) Flares shall be used that have a diameter of 3 inches or greater, are non-assisted, have a hydrogen content of 8.0 percent (by volume), or greater, and are designed for and operated with an exit velocity less than 37.2 m/sec (122 ft/sec) and less than the velocity, V_{max}, as determined by the following equation:

$$V_{max} = (X_{H2} - K_1) * K_2$$

Where:

V_{max} = Maximum permitted velocity, m/sec.
K_1 = Constant, 6.0 volume-percent hydrogen.
K_2 = Constant, 3.9(m/sec)/volume-percent hydrogen.
X_{H2} = The volume-percent of hydrogen, on a wet basis, as calculated by using the American Society for Testing and Materials (ASTM) Method D1946-77.

(ii) The actual exit velocity of a flare shall be determined by the method specified in Condition 26.c.ii.(h).(iv) or as specified in the approved Gas Collection and Control System Design Plan.

(d) The flare shall be used only with the net heating value of the gas being combusted being 7.45 MJ/scm (200 Btu/scf) or greater, when the flare is nonassisted. The net heating value of the gas being combusted shall be determined by the methods specified in Condition 26.c.ii.(h).(iii). [40 CFR 60.18(c)(3)(ii)]

(e) Exit Velocity

(i) The flare shall be designed for and operated with an exit velocity, as determined by the method specified in Condition 26.c.ii.(h).(iv), less than 18.3 meters per second (60 ft/sec), except as provided in Condition 26.c.ii.(e).(ii) and (iii) below.

(ii) The flare, if designed for and operated with an exit velocity, as determined by the methods specified in Condition 26.c.ii.(h).(iv) of this Section, equal to or greater than 18.3 meters per second (60 ft/sec), but less than 122 meters per second (400 ft/sec) shall be allowed if the net heating value of the gas being combusted is greater than 37.3 MJ/scm (1000 BTU/scf).

(iii) A Non assisted flare, designed for and operated with an exit velocity, as determined by the methods specified in Condition 26.c.ii.(h).(iv), less than the velocity V_{max}, as determined by the method specified in Condition 26.c.ii.(h).(v), and less than 122 meters per second (400 ft/sec) is allowed.

(f) Flares used to comply with the provisions of this Permit shall be non-assisted flares.

(g) Flares used to comply with provisions of this Permit shall be operated at all times when emissions may be vented to them. [40 CFR 60.18(e)]

(h) Additional Provisions [40 CFR 60.18(f)]

(i) Reference Method 22 of appendix A of 40 CFR 60 shall be used to determine the compliance of flares with the visible emission provisions of this Permit. The observation period is 2 hours and shall be used according to Method 22.

(ii) The presence of a flare pilot flame shall be monitored using a thermocouple or any other equivalent device to detect the presence of a flame. (Monitoring of the flare pilot flame is unnecessary while the flare is combusting gas).

(iii) The net heating value of the gas being combusted in a flare shall be calculated using the following equation:

$$H_T = K \sum_{i=1}^{n} C_i H_i$$

where:

H_T = Net heating value of the sample, MJ/scm; where the net enthalpy per mole of offgas is based on combustion at 25°C and 760 mm Hg, but the standard temperature for determining the volume corresponding to one mole is 20°C;

K = Constant, $1.740 \times 10^{-7} \left(\frac{1}{\text{ppm}}\right)\left(\frac{\text{g mole}}{\text{scm}}\right)\left(\frac{\text{MJ}}{\text{kcal}}\right)$

C_i = Concentration of sample component i in ppm on a wet basis, as measured for organics by Reference Method 18 and measured for hydrogen and carbon monoxide by ASTM D1946-77; and

H_i = Net heat of combustion of sample component i, kcal/g mole at 25°C and 760 mm Hg. The heats of combustion may be determined using ASTM D2382-76 if published values are not available or cannot be calculated.

(iv) The actual exit velocity of a flare shall be determined by dividing the volumetric flow rate (in units of standard temperature and pressure), as determined by Reference Methods 2, 2A, 2C, or 2D of appendix A of 40 CFR 60 as appropriate; by the unobstructed (free) cross sectional area of the flare tip.

(v) The maximum permitted velocity, V_{max}, for flares complying with Condition 26.c.ii.(e).(iii) shall be determined by the following equation.

$$\text{Log}_{10}(V_{max}) = (H_T + 28.8)/31.7$$

where,

V_{max} = Maximum permitted velocity, M/sec
28.8 = Constant
31.7 = Constant
H_T = The net heating value as determined in Condition 26.c.ii.(e).(iii).

d. The Permittee shall operate the collection and control device in accordance with the approved Gas Collection and Control System Design Plan and the provisions of this Permit. [40 CFR 60.752(b)(2)(iv)]

[Material Permit Condition]

e. The Permittee shall: **[Material Permit Condition]**

i. 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: [40 CFR 60.753(a)]

(a) 5 years or more if active; or

(b) 2 years or more if closed or at final grade;

ii. Operate the collection system with negative pressure at each wellhead except under the following conditions: [40 CFR 60.753(b)]

(a) A fire or increased well temperature. The Permittee 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 Condition 41.f.i;

(b) Use of a geomembrane or synthetic cover. The Permittee shall develop acceptable pressure limits in the design plan;

(c) 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;

(d) A temporarily inactive well. [Approved Gas Collection and Control System Design Plan]

iii. Operate each interior wellhead in the collection system with a LFG temperature less than 55°C and with either a nitrogen level less than 20 percent or an oxygen level less than 5 percent. The Permittee 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. [40 CFR 60.753(c)]

(a) The nitrogen level shall be determined using EPA Test Method 3C unless an alternative test method is established as allowed by 40 CFR 60.752(b)(2)(i).

(b) Unless an alternative test method is established, the oxygen shall be determined by an oxygen meter using EPA Test Method 3A or 3C except that:

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

(ii) A data recorder is not required;

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

(iv) A calibration error check is not required;

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

iv. 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 Permittee 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 LFG, such as distressed vegetation and cracks or seeps in the cover. The Permittee 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. [40 CFR 60.753(d)]

v. Operate the system such that all collected gases are vented to a control system designed and operated in compliance with the provisions of this Permit. 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 [40 CFR 60.753(e)]

vi. Operate the control or treatment system at all times when the collected gas is routed to the system. [40 CFR 60.753(f)]

vii. If monitoring demonstrates that the operational requirements in Condition 26.e.ii, iii, or iv above are not met, corrective action shall be taken as specified in Condition 28.c through e or Condition 30. If corrective actions are taken as specified in the compliance provisions in § 3C, the monitored exceedance is not a violation of the operational requirements in this section. [40 CFR 60.753(g)]

27. Odor Limiting Standard

The Permittee shall not emit gaseous or odorous materials from equipment, operations or premises under his control in such quantities as to cause air pollution. [SIP Rule 344 & PCC 17.16.030]

§ 3C: Compliance Provisions for the Municipal Solid Waste LFG Collection System

28. The specified methods in Conditions 28.a through e below and alternative methods approved in this permit as identified in the approved Gas Collection and Control System Design Plan shall be used to determine whether the gas collection system is in compliance with Condition 26.b. [40 CFR 60.755(a), 40 CFR 63.1955(c) & 40 CFR 63.1960]

a. For the purposes of calculating the maximum expected gas generation flow rate from the landfill to determine compliance with Condition 26.b.i, the following procedure shall be used. The k and L_o kinetic factors should be those published in the most recent Compilation of Air Pollutant Emission Factors (AP-42) or other site specific values demonstrated to be appropriate and approved by the Administrator. If k has been determined as specified in Condition 42.a.iv, the value of k determined from the test shall be used. A value of no more than 15 years shall be used for the intended use period of the gas mover equipment. The active life of the landfill is the age of the landfill plus the estimated number of years until closure.

i. For sites with known year-to-year solid waste acceptance rate:

$$Q_M = \sum_{i=1}^{n} 2kL_0M_i(e^{-kti})$$

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

ii. If a collection and control system has been installed, actual flow data may be used to project the maximum expected gas generation flow rate instead of, or in conjunction with, the equation in Condition 28.a.i above. If the landfill is still accepting waste, the actual measured flow data will not equal the maximum expected gas generation rate, so calculations using the equation in Condition 28.a.i or other methods shall be used to predict the maximum expected gas generation rate over the intended period of use of the gas control system equipment.

b. For the purposes of determining sufficient density of gas collectors for compliance with Condition 26.b.ii, the Permittee shall 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.

c. For the purpose of demonstrating whether the gas collection system flow rate is sufficient to determine compliance with Condition 26.b.iii, the Permittee shall measure gauge pressure in the gas collection header at each individual well, monthly. If a positive pressure exists, action shall be initiated to correct the exceedance within 5 calendar days, except for the four conditions allowed under Condition 26.e.ii. If negative pressure cannot be achieved without excess air infiltration within 15 calendar days of the first measurement, the gas collection system shall be expanded to correct the exceedance within 120 days of the initial measurement of positive pressure. Any attempted corrective measure shall not cause exceedances of other operational or performance standards. An alternative timeline for correcting the exceedance may be submitted to the Administrator for approval.

d. The Permittee is not required to expand the system as required in Condition 28.c during the first 180 days after gas collection system startup.

e. For the purpose of identifying whether excess air infiltration into the landfill is occurring, the Permittee shall monitor each well monthly for temperature and nitrogen or oxygen as provided in Condition 26.e.iii. If a well exceeds one of these operating parameters, action shall be initiated to correct the exceedance within 5 calendar days. If correction of the exceedance cannot be achieved within 15 calendar days of the first measurement, the gas collection system shall be expanded to correct the exceedance within 120 days of the initial exceedance. Any attempted corrective measure shall not cause exceedances of other operational or performance standards. An alternative timeline for correcting the exceedance may be submitted to the Administrator for approval.

29. For purposes of compliance with Condition 26.e.i, the Permittee shall place each well or design component as specified in an approved design plan. Each well shall be installed no later than 60 days after the date on which the initial solid waste has been in place for a period of: [40 CFR 60.755(b) & 40 CFR 63.1960]

a. 5 years or more if active; or

b. 2 years or more if closed or at final grade.

30. The following procedures shall be used for compliance with the surface methane operational standard as provided in Condition 26.e.iv. [40 CFR 60.755(c), 40 CFR 63.1960 and the Approved Gas Collection and Control System Design Plan]

a. After installation of the collection system, the Permittee shall monitor surface concentrations of methane along the entire perimeter of the collection area and along a pattern that traverses the landfill at 30 meter intervals (or a site-specific established spacing) for each collection area on a quarterly basis using an organic vapor analyzer, flame ionization detector, or the SEM 500, or other portable monitor meeting the specifications provided in Condition 31.

b. The background concentration for methane shall be determined by recording one upwind methane measurement prior to the initiation of monitoring for the day.

c. Surface emission monitoring shall be performed in accordance with section 4.3.1 of EPA Test Method 21 (appendix A of 40 CFR 60), except that the probe inlet shall be placed within 5 to 10 centimeters of the ground. Monitoring shall be performed during typical meteorological conditions. Surface emissions monitoring is not performed in areas that are considered too steep to monitor, defined by those areas of the landfill that have slopes steeper than 3:1 (horizontal to vertical. Several areas of the landfill meet this requirement, including the outer slopes of Cell Number 1, Cell Number 2, Cell Number 3, and the northern slope of the unlined area directly adjacent to Cell Number 4A. Surface emissions monitoring is also not performed at the future West Cell Number 1 (fomally the Tire Shredder Area and Tire Waste Area), the Asbestos Disposal Area, and the Southwest Disposal Area as these areas emit only negligible amounts of LFG.

d. Any reading of 500 parts per million or more above background at any location shall be recorded as a monitored exceedance and the actions specified Conditions 30.d.i through v shall be taken. As long as the specified actions are taken, the exceedance is not a violation of the operational requirements of Condition 26.e.iv.

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

ii. Cover maintenance or adjustments to the vacuum of the adjacent wells to increase the gas collection in the vicinity of each exceedance shall be made and the location shall be re-monitored within 10 calendar days of detecting the exceedance.

iii. If the re-monitoring of the location shows a second exceedance, additional corrective action shall be taken and the location shall be monitored again within 10 days of the second exceedance. If the re-monitoring shows a third exceedance for the same location, the action specified in Condition 30.d.v shall be taken, and no further monitoring of that location is required until the action specified in Condition 30.d.v has been taken.

iv. Any location that initially showed an exceedance but has a methane concentration less than 500 ppm methane above background at the 10-day re-monitoring specified in Condition 30.d.ii or iii Section shall be re-monitored 1 month from the initial exceedance. If the 1-month remonitoring shows a concentration less than 500 parts per million above background, no further monitoring of that location is required until the next quarterly monitoring period. If the 1-month remonitoring shows an exceedance, the actions specified in Condition 30.d.iii or Condition 30.d.v shall be taken.

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

e. The Permittee shall implement a program to monitor for cover integrity and implement cover repairs as necessary on a monthly basis.

31. The Permittee seeking to comply with the provisions in Condition 30 shall comply with the following instrumentation specifications and procedures for surface emission monitoring devices:

[40 CFR 60.755(d) & 40 CFR 63.1960]

a. The portable analyzer shall meet the instrument specifications provided in section 3 of Method 21 of appendix A of 40 CFR 60, except that "methane" shall replace all references to VOC.

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

c. To meet the performance evaluation requirements in section 3.1.3 of Method 21 of appendix A of 40 CFR 60, the instrument evaluation procedures of section 4.4 of Method 21 of appendix A of 40 CFR 60 shall be used.

d. The calibration procedures provided in section 4.2 of Method 21 of appendix A of 40 CFR 60 shall be followed immediately before commencing a surface monitoring survey.

32. The provisions of this Permit apply at all times, except during periods of start-up, shutdown, or malfunction, provided that the duration of start-up, shutdown, or malfunction shall not exceed 5 days for collection systems and shall not exceed 1 hour for treatment or control devices. [40 CFR 60.755(e)]

33. The Permittee must develop and implement a written start-up, shutdown & malfunction (SSM) plan according to the provisions in 40 CFR 63.6(e)(3). [40 CFR 63.1960 & 40 CFR 63.6(e)(3)]

§ 3D: Specifications for Active Municipal Solid Waste LFG Collection Systems

34. The Permittee shall site active collection wells, horizontal collectors, surface collectors, or other extraction devices at a sufficient density throughout all gas producing areas using the following procedures unless alternative procedures have been approved by the Administrator: [40 CFR 60.759(a) & 40 CFR 63.1960]

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

b. The sufficient density of gas collection devices determined in Condition 34.a shall address LFG migration issues and augmentation of the collection system through the use of active or passive systems at the landfill perimeter or exterior.

c. The placement of gas collection devices determined in Condition 34.a shall control all gas producing areas, except as provided by Conditions 34.c.i and ii below.

i. Any segregated area of asbestos or nondegradable material may be excluded from collection if documented as provided under 40 CFR 60.758(d). The documentation shall provide the nature, date of deposition, location and amount of asbestos or nondegradable material deposited in the area, and shall be provided to the Administrator upon request. Areas of asbestos and nondegradable material located at the Los Reales Landfill include the following and have been excluded from collection:
[Approved Gas Collection and Control System Design Plan]

(a) Former tire shredder area.

(b) Tire waste area.

(c) Asbestos disposal area.

(d) Southwest disposal area.

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 shall be documented and provided to the Administrator upon request. A separate NMOC emissions estimate shall be made for each section proposed for exclusion, and the sum of all such sections shall be compared to the NMOC emissions estimate for the entire landfill. Emissions from each section shall be computed using the following equation:

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

where,

Q_i = NMOC emission rate from the ith 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 ith section, megagram
ti = age of the solid waste in the ith section, years
C_{NMOC} = concentration of nonmethane organic compounds, parts per million by volume
3.6×10^{-9} = conversion factor

A nonproductive area of the Los Reales Landfill has been identified as the "Old Landfill Area" and has been excluded from control. [Approved Gas Collection and Control System Design Plan]

iii. The values for k and C_{NMOC} determined in field testing shall be used if field testing has been performed in determining the NMOC emission rate or the radii of influence (this 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 Condition 42.a.i or the alternative values from Condition 42.a.v shall be used. The mass of nondegradable solid waste contained within the given section may be subtracted from the total mass of the section when estimating emissions provided the nature, location, age, and amount of the nondegradable material is documented as provided in Condition 34.c.i.

35. The Permittee shall construct the gas collection devices using the following equipment or procedures: [40 CFR 60.759(b)]

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

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

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

36. The Permittee shall convey the LFG in compliance with Condition 26.c through the collection header pipe(s). The gas mover equipment shall be sized to handle the maximum gas generation flow rate expected over the intended use period of the gas moving equipment using the following procedures: [40 CFR 60.759(c)]

a. For existing collection systems, the flow data shall be used to project the maximum flow rate. If no flow data exists, the procedures in Condition 36.b below shall be used.

b. For new collection systems, the maximum flow rate shall be in accordance with Condition 28.a.

§ 3E: Monitoring Requirements

37. LFG Collection Systems [40 CFR 63.1960]

a. For an active gas collection system, the Permittee shall install a sampling port and a thermometer, other temperature measuring device, or an access port for temperature measurements at each wellhead and: [40 CFR 60.756(a)]

i. Measure the gauge pressure in the gas collection header on a monthly basis as provided in Condition 28.c; and

ii. Monitor nitrogen or oxygen concentration in the LFG on a monthly basis as provided in Condition 28.e; and

iii. Monitor temperature of the LFG on a monthly basis as provided in Condition 28.e.

b. When using an open flare to control LFG, the Permittee shall install, calibrate, maintain, and operate according to the manufacturer's specifications the following equipment: [40 CFR 60.756(c)]

i. 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.

ii. A device that records flow to or bypass of the flare. The Permittee shall either:

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

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

c. A Permittee seeking to control LFG using a device other than an open flare or an enclosed combustor shall provide information satisfactory to the Administrator describing the operation of the control device, the operating parameters that would indicate proper performance, and appropriate monitoring procedures. The Administrator shall review the information and either approve it, or request that additional information be submitted. The Administrator may specify additional appropriate monitoring procedures. [40 CFR 60.756(d)]

d. The Permittee seeking to install a collection system that does not meet the specifications in § 3D of this permit or seeking to monitor alternative parameters to those required by 40 CFR §60.753 through §60.756

shall provide information satisfactory to the Administrator 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. [40 CFR 60.756(e)]

e. The Permittee seeking to demonstrate compliance with Condition 30 shall monitor surface concentrations of methane according to the instrument specifications and procedures provided in Condition 31. Any closed landfill that has no monitored exceedances of the operational standard in three consecutive quarterly monitoring periods may skip to annual monitoring. Any methane reading of 500 ppm or more above background detected during the annual monitoring returns the frequency for that landfill to quarterly monitoring. [40 CFR 60.756(f)]

38. Visible Emissions from the Flare [PCC 17.12.040.A.3]

a. Whenever the flare is turned on and a flame is started, a startup check shall be made, and recorded as described in Condition 40.a, for visible emissions during the first few minutes of operation, or during the first few hours of daylight when the operator is present if the flare is started during night darkness.

b. The flare shall be checked for visible emissions on a weekly basis while the flame is present, and recorded as described in Condition 40.b.

c. If any visible emissions are observed, a Method 22 Test shall be performed and recorded, as described in Condition 26.c.ii.(h).(i). The allowable standard is not more than five minutes of visible emissions in any 2 hour period. If the Test Method 22 observed emissions are in excess of this standard, the results shall be reported as excess emissions as described in Condition 49 of this permit.

§ 3F: Recordkeeping Requirements [PCC 17.12.040.A.4]

39. LFG Collection Systems [40 CFR 63.1980]

a. The Permittee shall keep, for at least 5 years, up-to-date, readily accessible, on-site records of the design capacity report which triggered Condition 26.b, 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. [40 CFR 60.758(a)]

b. The Permittee shall keep up-to-date, readily accessible records for the life of the control equipment of the data listed in Condition 39.b.i and ii as measured during the initial performance test or compliance determination. Records of subsequent tests or monitoring shall be maintained for a minimum of 5 years. Records of the control device vendor specifications shall be maintained until removal. [40 CFR 60.758(b)]

i. Where the Permittee seeks to demonstrate compliance with Condition 26.b:

(a) The maximum expected gas generation flow rate as calculated in Condition 28.a. The Permittee may use another method to determine the maximum gas generation flow rate, if the method has been approved by the Administrator.

(b) The density of wells, horizontal collectors, surface collectors, or other gas extraction devices determined using the procedures specified in Condition 34.a.

ii. Where the Permittee seeks to control LFG through use of an open flare, the flare type (i.e., steam-assisted, air-assisted, or nonassisted), all visible emission readings, heat content determination, flow rate or bypass flow rate measurements, and exit velocity determinations made during the performance test; continuous records of the flare pilot flame or flare flame monitoring and records of all periods of operations during which the pilot flame of the flare flame is absent.

c. The Permittee shall keep for 5 years up-to-date, readily accessible continuous records of the equipment operating parameters specified to be monitored in § 3E of this permit 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. [40 CFR 60.758(c)]

i. The Permittee shall keep up-to-date, readily accessible continuous records of the indication of flow to the control device or the indication of bypass flow or records of monthly inspections of car-seals or lock-and-key configurations used to seal bypass lines, specified under Condition 37.

ii. The Permittee seeking to comply with the provisions of this permit by use of an open flare shall keep up-to-date, readily accessible continuous records of the flame or flare pilot flame monitoring specified under Condition 37.b, and up-to-date, readily accessible records of all periods of operation in which the flame or flare pilot flame is absent.

Note: To comply with the above requirement, (Condition 39.c.ii), the Permittee shall install, calibrate, maintain, and operate according to the manufacturer's specifications, a mechanism that closes or shuts off the flow of LFG to the flare when the operating temperature of the flare is below 150 F. Records of the installation date and maintenance dates shall be maintained onsite for the life of the flare. If there are no manufacturer's specifications or Operations and Maintenance Plans for the mechanism, the Permittee shall test the mechanism approximately once every 12 month period.

d. The Permittee shall keep for the life of the collection system an up-to-date, readily accessible plot map showing each existing and planned collector in the system and providing a unique identification location label for each collector. [40 CFR 60.758(d)]

i. The Permittee shall keep up-to-date, readily accessible records of the installation date and location of all newly installed collectors as specified under Condition 29.

ii. The Permittee shall keep readily accessible documentation of the nature, date of deposition, amount, and location of asbestos-containing or nondegradable waste excluded from collection as provided in Condition 34.c.i as well as any nonproductive areas excluded from collection as provided in Condition 34.c.ii.

e. The Permittee shall keep for at least 5 years up-to-date, readily accessible records of all collection and control system exceedances of the operational standards in Conditions 26.e.i through vii, the reading in the subsequent month whether or not the second reading is an exceedance, and the location of each exceedance. [40 CFR 60.758(e)]

f. Permittees 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 shall keep readily accessible, on-site records of the annual recalculation of site-specific density, design capacity, and the supporting documentation. Off-site records may be maintained if they are retrievable within 4 hours. Either paper copy or electronic formats are acceptable. [40 CFR 60.758(f)]

g. The Permittee shall maintain a copy of the SSM plan and SSM plan reports on site. Failure to write, implement, or maintain a copy of the SSM plan is a deviation from the requirements of 40 CFR 63 Subpart AAAA. [40 CFR 63.1960 & 40 CFR 63.1980(b)]

40. Visible Emissions from the Flare

a. Visible Emissions Check.

For each observation made in compliance with Conditions 38.a.and b, the Permittee shall keep a log book on site with a record of the following:

i. The date and time the flare was started.

ii. The time the Visible Emissions observation was made.

iii. The name of the person who performed the Visible Emissions check

iv. Indicate whether there were, or were not, any visible emissions observed during the check.

v. If Visible Emissions are observed, indicate a pass or fail for the required follow-up Method 22 Testing.

vi. The cause, or suspected cause, of the observed visible emissions.

vii. Corrective action taken, including the name of the person who completed or supervised the corrective action, the date and time of the completion of the corrective action, and a description of the corrective action

b. When a Test Method 22 reading is required, a record shall be kept of the observations made during the test. A note of a pass or fail of the standard of 5 minutes of visible emissions in any 2 hour period shall be noted in the log book as described above in Condition 40.a.v. A note that shows a fail result is evidence of Excess Emissions.

§ 3G: Reporting Requirements [PCC 17.12.040.A.5]

41. LFG Collection Systems [40 CFR 63.1980(a)]

a. The Permittee shall submit an initial design capacity report to the Control Officer.

i. The initial design capacity report shall be submitted no later than August 20, 1999: [PCC 17.16.390.C.2]

ii The initial design capacity report shall contain the following information:

(a) A map or plot of the landfill, providing the size and location of the landfill, and identifying all areas where solid waste may be landfilled according to the permit issued by the State, local, or tribal agency responsible for regulating the landfill.

(b) 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.

b. The Permittee shall submit an NMOC emission rate report to the Control Officer no later than August 20,1999, and annually to the Administrator and Control Officer thereafter, except as provided for in Condition 41.b.i.(b) or Condition 41.b.iii below. The Administrator or Control Officer may request such additional information as may be necessary to verify the reported NMOC emission rate.

[40 CFR 60.757(b) & PCC 17.16.390.C.2]

i. 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 Condition 42.a or Condition 42.b, as applicable.

(a) The initial NMOC emission rate report may be combined with the initial design capacity report required in Condition 41.a.

(b) If the estimated NMOC emission rate as reported in the annual report to the Administrator and Control Officer is less than 50 Megagrams per year in each of the next 5 consecutive years, the Permittee 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 and Control Officer. This estimate shall be revised at least once every 5 years. If the actual waste acceptance rate exceeds the estimated waste acceptance rate in any year reported in the 5-year estimate, a revised 5-year estimate shall be submitted to the Administrator and Control Officer. 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.

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

iii. The Permittee is exempted from the requirements of Conditions 41.b.i and ii above, after the installation of a collection and control system in compliance with Condition 26.b, during such time as the collection and control system is in operation and in compliance with Conditions 26.e.i through vii and §3C.

c. The Permittee subject to the provisions of Condition 26.b shall submit a collection and control system design plan to the Control Officer by August 20, 1999, except as follows:

[40 CFR 60.757(c) & PCC 17.16.390.C.3]

i. If the Permittee elects to recalculate the NMOC emission rate after Tier 2 NMOC sampling and analysis as provided in Condition 42.a.iii 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.

ii. If the Permittee elects to recalculate the NMOC emission rate after determining a site-specific methane generation rate constant (k), as provided in Tier 3 in Condition 42.a.iv, 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 Condition 42.a.iv and the resulting site-specific methane generation rate constant (k) shall be submitted to the Administrator and Control Officer within 1 year of the first calculated emission rate exceeding 50 Megagrams per year.

d. The Permittee of a controlled landfill shall submit a closure report to the Administrator and Control Officer within 30 days of waste acceptance cessation. The Administrator or Control Officer 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 and Control Officer, no additional wastes may be placed into the landfill without filing a notification of modification as described under 40 CFR 60.7(a)(4). [40 CFR 60.757(d)]

e. The Permittee of a controlled landfill shall submit an equipment removal report to the Administrator and Control Officer 30 days prior to removal or cessation of operation of the control equipment.
[40 CFR 60.757(e)]

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

(a) A copy of the closure report submitted in accordance with Condition 41.d;

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

(c) 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.

ii. The Administrator or Control Officer may request such additional information as may be necessary to verify that all of the conditions for removal in 40 CFR § 60.752(b)(2)(v) have been met.

(a) The landfill shall be a closed landfill as defined in § 2 of this permit. A closure report shall be submitted to the Control Officer in accordance with Condition 41.d.

(b) The collection and control system shall have been in operation a minimum of 15 years.

(c) Following the procedures specified in Condition 42.b, 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.

f. The Permittee of a landfill seeking to comply with Condition 26.b using an active collection system designed in accordance with Condition 26.b shall submit to the Administrator and Control Officer semiannual (every six (6) months) reports of the recorded information in Condition 41.f.i through vi below. 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. For enclosed combustion devices and flares, reportable exceedances are defined under Condition 39.c.
[40 CFR 63.1980(a) & 40 CFR 60.757(f)]

i. Value and length of time for exceedance of applicable parameters monitored under Conditions 37.a through d.

ii. 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 § 3E of this Part B.

iii. Description and duration of all periods when the control device is not operating for a period exceeding one hour and length of time the control device was not operating. To clarify this NSPS requirement, this reporting requirement is only for the case where the collection system is operating but the control device is not operating such that un-combusted LFG is being vented for a period in excess of one hour.

iv. All periods when the collection system was not operating in excess of 5 days.

v. The location of each exceedance of the 500 parts per million methane concentration as provided in Condition 26.e.iv and the concentration recorded at each location for which an exceedance was recorded in the previous month.

vi. The date of installation and the location of each well or collection system expansion added pursuant to Conditions 28.c, 29, and 30.d.

g. The Permittee seeking to comply with Condition 26.b shall include the following information with the initial performance test report: [40 CFR 60.757(g)]

i. 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;

ii. 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;

iii. 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;

iv. The sum of the gas generation flow rates for all areas from which collection wells have been excluded based on non-productivity and the calculations of gas generation flow rate for each excluded area; and

v. 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

vi The provisions for the control of off-site migration.

§ 3H: Testing Requirements [PCC 17.12.040.A.3.A & PCC 17.20.010]

For purposes of demonstrating compliance, these test methods shall be used, provided that for the purpose of establishing whether or not the facility has violated or is in violation of any provision of this permit, nothing in this permit shall preclude the use, including the exclusive use, of any credible evidence or information relevant to whether a source would have been in compliance with applicable federal requirements if the appropriate performance or compliance procedures or methods had been performed.

42. LFG Collection Systems [40 CFR 63.1960]

a. NMOC Emission Rate Calculations [40 CFR 60.754(a)]

i. The Permittee shall calculate the NMOC emission rate using the equation provided below. The values to be used in the equation are 0.05 per year for k, 170 cubic meters per megagram for L_O, and 4,000 parts per million by volume as hexane for the C_{NMOC}. 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 meteorological site, the k value to be used is 0.02 per year.

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

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

where,

M_{NMOC}	= Total NMOC emission rate from the landfill, Megagrams per year
k	= methane generation rate constant, $year^{-1}$
L_O	= methane generation potential, cubic meters per megagram solid waste
M_i	= mass of solid waste in the i^{th} section, Megagrams
ti	= age of the i^{th} section, years
C_{NMOC}	= concentration of NMOC, parts per million by volume as hexane
$3.6x10^{-9}$	= 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. ***Tier 1***. The Permittee shall compare the calculated NMOC mass emission rate to the standard of 50 Megagrams per year.

(a) If the NMOC emission rate calculated in Condition 42.a.i.(a) is less than 50 Megagrams per year, then the Permittee shall submit an emission rate report as provided in Condition 41.b.i, and shall recalculate the NMOC mass emission rate annually.

(b) If the calculated NMOC emission rate is equal to or greater than 50 Megagrams per year, then the Permittee shall either comply with Condition 26.b, or determine a site-specific NMOC concentration and recalculate the NMOC emission rate using the procedures provided in Condition 42.a.iii overpage.

iii. ***Tier 2***. The Permittee shall determine the NMOC concentration using the following sampling procedure. The Permittee 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 Permittee shall collect and analyze one sample of LFG from each probe to determine the NMOC concentration using Method 25 or Method 25C of appendix A of 40 CFR 60. Method 18 of appendix A of 40 CFR 60 may be used to analyze the samples collected by the Method 25 or 25C sampling procedure. If using Method 18, the minimum list of compounds to be tested shall be those published in the most recent Compilation of Air Pollutant Emission Factors (AP-42). As a minimum, the instrument must be calibrated for each of the compounds on the list. If composite sampling is used, equal volumes shall be taken from each sample 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 1 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 are taken, all samples shall be used in the analysis. The Permittee shall divide the NMOC concentration from Method 25C by six to convert from C_{NMOC} as carbon to C_{NMOC} 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.

(a) The Permittee shall recalculate the NMOC mass emission rate using the equation provided in Condition 42.a.i.(a) and using the average NMOC concentration from the collected samples instead of the default value in the equation provided in Condition 42.a.i.(a).

(b) 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 Permittee shall either comply with Condition 26.b 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 Condition 42.a.iv.

(c) If the resulting NMOC mass emission rate is less than 50 Megagrams per year, the Permittee shall submit a periodic estimate of the emission rate report as provided in Condition 41.b.i and retest the site-specific NMOC concentration every 5 years using the methods specified in this section.

iv. ***Tier 3***. The site-specific methane generation rate constant shall be determined using the procedures provided in Method 2E of appendix A of 40 CFR 60. The Permittee shall estimate the NMOC mass emission rate using equation in Condition 42.a.i.(a) and using a site-specific methane generation rate constant k, and the site-specific NMOC concentration as determined in Condition 42.a.iii instead of the default values provided in Condition 42.a.i. The Permittee shall compare the resulting NMOC mass emission rate to the standard of 50 Megagrams per year.

(a) If the NMOC mass emission rate as calculated using the site-specific methane generation rate and concentration of NMOC is equal to or greater than 50 Megagrams per year, the Permittee shall comply with Condition 26.b.

(b) If the NMOC mass emission rate is less than 50 Megagrams per year, then the Permittee shall submit a periodic emission rate report as provided in Condition 41.b and shall recalculate the NMOC mass emission rate annually, as provided in Condition 41.b.i using the equations in Condition 42.a.i.(a) and using the site-specific methane generation rate constant and NMOC concentration obtained in Condition 42.a.iii. The calculation of the methane generation rate constant is performed only once, and the value obtained from this test shall be used in all subsequent annual NMOC emission rate calculations.

v. The Permittee may use other methods to determine the NMOC concentration or a site-specific k as an alternative to the methods required in Conditions 42.a.iii and iv if the method has been approved by the Administrator.

b. After the installation of a collection and control system in compliance with § 3C of this permit, the Permittee shall calculate the NMOC emission rate for purposes of determining when the system can be removed using the following equation: [40 CFR 60.754(b)]

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

where,

M_{NMOC} = mass emission rate of NMOC, Megagrams per year
Q_{LFG} = flow rate of LFG, cubic meters per minute
C_{NMOC} = NMOC concentration, parts per million by volume as hexane

i. The flow rate of LFG, Q_{LFG}, shall be determined by measuring the total LFG flow rate at the common header pipe that leads to the control device using a gas flow measuring device calibrated according to the provisions of section 4 of Method 2E of appendix A of 40 CFR 60.

ii. The average NMOC concentration, C_{NMOC}, shall be determined by collecting and analyzing LFG sampled from the common header pipe before the gas moving or condensate removal equipment using the procedures in Method 25C or Method 18 of appendix A of 40 CFR 60. If using Method 18, the minimum list of compounds to be tested shall be those published in the most recent Compilation of Air Pollutant Emission Factors (AP-42). The sample location on the common header pipe shall be before any condensate removal or other gas refining units. The Permittee shall divide the NMOC concentration from Method 25C by six to convert from C_{NMOC} as carbon to C_{NMOC} as hexane.

iii. The Permittee may use another method to determine LFG flow rate and NMOC concentration if the method has been approved by the Administrator.

c. When calculating emissions for PSD purposes, the Permittee shall estimate the NMOC emission rate for comparison to the PSD major source and significance levels in 40 CFR § 51.166 or § 52.21 of 40 CFR using AP-42 or other approved measurement procedures. [40 CFR 60.754(c)]

d. Within 60 days after achieving the initial maximum production rate at which the collection system and flare will be operated, but not later than 180 days after initial startup of the collection system and at such times as may be required by the Administrator under section 114 of the Clean air Act or the Control Officer under PCC 17.17.20.010, the Permittee shall conduct a performance test to determine compliance with Condition 26.c.ii.(a) and furnish the Administrator and Control Officer a written report of such performance test. [40 CFR 60.8(a) & PCC 17.11.210.A]

§ 4: Fugitive Dust Activities

§ 4A: Applicability

43. This section contains requirements that apply to various fugitive dust producing activities on-site. The fugitive dust sources are typically as listed below but the list is not inclusive of every type of fugitive activity that the Permittee may engage in. [PCC 17.14.040.F & 17.16.060]

    Identified Fugitive Dust Sources:

    Wind Blown Dust
    Haul Roads
    Storage Piles
    Earthmoving
    Trenching
    Road Construction
    Land Clearing
    New Unpaved Roads

§ 4B: Emission Limits / Standards

44. Airborne Particulate Matter

    a. Opacity Limiting Standard

       The Permittee shall not cause or permit the effluent from any single emission point, multiple emission point, or fugitive emission source to have an average optical density greater than 20%.
       [SIP Rule 321 & PCC 17.16.040]

    b. Visibility Limiting Standard

       The Permittee shall not allow diffusion of visible emissions including fugitive dust beyond the property boundary line within which the emissions become airborne without taking reasonably necessary precautions to control generation of airborne particulate matter. [SIP rule 343 & PCC 17.16.050.D.1 & 2]

       i. This provision shall not apply when wind speeds exceed twenty-five miles per hour (using the Beaufort Scale of Wind Speed Equivalents, or SIP rule as recorded by the National Weather Service). This exception does not apply if control measures have not been taken or were not commensurate with the size or scope of the activity.

       ii. This shall also not apply to emissions from undisturbed land. [PCC 17.16.050.D.3]
       [Non-Federally Enforceable]

    c. The Permittee shall apply adequate amounts of water, chemical stabilizer, or other effective dust suppressant until the area becomes permanently stabilized by paving, landscaping or otherwise, except during repair of watering equipment or equivalent
       [SIP Rule 224 & PCC 17.16.060]

d. Vacant lots and open spaces [SIP Rule 318 & PCC 17.16.080]

i. The Permittee shall not cause, suffer, allow, or permit a building or its appurtenances, or a building or subdivision site, or a driveway, or a parking area, or a vacant lot or sales lot, or an urban or suburban open area to be constructed, used, altered, repaired, demolished, cleared, or leveled, or the earth to be moved or excavated, without taking reasonable precautions to limit excessive amounts of particulate matter from becoming airborne. Dust and other types of air contaminants shall be kept to a minimum by good modern practices such as using an approved dust suppressant or adhesive soil stabilizer, paving, covering, landscaping, continuous wetting, detouring, barring access, or other acceptable means.

ii. No vacant lot, housing plot, building site, parking area, sales lot, playground, livestock feedlot, or other open area - other than those used solely for soil-cultivation or vegetative crop-producing and harvesting agricultural purposes - shall be used or left in such a state after construction, alteration, clearing, leveling, or excavation that naturally induced wind blowing over the area causes a violation of Condition 44.a. Dust emissions must be permanently suppressed by landscaping, covering with gravel or vegetation, paving, or applying equivalently effective controls.

iii. No vacant lot, parking area, sales lot, or other open urban area shall be used by motor vehicles in such a manner that visible dust emissions induced by vehicular traffic on the area cause a violation of Condition 44.b.

e. Roads and Streets [SIP Rule 315 & PCC 17.16.090]

i The Permittee shall not cause, suffer, allow or permit the use, repair, construction or reconstruction of a roadway or alley without taking reasonable precautions to prevent excessive amounts of particulate matter from becoming airborne. Dust and other particulates shall be kept to a minimum by employing temporary paving, dust suppressants, wetting down, detouring or by other reasonable means.

ii. Dust emissions from the construction phase of a new road must be minimized by applying the same measures specified Condition 44.e.i.

iii. No new unpaved service road or unpaved haul road shall be constructed unless dust will be suppressed after construction by intermittently watering, limiting access, or applying chemical dust suppressants to the road, in such a way that visible dust emissions caused by vehicular traffic on the road do not violate Condition 44.b.

iv. No new road other than a private driveway shall be constructed unless the paving specifications are those defined by, or equivalent to those of, the planning department and/or highway department of the jurisdictional agency.

v. The surfacing of roadways with asbestos tailings is prohibited.

vi. The Permittee shall not cause, suffer, allow or permit transportation of materials likely to give rise to airborne dust without taking reasonable precautions, such as wetting, applying dust suppressants, or covering the load, to prevent particulate matter from becoming airborne. Earth or other material that is deposited by trucking or earth moving equipment shall be removed from paved streets by the person responsible for such deposits.

f. Particulate Materials [SIP Rule 316 & PCC 17.16.100]

i. The Permittee shall not cause, suffer, allow or permit crushing, screening, handling, transporting or conveying of materials or other operations likely to result in significant amounts of airborne dust without taking reasonable precautions, such as the use of spray bars, wetting agents, dust suppressants, covering the load, and hoods to prevent excessive amounts of particulate matter from becoming airborne.

ii. Dust emissions from construction activity shall be effectively controlled by applying adequate amounts of water or other equivalently effective dust controls.

iii. Dust emissions from the transportation of materials shall be effectively controlled by covering stock loads in open-bodied trucks, limiting vehicular speeds, or other equivalently effective controls.

g. Storage Piles

The Permittee shall not cause, suffer, allow, or permit organic or inorganic dust producing material to be stacked, piled or otherwise stored without taking reasonable precautions such as chemical stabilization, wetting, or covering to prevent excessive amounts of particulate matter from becoming airborne.
[SIP Rule 316 & PCC 17.16.110.A]

h. Fugitive Dust Producing Activities [SIP Rule 224 & PCC 17.16.060]

A Permittee whose permit specifically allows fugitive dust producing operations or activities is responsible for controlling windblown dust, dust from haul roads, and dust emitted from land clearing, earthmoving, demolition, trenching, blasting, road construction, mining, and other activities, as applicable.

i. Dust emissions shall be controlled by applying adequate amounts of water, chemical stabilizer, or other effective dust suppressant until the area becomes permanently stabilized by paving, landscaping, or otherwise.

ii. The Permittee shall not leave land in such a state that fugitive dust emissions (including windblown dust or dust caused by vehicular traffic on the area) would violate this permit.

§ 4C: Monitoring Requirements

45. Airborne Particulate Matter [PCC 17.12.040.A.3]

a. At least once in each consecutive 14-day period, a certified Method 9 observer shall conduct a visual survey of visible emissions from the sources of fugitive dust listed in Condition 43.

b. If the observer sees visible emissions from a source that on an instantaneous basis appears to exceed 20 percent, then the observer shall, if possible, take a six-minute Method 9 observation of the plume.

c. If the six-minute opacity of the plume exceeds the opacity standard, then the Permittee shall immediately take whatever action is necessary to reduce the opacity such that it falls within the standard.

§ 4D: Recordkeeping Requirements [PCC 17.12.040.A.4]

46. Airborne Particulate Matter

For each observation made in compliance with Condition 45 the Permittee shall keep a record of the name of the observer, the date on which the observation was made, the fugitive dust source being observed, the results of the observation; and the corrective action taken if necessary.

§ 4E: Reporting Requirements [PCC 17.12.040.A.5]

47. Airborne Particulate Matter

The Permittee shall report all instances of opacity violations recorded in Condition 46 as an excess emission in accordance with Condition 11.

§ 5: General Facility Wide Reporting Conditions

§5A - Applicability

48. This Section contains reporting requirements that apply to all facilities and operations on-site.

§5B - Reporting Requirements

49. Excess Emissions and Permit Deviations [PCC 17.12.040.A.5.b & 17.12.040.E.3.d]

The Permittee shall report to the Control Officer any emissions in excess of the limits (as defined in 17.04.340, "Excess emissions") established by this Section within 24 hours of the time the Permittee first learned of the excess emissions occurrence. The Permittee shall report other deviations from permit requirements in this Section within two working days of the time the Permittee first learned of the occurrence of the deviation.

(See Condition 11 for detailed information on these two reports).

50. Semiannual Summary Reports of Required Monitoring [PCC 17.12.040.A.5.a]

The Permittee shall submit a semiannual summary of any required monitoring within Parts B and Part C of this permit, as applicable, at least every six months. All instances of excess emissions and deviations from permit requirements as defined in Condition 11 shall be clearly identified in such reports. These reports shall include the following monitoring and/or recordkeeping requirements associated with the LFG collection system.

a. Gauge pressure in the gas collection header (see Condition 37.a.i or Condition 104.a.i as applicable).

b. Nitrogen or oxygen concentration in the LFG (see Condition 37.a.ii or Condition 104.a.ii as applicable).

c. LFG temperature (see Condition 37.a.iii or Condition 104.a.iii as applicable).

d. Surface concentrations of methane (see Condition 37.e or Condition 104.e as applicable).

e. A summary of the information required by Condition 41.f or Condition 106.h, as applicable, except if subject to Condition 106.h, the Permittee may indicate that the report was submitted in accordance with Condition 106.j.ii.

f. SSM Report

If actions taken during a startup, shutdown and malfunction (SSM) plan are consistent with the procedures in the SSM Plan, this information shall be included in an SSM Report. Anytime an action taken during a startup, shutdown and malfunction plan is not consistent with the SSM plan the source shall report this as a deviation. [40 CFR Part 63, Table 1 to Subpart AAAA]

The semiannual reports above shall be due by January 31st (covering the period July 1st through December 31st) and July 31st (covering the period January 1st through June 30th) of each year. The first semiannual report due after the initial permit issuance may not cover a 6-month period. All instances of excess emissions and deviations from permit requirements as defined in Condition 11 of Part A shall be clearly identified in such reports.

51. Compliance Certification Reporting [PCC 17.12.080.A.2]

a. The Permittee shall submit an annual compliance certification to the Control Officer and to EPA Region IX. The compliance certification report is due on January 31st of each year (covering the period January 1st through December 31st of the previous year). The first report due after permit issuance may not cover a 12-month period. *(See Condition 7 of Part A for detailed information on this report).*

b. For the purpose of submitting compliance certifications or establishing whether or not the Permittee has violated or is in violation of any standard in this permit, nothing in this permit shall preclude the use, including the exclusive use, of any credible evidence or information, relevant to whether a source would have been in compliance with applicable requirements if the appropriate performance or compliance test or procedure had been performed. [40 CFR 60.11(g)]

53. Emission Inventory Reporting [PCC 17.12.160]

Every source subject to a permit requirement shall complete and submit an annual emissions inventory questionnaire when requested by the Control Officer. The questionnaire is due by March 31st, or 90 days after the Control Officer makes the inventory form available, whichever occurs later, and shall include emission information for the previous calendar year. These requirements apply whether or not a permit has been issued and whether or not a permit application has been filed. (*See Condition 6 of Part A for additional information on this report*).

54-85 [Reserved]

PART C: SPECIFIC CONDITIONS

(Unless otherwise noted, references in this permit are to Title 17 of the Pima County Code (PCC), Arizona Revised Statutes (ARS), Arizona Administrative Code (AAC), or the Pima County State Implementation Plan (SIP). Underlined text are hyperlinked references to either definitions or Conditions within this permit, or to external web servers that contain the text of the referenced provision.)

Pursuant to Condition 24.b, this Part C establishes emission guidelines for the control of designated pollutants from certain designated municipal solid waste (MSW) landfills in accordance with 40 CFR Part 60, Subpart Cf pursuant to section 111(d) of the Clean Air Act. Applicable regulatory standards include New Source Performance Standards (NSPS) 40 CFR Part 60 Subparts A, Ba, and Cf, and National Emission Standards for Hazardous Air Pollutants (NESHAP) 40 CFR Part 63 Subpart A & Subpart AAAA which apply exclusively to the LFG collection and control systems and flare. [40 CFR 60, Subparts A, Ba, & Cf, 40 CFR 63, Subparts A & AAAA, PCC 17.16.010.B,]

[Federally and Locally Enforceable Conditions]

§ 1: Applicability

86. The Permittee shall become subject to this Part C:

    a. Upon approval by the Administrator of the EPA of a state plan to implement 40 CFR Part 60, Subpart Cf pursuant to 40 CFR 60.23a and 60.30f and as provided in 40 CFR Part 62, Subpart D; or

    b. Upon promulgation by the Administrator of the EPA of a federal plan pursuant to 40 CFR 60.27a(c) as provided in 40 CFR Part 62 to implement 40 CFR Part 60, Subpart Cf under §302(y) of the Clean Air Act.

    [§302(y) CAA &, 40 CFR 60.23, 40 CFR 60.27, 40 CFR 62]

87. Pursuant to ARS § 49-106, the Standard of Performance for Existing Municipal Solid Waste Landfills promulgated by the Arizona Department of Environmental Quality (ADEQ) in AAC R18-2-731, and R18-2-901(80) shall supersede PCC 17.16.390 and PCC 17.16.490(79), respectively, upon approval by the Administrator of the EPA of a plan to implement the emission guidelines in this Part C; or until PCC 17.16.390 is revised incorporating the requirements of approved plan.

    [ARS §49-106, AAC 18-2-731, AAC 18-2-901(80), 40 CFR 60.30f – 60.41f]

88. Designated Facilities: [40 CFR 60.31f]

    a. This Part C contains emission guidelines for the control of designated pollutants from existing municipal solid waste (MSW) landfills that commenced construction, reconstruction, or modification on or before July 17, 2014.

    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 a standard of performance for new MSW landfills (NSPS Subpart XXX).

    c. ~~Pursuant to 40 CFR 70.5(a)(1)(i), the permittee shall submit a timely application 90 days after the effective (approval) date of the above referenced section 111(d) program as provided in Condition 86.~~

    d. When an MSW landfill subject to this Part C is closed as defined in § 2 of this Part C, the owner or operator is no longer subject to the requirement to maintain an operating permit under 40 CFR Part 70 for the landfill if the landfill is not otherwise subject to the requirements of 40 CFR Part 70 and if either of the following conditions are met:

        i. The landfill was never subject to the requirement to install and operate a gas collection and control system under § 3A of this Part C; or

ii. The landfill meets the conditions for control system removal specified in Condition 94.

e. When an MSW landfill subject to this Part C is in the closed landfill subcategory, the owner or operator is not subject to the following reports, provided the owner or operator submitted these reports under the provisions of 40 CFR 60, subpart WWW (§ 3 of Part B of this permit); or a state plan implementing NSPS Subpart Cc on or before July 17, 2014:

i. Initial design capacity report specified in Condition 106.a.
ii. Initial or subsequent NMOC emission rate report specified in Condition 106.c, provided that the most recent NMOC emission rate report indicated the NMOC emissions were below 50 Mg/yr.
iii. Collection and control system design plan specified in Condition 106.d.
iv. Closure report specified in Condition 106.f.
v. Equipment removal report specified in Condition 106.g.
vi. Initial annual report specified in Condition 106.h.
vii. Initial performance test report in Condition 106.i.

§ 2: Definitions

The following definitions shall have the meaning as defined in the Clean Act, Title 17 of the Pima County Code, 40 CFR 60 (NSPS), Subpart A, Subpart B, and Subpart Cf, or as otherwise provided in this permit. Terms below marked with an asterisk are terms defined in Subpart Cf (40 CFR § 60.41f). Terms marked with a double asterisk are terms defined in NESHAP Subpart AAAA. If a term is not otherwise defined, it shall be interpreted in accordance with normal business use.

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

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

Administrator* means the Administrator of the U.S. Environmental Protection Agency or his/her authorized representative or the Administrator of a state air pollution control agency.

Air Pollution or Air Pollutant means the presence in the outdoor atmosphere of one or more air contaminants or combination thereof, in sufficient quantities, which either alone or in connection with other substances, by reason of their concentration and duration are or tend to be injurious to human, plant, or animal life; or causes damage to property; or unreasonably interferes with the enjoyment of life or property of a substantial part of a community, or obscures visibility; or which in any way degrades the quality of the ambient air below the standards established by the board of supervisors.

Cause means with respect to the Control Officer's ability to deny a permit application or terminate a permit that:

a. The Control Officer has reasonable cause to believe that the permit was obtained by fraud or misrepresentation.

b. The Control Officer determines that an applicant has failed to disclose a material fact required by the permit application form or the regulation applicable to the permit, of which the applicant had or should have had knowledge at the time the application was submitted.

c. The terms and Conditions of the permit have been or are being violated.

Closed area* means a separately lined area of an MSW landfill in which solid waste is no longer being placed. If additional solid waste is placed in that area of the landfill, that landfill area is no longer closed. The area must be separately lined to ensure that the landfill gas does not migrate between open and closed areas.

Closed landfill* means a landfill in which solid waste is no longer being placed, and in which no additional solid wastes will be placed without first filing a notification of modification as prescribed under 40 CFR § 60.7(a)(4). Once a notification of modification has been filed, and additional solid waste is placed in the landfill, the landfill is no longer closed.

Closed landfill subcategory* means a closed landfill that has submitted a closure report as specified in Condition 106.f on or before September 27, 2017.

Closure* means that point in time when a landfill becomes a closed landfill.

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

Control Officer means the director of Pima County Department of Environmental Quality who shall serve as the executive head of the Pima County air quality control district, or one of his authorized agents. Contact Information: Phone: (520) 724-7400; Pima County DEQ - air.

Controlled landfill* means any landfill at which collection and control systems are required under this subpart as a result of the NMOC emission rate. The landfill is considered controlled at the time a collection and control system design plan is prepared in compliance with Condition 93.b.

Corrective action analysis* means a description of all reasonable interim and long-term measures, if any, that are available, and an explanation of why the selected corrective action(s) is/are the best alternative(s), including, but not limited to, considerations of cost effectiveness, technical feasibility, safety, and secondary impacts.

Design capacity* means the maximum amount of solid waste a landfill can accept, as indicated in terms of volume or mass in the most recent permit issued by the state, local, or tribal agency responsible for regulating the landfill, plus any in-place waste not accounted for in the most recent permit. If the owner or operator chooses to convert the design capacity from volume to mass or from mass to volume to demonstrate its design capacity is less than 2.5 million megagrams or 2.5 million cubic meters, the calculation must include a site-specific density, which must be recalculated annually.

Deviation** means any instance in which an affected source, subject to this permit, or an owner or operator of such a source, fails to meet any requirement or obligation established by this permit, including but not limited to any emission limitation or work practice standard; or fails to meet any emission limitation, (including any operating limit), or work practice standard in 40 CFR Part 63, Subpart AAAA during Startup, Shutdown, or Malfuntion (SSM), regardless of whether or not such failure is permitted by 40 CFR Part 63, Subpart AAAA.
For the purposes of the landfill monitoring and SSM plan requirements, deviations include the items in paragraphs a through c below. [40 CFR 63. 1965 & Table 1 to Subpart AAAA of Part 63]

a. A deviation occurs when the control device operating parameter boundaries described in Condition 39.c are exceeded.

b. A deviation occurs when 1 hour or more of the hours during the 3-hour block averaging period does not constitute a valid hour of data. A valid hour of data must have measured values for at least three 15-minute monitoring periods within the hour.

c. A deviation occurs when a SSM plan is not developed or maintained on site.

d. Any time an action taken during a startup, shutdown, and malfunction plant that is not consistent with the startup, shutdown, and malfunction plan, the Permittee shall submit a deviation report as provided in Condition 11.b followed by a letter 7 days after the event.

Disposal facility* means all contiguous land and structures, other appurtenances, and improvements on the land used for the disposal of solid waste.

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

Enclosed combustor* means an enclosed firebox which maintains a relatively constant limited peak temperature generally using a limited supply of combustion air. An enclosed flare is considered an enclosed combustor.

Flare* means an open combustor without enclosure or shroud.

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

Gust* means the highest instantaneous wind speed that occurs over a 3-second running average.

Household waste* means any solid waste (including garbage, trash, and sanitary waste in septic tanks) derived from households (including, but not limited to, single and multiple residences, hotels and motels, bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds, and day-use recreation areas). Household waste does not include fully segregated yard waste. Segregated yard waste means vegetative matter resulting exclusively from the cutting of grass, the pruning and/or removal of bushes, shrubs, and trees, the weeding of gardens, and other landscaping maintenance activities. Household waste does not include construction, renovation, or demolition wastes, even if originating from a household.

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

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

Landfill* means an area of land or an excavation in which wastes are placed for permanent disposal, and that is not a land application unit, surface impoundment, injection well, or waste pile as those terms are defined under 40 CFR §257.2.

Lateral expansion* means a horizontal expansion of the waste boundaries of an existing MSW landfill. A lateral expansion is not a modification unless it results in an increase in the design capacity of the landfill.

Leachate recirculation* means the practice of taking the leachate collected from the landfill and reapplying it to the landfill by any of one of a variety of methods, including pre-wetting of the waste, direct discharge into the working face, spraying, infiltration ponds, vertical injection wells, horizontal gravity distribution systems, and pressure distribution systems.

Modification* means an increase in the permitted volume design capacity of the landfill by either lateral or vertical expansion based on its permitted design capacity as of July 17, 2014. Modification does not occur until the owner or operator commences construction on the lateral or vertical expansion.

Municipal solid waste landfill or MSW landfill* means an entire disposal facility in a contiguous geographical space where household waste is placed in or on land. An MSW landfill may also receive other types of Resource Conservation and Recovery Act (RCRA) Subtitle D wastes (40 CFR §257.2) such as commercial solid waste, nonhazardous sludge, conditionally exempt small quantity generator waste, and industrial solid waste. Portions of an MSW landfill may be separated by access roads. An MSW landfill may be publicly or privately owned. An MSW landfill may be a new MSW landfill, an existing MSW landfill, or a lateral expansion.

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

NMOC* means nonmethane organic compounds, as measured according to the provisions of Condition 107.

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

Operation means any physical or chemical action resulting in the change in location, form, physical properties or chemical character of a material.

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

Root cause analysis* means an assessment conducted through a process of investigation to determine the primary cause, and any other contributing causes, of positive pressure at a wellhead.

Sludge* means the term sludge as defined in 40 CFR 258.2.

Solid waste* means the term solid waste as defined in 40 CFR 258.2.

Source means any building, structure, facility or installation that may cause or contribute to air pollution or the use of which may eliminate, reduce or control the emission of air pollution. Source may also refer to the Permittee as a facility-wide entity.

State* means any of the 50 United States and the protectorates of the United States.

State plan* means a plan submitted pursuant to section 111(d) of the Clean Air Act and 40 CFR 60 subpart B that implements and enforces this NSPS, Subpart Cf.

Sufficient density* means any number, spacing, and combination of collection system components, including vertical wells, horizontal collectors, and surface collectors, necessary to maintain emission and migration control as determined by measures of performance set forth in this part.

Sufficient extraction rate* means a rate sufficient to maintain a negative pressure at all wellheads in the collection system without causing air infiltration, including any wellheads connected to the system as a result of expansion or excess surface emissions, for the life of the blower.

Treated landfill gas* means landfill gas processed in a treatment system as defined in this subpart.

Treatment system* means a system that filters, de-waters, and compresses landfill gas for sale or beneficial use.

Untreated landfill gas* means any landfill gas that is not treated landfill gas.

Work practice standard** means any design, equipment, work practice, or operational standard, or combination thereof, that is promulgated pursuant to section 112(h) of the Clean Air Act.

§ 3: Emission Limits / Standards

§ 3A: Emission Guidelines for Municipal Solid Waste Landfill Emissions

89. Landfills [40 CFR 60.33f(a)]

The Permittee 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 shall collect and control MSW landfill emissions at each MSW landfill that meets the following conditions:

a. The landfill has accepted waste at any time since November 8, 1987, or has additional design capacity available for future waste deposition. [40 CFR 60.33f(a)(1)]

b. The landfill commenced construction, reconstruction, or modification on or before July 17, 2014. [40 CFR 60.33f(a)(2)]

c. 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. [40 CFR 60.33f(a)(3)]

d. The landfill is 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. [40 CFR 60.33f(a)(3)]

90. Collection System [40 CFR 60.33f(b)]

The Permittee shall install a gas collection and control system meeting the requirements in Conditions 90.a through 90.c and Condition 91 at each MSW landfill meeting the conditions in Condition 89.

a. Install and start up a collection and control system that captures the gas generated within the landfill within 30 months after: [40 CFR 60.33f(b)(1)]

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 Condition 106.d.iv; or [40 CFR 60.33f(b)(1)(i)]

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 Condition 106.d.iv; or [40 CFR 60.33f(b)(1)(i)(ii)]

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 Condition 106.d.iv.(c). [40 CFR 60.33f(b)(1)(i)(iii)]

b. An active collection system must: [40 CFR 60.33f(b)(2)]

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.

c. A passive collection system must: [40 CFR 60.33f(b)(3)]

i. Comply with the provisions specified in Conditions 90.b.i, 90.b.ii, and 90.b.iv.

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 40 CFR §258.40.

91. Control System [40 CFR 60.33f(c)]

The Permittee is required to control the gas collected from within the landfill through the use of control devices meeting the following requirements, except as provided in 40 CFR 60.24:

a. A non-enclosed flare designed and operated in accordance with the parameters established in §60.18 except as noted in Condition 104.c; or [40 CFR 60.33f(c)(1)]

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 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 Condition 107.i. 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. [40 CFR 60.33f(c)(2)]

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 Condition 104.

iii. For the closed landfill subcategory, the initial or most recent performance test conducted to comply with NSPS subpart WWW; or a state plan implementing 40 CFR 60, Subpart Cc on or before July 17, 2014 is sufficient for compliance with this Part C.

c. 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 Conditions 91.a or 91.b. [40 CFR 60.33f(c)(3)]

d. All emissions from any atmospheric vent from the gas treatment system are subject to the requirements of Conditions 90 or 91. 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 Conditions 90 or 91. [40 CFR 60.33f(c)(4)]

92. Design Capacity [40 CFR 60.33f(d)]

The Permittee 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 Condition 106.a. The landfill may calculate design capacity in either megagrams or cubic meters for comparison with the exemption values. Any density conversions must be documented and submitted with the report. Submittal of the initial design capacity report fulfills the requirements of this Part C except as provided in Conditions 92.a and 92.b below.

a. The owner or operator must submit an amended design capacity report as provided in Condition 106.b. [40 CFR 60.33f(d)(1)]

Note to Condition 92.a: Note that if the design capacity increase is the result of a modification, as defined in § 2, of this Part C, that was commenced after July 17, 2014, then the landfill becomes subject to NSPS subpart XXX instead of this Part C. If the design capacity increase is the result of a change in operating practices, density, or some other change that is not a modification, then the landfill remains subject to this Part C.

b. 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 Condition 93. [40 CFR 60.33f(d)(2)]

93. Emissions [40 CFR 60.33f(e)]

The Permittee of an MSW landfill having a design capacity equal to or greater than 2.5 million megagrams and 2.5 million cubic meters is required to either install a collection and control system as provided in Conditions 90 and 91 or calculate an initial NMOC emission rate for the landfill using the procedures specified in Condition 106.a. The NMOC emission rate must be recalculated annually, except as provided in Condition 106.c.iii.

a. If the calculated NMOC emission rate is less than 34 megagrams per year, the owner or operator must: [40 CFR 60.33f(e)(1)]

i. Submit an annual NMOC emission rate report according to Condition 106.c, except as provided in Condition 106.c.iii; and

ii. Recalculate the NMOC emission rate annually using the procedures specified in Condition 107.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.

(a) If the calculated NMOC emission rate, upon initial calculation or annual recalculation required in Condition 93.a.ii., is equal to or greater than 34 megagrams per year, the owner or operator must either: Comply with Conditions 90 or 91; calculate NMOC emissions using the next higher tier in Condition 107; or conduct a surface emission monitoring demonstration using the procedures specified in Condition 107.f.

(b) If the landfill is permanently closed, a closure report must be submitted to the Administrator as provided in Condition 106.f, except for exemption allowed under Condition 86.e.iv.

(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 Condition 106.d, except for exemptions allowed under Condition 88.e.iii, and install a collection and control system as provided in Conditions 90 and 91; calculate NMOC emissions using the next higher tier in Condition 107; or conduct a surface emission monitoring demonstration using the procedures specified in Condition 107.f.

b. 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 Condition 106.d, except for exemptions allowed under Condition 88.e.iii; calculate NMOC emissions using a higher tier in Condition 107; or conduct a surface emission monitoring demonstration using the procedures specified in Condition 107.f. [40 CFR 60.33f(e)(2)]

c. 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 Condition 106.d, except for exemptions allowed under Condition 88.e.iii; calculate NMOC emissions using a higher tier in Condition 107; or conduct a surface emission monitoring demonstration using the procedures specified in Condition 107.f. [40 CFR 60.33f(e)(3)]

94. Removal Criteria

The collection and control system may be capped, removed, or decommissioned if the following criteria are met: [40 CFR 60.33f(f)]

a. The landfill is a closed landfill (as defined in § 2 of this Part C). A closure report must be submitted to the Administrator as provided in Condition 106.f.

b. 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.

c. Following the procedures specified in Condition 107.g, 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.

d. For the closed landfill subcategory (as defined in § 2 of this Part C), following the procedures specified in Condition 107.g, 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.

§ 3B: Operational Standards for Collection and Control Systems

95. The Permittee of an MSW landfill with a gas collection and control system used to comply with Conditions 90 and 91 must: [40 CFR 60.34f]

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: [40 CFR 60.34f(a)]

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

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

b. Operate the collection system with negative pressure at each wellhead except under the following conditions: [40 CFR 60.34f(b)]

i. A fire or increased well temperature. The owner or operator must record instances when positive pressure occurs in efforts to avoid a fire. These records must be submitted with the annual reports as provided in Condition 106.h.i.

ii. Use of a geomembrane or synthetic cover. The owner or operator must develop acceptable pressure limits in the design plan.

iii. A decommissioned well. A well may experience a static positive pressure after shut down to accommodate for declining flows. All design changes must be approved by the Administrator as specified in Condition 106.d.

c. Operate each interior wellhead in the collection system with a landfill gas temperature less than 55 degrees Celsius (131 degrees Fahrenheit). The owner or operator may establish a higher operating temperature value at a particular well. A higher operating value demonstration must be submitted to the Administrator for approval and must include supporting data demonstrating that the elevated parameter neither causes fires nor significantly inhibits anaerobic decomposition by killing methanogens. The demonstration must satisfy both criteria in order to be approved (*i.e.*, neither causing fires nor killing methanogens is acceptable). [40 CFR 60.34f(c)]

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 must conduct surface testing using an organic vapor analyzer, flame ionization detector, or other portable monitor meeting the specifications provided in Condition 99. The owner or operator must conduct surface testing around the perimeter of the collection area and along a pattern that traverses the landfill at no more than 30-meter intervals and where visual observations indicate elevated concentrations of landfill gas, such as distressed vegetation and cracks or seeps in the cover and all cover penetrations. Thus, the owner or operator must monitor any openings that are within an area of the landfill where waste has been placed and a gas collection system is required. The owner or operator may establish an alternative traversing pattern that ensures equivalent coverage. A surface monitoring design plan must 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. [40 CFR 60.34f(d)]

e. Operate the system such that all collected gases are vented to a control system designed and operated in compliance with Condition 91. In the event the collection or control system is not operating, the gas mover system must be shut down and all valves in the collection and control system contributing to venting of the gas to the atmosphere must be closed within 1 hour of the collection or control system not operating. [40 CFR 60.34f(e)]

f. Operate the control system at all times when the collected gas is routed to the system. [40 CFR 60.34f(f)]

g. If monitoring demonstrates that the operational requirements in Conditions 95.b, 95.c, or 95.d are not met, corrective action must be taken as specified in Conditions 96.c and 96.e or Condition 98. If corrective actions are taken as specified in § 3C of this Part C, the monitored exceedance is not a violation of the operational requirements in this section. [40 CFR 60.34f(g)]

§ 3C: Compliance Provisions

96. Except as provided in Condition 106.d.ii, the specified methods in Conditions 96.a through 96.f must be used by the Permittee to determine whether the gas collection system is in compliance with Condition 90.b.
[40 CFR 60.36f(a), 40 CFR 63.1955(c) & 40 CFR 63.1960]

a. For the purposes of calculating the maximum expected gas generation flow rate from the landfill to determine compliance with Condition 90.b.i, either Equation 1 or Equation 2 in Conditions 96.a.i or 96.a.ii 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 Condition 107.d, 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. [40 CFR 60.36f(a)(1)]

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

$$Q_m = 2L_oR\,(e^{-kc} - e^{-kt}) \qquad \text{(Equation. 1)}$$

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:

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

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.
M_i = Mass of solid waste in the i^{th} section, megagrams.
t_i = Age of the i^{th} section, years.

iii. If a collection and control system has been installed, actual flow data may be used to project the maximum expected gas generation flow rate instead of, or in conjunction with, Equation 1 or Equation 2 in Condition 96.a.i or ii. 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 1 or Equation 2 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.

b. For the purposes of determining sufficient density of gas collectors for compliance with Condition 90.b.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. [40 CFR 60.36f(a)(2)]

c. For the purpose of demonstrating whether the gas collection system flow rate is sufficient to determine compliance with Condition 90.b.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 Condition 95.b. Any attempted corrective measure must not cause exceedances of other operational or performance standards. [40 CFR 60.36f(a)(3)]

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 Condition 105.e.iii.

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 positive pressure measurement. The owner or operator must submit the items listed in Condition 106.h.vii as part of the next annual report. The owner or operator must keep records according to Condition 105.e.iv.

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 Condition 106.h.vii and Condition 106.k. The owner or operator must keep records according to Condition 105.e.v.

d. [Reserved]

e. 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 Condition 95.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. [40 CFR 60.36f(a)(5)]

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 Condition 105.e.iv.

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 Condition 106.h.vii. as part of the next annual report. The owner or operator must keep records according to Condition 105.e.iv.

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 Condition 106.h.vii and Condition 106.k. The owner or operator must keep records according to Condition 105.e.v.

f. A Permittee seeking to demonstrate compliance with Condition 90.b.iv through the use of a collection system not conforming to the specifications provided in § 3D of this Part C must provide information satisfactory to the Administrator as specified in Condition 106.d.iii demonstrating that off-site migration is being controlled. [40 CFR 60.36f(a)(6)]

97. For purposes of compliance with Condition 95.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 Condition 106.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: [40 CFR 60.36f(b) & 40 CFR 63.1960]

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

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

98. The following procedures must be used for compliance with the surface methane operational standard as provided in Condition 95.d: [40 CFR 60.36f(c) & 40 CFR 1960 and the Approved Gas Collection and Control System Design Plan]

a. 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 Condition 99. [40 CFR 60.36f(c)(1)]

b. 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. [40 CFR 60.36f(c)(2)]

c. 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. [40 CFR 60.36f(c)(3)]

d. 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 Condition 98.d.i through v below must be taken. As long as the specified actions are taken, the exceedance is not a violation of the operational requirements of Condition 95.d. [40 CFR 60.36f(c)(4)]

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 Condition 98.d.v must be taken, and no further monitoring of that location is required until the action specified in Condition 98.d.v 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 Conditions 98.d.ii or iii 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 Condition 98.d.iii or Condition 98.d.v must be taken.

v. For any location where monitored methane concentration equals or exceeds 500 parts per million above background three times within a quarterly period, a new well or other collection device 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.

e. The owner or operator must implement a program to monitor for cover integrity and implement cover repairs as necessary on a monthly basis. [40 CFR 60.36f(c)(5)]

99. Each owner or operator seeking to comply with the provisions in Condition 98 or Condition 107.f must comply with the following instrumentation specifications and procedures for surface emission monitoring devices: [40 CFR 60.36f(d) & 40 CFR 63.1960]

a. 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".

b. The calibration gas must be methane, diluted to a nominal concentration of 500 parts per million in air.

c. 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.

d. 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.

100. The provisions of this Part C apply at all times, including periods of startup, shutdown, or malfunction. [40 CFR 60.36f(e), 40 CFR 63.1960 & 40 CFR 63.6]

a. During periods of startup, shutdown, and malfunction, the Permittee must comply with the work practice specified in Condition 95.e in lieu of the compliance provisions in § 3C of this Part C.

b. The Permittee must develop and implement a written start-up, shutdown, & malfunction (SSM) plan according to the provisions in 40 CFR 40 CFR 63.6(e)(3).

§ 3D: Specifications for Active Collection Systems

101. To comply with Condition 90, the Permittee 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. [40 CFR 60.40f(a) & 40 CFR 63.1960]

a. 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. [40 CFR 60.40f(a)(1)]

b. The sufficient density of gas collection devices determined in Condition 101.a 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. [40 CFR 60.40f(a)(2)]

c. The placement of gas collection devices determined in Condition 101.a must control all gas producing areas, except as provided below:. [40 CFR 60.40f(a)(3)]

i. Any segregated area of asbestos or nondegradable material may be excluded from collection if documented as provided under Condition 105.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. [40 CFR 60.40f(a)(3)(i)]

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. [40 CFR 60.40f(a)(3)(ii)]

(a) The NMOC emissions from each section proposed for exclusion must be computed using Equation 3:

$$Q_i = 2kL_oM_i(e^{-kt_i})(C_{NMOC})(3.6x10^{-9}) \quad \text{(Equation 3)}$$

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 6 in Condition 107.g or Equation 3 in Condition 101.c.ii.(a).

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 Condition 107 or the alternative values from Condition 107 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 Condition 101.c.i. [40 CFR 60.40f(a)(3)(ii)]

102. To comply with Condition 90, the Permittee must construct the gas collection devices using the following equipment or procedures: [40 CFR 60.40f(b)]

    a. 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. [40 CFR 60.40f(b)(1)]

    b. 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. [40 CFR 60.40f(b)(2)]

    c. Collection devices may be connected to the collection header pipes below or above the landfill surface. The connector assembly must include a positive closing throttle valve, any necessary seals and couplings, access couplings and at least one sampling port. The collection devices must be constructed of PVC, HDPE, fiberglass, stainless steel, or other nonporous material of suitable thickness. [40 CFR 60.40f(b)(3)]

103. To comply with Condition 91, the Permittee must convey the landfill gas to a control system in compliance with Condition 91 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: [40 CFR 60.40f(c]]

    a. For existing collection systems, the flow data must be used to project the maximum flow rate. If no flow data exist, the procedures in Condition 103.b must be used.

    b. For new collection systems, the maximum flow rate must be in accordance with Condition 96.a.

§ 4: Monitoring

104. The Permittee shall monitor according to the following provisions, except as provided in Condition 106.d.ii: [40 CFR 60.37f & 40 CFR 63.1960]

a. To comply with Condition 90.b for an active collection system, the Permittee must install a sampling port and thermometer, other temperature measuring device, or an access port for temperature measurements at each wellhead and: [40 CFR 60.37f(a)]

i. Measure the gauge pressure in the gas collection header on a monthly basis as provided in Condition 96.c; and

ii. Monitor nitrogen or oxygen concentration in the landfill gas on a monthly basis as follows:

(a) The nitrogen level must be determined using Method 3C, unless an alternative test method is established as allowed by Condition 106.d.ii.

(b) Unless an alternative test method is established as allowed by Condition 106.d.ii, 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:

(i) The span must be set between 10 and 12 percent oxygen;

(ii) A data recorder is not required;

(iii) Only two calibration gases are required, a zero and span;

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

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

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

(i) The analyzer is calibrated; and

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

iii. Monitor temperature of the landfill gas on a monthly basis as provided in Condition 96.e. The temperature measuring device must be calibrated annually using the procedure in this part 60, appendix A-1, Method 2, Section 10.3.

b. To comply with Condition 91 using a non-enclosed flare, the Permittee must install, calibrate, maintain, and operate according to the manufacturer's specifications the following equipment: [40 CFR 60.37f(c)]

i. 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.

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

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

(b) Secure the bypass line valve in the closed position with a car-seal or a lock-and-key type configuration. A visual inspection of the seal or closure mechanism must 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. To comply with Condition 91 using a device other than a non-enclosed flare or an enclosed combustor or a treatment system, the Permittee must provide information satisfactory to the Administrator as provided in Condition 106.d.ii 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. [40 CFR 60.37f(d)]

d. Should the Permittee seek to install a collection system that does not meet the specifications in § 3D of this Part C or seek to monitor alternative parameters to those required by §§ 3B, 3C, 4 and 7, the Permittee must provide information satisfactory to the Administrator as provided in Conditions 106.d.ii and iii 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. [40 CFR 60.37f(e)]

e. To demonstrate compliance with the 500 parts per million surface methane operational standard in Condition 95.d, the Permittee must monitor surface concentrations of methane according to the procedures provided in Condition 98 and the instrument specifications in Condition 99. 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. [40 CFR 60.37f(f)]

f. To demonstrate compliance with the control system requirements in Condition 91 using a landfill gas treatment system the Permittee must maintain and operate all monitoring systems associated with the treatment system in accordance with the site-specific treatment system monitoring plan required in Condition 105.b.iii.(b) 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: [40 CFR 60.37f(g)]

i. Install, calibrate, and maintain a gas flow rate measuring device that records the flow to the treatment system 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.

g. The monitoring requirements of Conditions 104.b, 104.c, and 104.f 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. The Permittee is required to complete monitoring system repairs in response to monitoring system malfunctions and to return the monitoring system to operation as expeditiously as practicable.

§ 5: Recordkeeping [40 CFR 60.39f]

105. Except as provided in Condition 106.d.ii, the Permittee shall keep the following records:

a. Each owner or operator of an MSW landfill subject to the provisions of Condition 93 must keep for at least 5 years up-to-date, readily accessible, on-site records of: [40 CFR 60.39f(a)]

i. The design capacity report that triggered Condition 93;

ii. The current amount of solid waste in-place, and the year-by-year waste acceptance rate.

Off-site records may be maintained if they are retrievable within 4 hours. Either paper copy or electronic formats are acceptable.

b. Each owner or operator of a controlled landfill must keep up-to-date, readily accessible records for the life of the control system equipment of the data listed in Conditions 105.b.i through iv below 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. [40 CFR 60.39f(b)]

i. To demonstrate compliance with Condition 90, the Permittee shall keep the following records: [40 CFR 60.39f(b)(1)]

(a). The maximum expected gas generation flow rate as calculated in Condition 96. 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.

(b) The density of wells, horizontal collectors, surface collectors, or other gas extraction devices determined using the procedures specified in Condition 101.a.

ii. To demonstrate compliance with Condition 91.a through the use of a non-enclosed flare: [40 CFR 60.39f(b)(4)]

(a) The flare type (i.e., steam-assisted, or non-assisted);

(b) All visible emissions readings (Ref. Conditions 38 & 40);

(c) Heat content determination (Ref. Condition 26.c.ii.(h).(iii);

(d) Flow rate or bypass flow rate measurements;

(e) Exit velocity determination made during the performance test as specified in § 60.18 (Ref. Condition 26.c.ii.(e));

(f) Continuous records of the flare pilot flame or flare flame monitoring; and

(g) Records of all periods of operations during which the pilot flame or the flare flame is absent.

Note to Condition 105.c.i.(f). and (g): See Condition 39.c.ii

iii. To demonstrate compliance with Condition 91.c through use of a landfill gas treatment system: [40 CFR 60.39f(b)(5)]

(a) Bypass records. Records of the flow of landfill to, and bypass of, the treatment system (i.e. bypass of treatment system to the flare as secondary control device).

(b) Site Specific Treatment Monitoring Plan to include:

(i) 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, de-watering, and compression parameters that ensure the treatment system is operating properly for each intended end use of the treated landfill gas.

(ii) 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.

(iii) Documentation of the monitoring methods and ranges, along with justification for their use.

(iv) Identify who is responsible (by job title) for data collection.

(v) Processes and methods used to collect the necessary data.

(vi) Description of the procedures and methods that are used for quality assurance, maintenance, and repair of all continuous monitoring systems.

iv. [reserved]

c. Each owner or operator of a controlled landfill subject to this Part C must keep for 5 years up-to-date, readily accessible continuous records of the equipment operating parameters specified to be monitored in § 4 of this Part C 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. [40 CFR 60.39f(c)]

i. The Permittee must keep up-to-date, readily accessible continuous records of the indication of flow to 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 Conditions 104.b and 104.f. [40 CFR 60.39f(c)(2)]

ii. Each owner or operator seeking to comply with the provisions of this Part C 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 Conditions 104.b, and up-to-date, readily accessible records of all periods of operation in which the flame or flare pilot flame is absent. [40 CFR 60.39f(c)(4)]

iii. Each owner or operator of a landfill seeking to comply with Condition 93 using an active collection system designed in accordance with Condition 90 must keep records of periods when the collection system or control device is not operating. [40 CFR 60.39f(c)(5)]

d. Each owner or operator subject to the provisions of this Part C 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. [40 CFR 60.39f(d)]

i. 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 Condition 97.

ii. 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 Condition 101.c.i as well as any nonproductive areas excluded from collection as provided in Condition 101.c.ii.

e. 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 following: [40 CFR 60.39f(e)]

i. All collection and control system exceedances of the operational standards in § 3B of this Part C, the reading in the subsequent month whether or not the second reading is an exceedance, and the location of each exceedance.

ii. 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.

iii. For any root cause analysis for which corrective actions are required in Conditions 96.c or 96.e, 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.

iv. For any root cause analysis for which corrective actions are required in Conditions 96.c.ii or Condition 96.e.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.

v. For any root cause analysis for which corrective actions are required in Conditions 96.c.iii or 96.e.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.

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 Condition 107.f 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 40 CFR 60, including all of the following items:

i. Calibration records:

(a) Date of calibration and initials of operator performing the calibration.

(b) Calibration gas cylinder identification, certification date, and certified concentration.

(c) Instrument scale(s) used.

(d) A description of any corrective action taken if the meter readout could not be adjusted to correspond to the calibration gas value.

(e) If an owner or operator makes their own calibration gas, a description of the procedure used.

ii. 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.

iii. Timestamp of each surface scan reading:

(a) Timestamp should be detailed to the nearest second, based on when the sample collection begins.

(b) 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).

iv. 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.

v. Monitored methane concentration (parts per million) of each reading.

vi. Background methane concentration (parts per million) after each instrument calibration test.

vii. Adjusted methane concentration using most recent calibration (parts per million).

vii. For readings taken at each surface penetration, the unique identification location label matching the label specified in Condition 105.d.

ix. Records of the operating hours of the gas collection system for each destruction device.

h. Each owner or operator subject to the provisions of this Part C 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 Conditions 104.a.i, ii, and iii.

i. Any records required to be maintained by this Part C that are submitted electronically via the EPA's CDX may be maintained in electronic format.

i. For each owner or operator reporting leachate or other liquids addition under Condition 106.l, 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.

j. The Permittee shall maintain a copy of the SSM plan and SSM plan reports on site. Failure to write, implement, or maintain a copy of the SSM plan is a deviation from the requirements of 40 CFR 63 Subpart AAAA. [40 CFR 63.1960 & 40 CFR 1980(b)]

§ 6: Reporting [40 CFR 60.38f]

106. Except as provided under 40 CFR 60.24 (the approved implementation plan) and Condition 106.d.ii, the Permittee shall follow the following reporting provisions:

a. Design Capacity Report [40 CFR 60.38f(a)]

For existing MSW landfills subject to this Part C, 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:

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.

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 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.

b. Amended Design Capacity Report [40 CFR 60.38f(b)]

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 Condition 105.f.

c. NMOC Emission Rate Report [40 CFR 60.38f(c)]

For existing MSW landfills covered by this Part C 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 Condition 106.j.ii 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 Condition 106.j.ii, except as provided for in Condition 106.c.iii below. The Administrator may request such additional information as may be necessary to verify the reported NMOC emission rate.

i. 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 Conditions 107.a or 107.g, as applicable.

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

iii. 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 Condition 106.j.ii, 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.

iv. Permittees subject to the requirements of this Part C are exempted from the requirements to submit an NMOC emission rate report, after installing a collection and control system that complies with Conditions 90 and 91, during such time as the collection and control system is in operation and in compliance with §§ 3B and 3C of this Part C.

d. Collection and Control System Design Plan [40 CFR 60.38f(d)]

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:

i. The collection and control system as described in the design plan must meet the design requirements in Conditions 90 and 91.

ii. 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 §§ 3B, 3C, and 4 through 6 of this Part C, proposed by the owner or operator.

iii. The collection and control system design plan must either conform to specifications for active collection systems in § 3D of this Part C or include a demonstration to the Administrator's satisfaction of the sufficiency of the alternative provisions to § 3D of this Part C.

iv. 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:

(a) If the owner or operator elects to recalculate the NMOC emission rate after Tier 2 NMOC sampling and analysis as provided in Condition 107.c 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 Condition 106.j.ii, within 180 days of the first calculated exceedance of 34 megagrams per year.

(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 Condition 107.d, 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 Condition 107.d and the resulting site-specific methane generation rate constant k must be submitted, following the procedure specified in Condition 106.j.ii, to the Administrator within 1 year of the first calculated NMOC emission rate equaling or exceeding 34 megagrams per year.

(c) 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 Condition 107.f, then the owner or operator must submit annually a Tier 4 surface emissions report as specified in this Condition 106.d.iv.(c) following the procedure specified Condition 106.j.ii 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.

(i) 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 Condition 106.j.ii.

(ii) 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 Condition 106.j.ii.

(d) 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:

(i) If the owner or operator elects to recalculate the NMOC emission rate after Tier 2 NMOC sampling and analysis as provided in Condition 107.c 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 Condition 106.j.ii, within 180 days of the first calculated exceedance of 50 megagrams per year.

(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 Condition 107.d, 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 Condition 107.d and the resulting site-specific methane generation rate constant k must be submitted, following the procedure specified in Condition 106.j.ii, to the Administrator within 1 year of the first calculated NMOC emission rate equaling or exceeding 50 megagrams per year.

(iii) The landfill owner or operator elects to demonstrate surface emissions are low, consistent with the provisions in Condition 106.d.iv.(c).

(iv) The landfill has already submitted a gas collection and control system design plan consistent with the provisions of subpart WWW of this part (§ 3 of Part B of this permit); 40 CFR part 62, subpart GGG; or a state plan implementing subpart Cc of this part.

(e) 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 Condition 106.d.iv.(f). 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.

(f) Upon receipt of an initial or revised design plan, the Administrator must review the information submitted under Conditions 106.d.i through iii 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.

(g) If the owner or operator chooses to demonstrate compliance with the emission control requirements of this Part C using a treatment system as defined in § 2 of this Part C, then the owner or operator must prepare a site-specific treatment system monitoring plan as specified in Condition 105.b.iii.(b).

e. Revised Design Plan. [40 CFR 60.38f(e)]

The owner or operator who has already been required to submit a design plan under Condition 106.d, or under subpart WWW of this part (§ 3 of Part B of this permit); 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:

i. At least 90 days before expanding operations to an area not covered by the previously approved design plan.

ii. 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 Condition 106.d.

f. Closure Report [40 CFR 60.38f(f)]

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).

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.

i. The equipment removal report must contain the following items:

(a) A copy of the closure report submitted in accordance with Condition 106.f; and

(b) 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

(c) 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

(d) 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.

ii. The Administrator may request such additional information as may be necessary to verify that all of the conditions for removal in Condition 94 have been met.

h. Annual Report

The owner or operator of a landfill seeking to comply with Condition 93.b using an active collection system designed in accordance with Condition 90 must submit to the Administrator, following the procedures specified in Condition 106.j.ii, an annual report of the recorded information in Condition 106.h.i through vii below. 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 Condition 106.j.i, 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).

i. Value and length of time for exceedance of applicable parameters monitored under Conditions 104.a.i, 104.b, 104.c, and 104.f.

ii. 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 Condition 104.

iii. 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.

iv. All periods when the collection system was not operating.

v. The location of each exceedance of the 500 parts per million methane concentration as provided in Condition 95.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.

vi. The date of installation and the location of each well or collection system expansion added pursuant to Conditions 96.c, 96.e, 97, and 98.d.

vii. For any corrective action analysis for which corrective actions are required in Conditions 96.c or 96.e 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 reading, and, for action(s) not already completed, a schedule for implementation, including proposed commencement and completion dates.

i. Initial Performance Test Report

Each owner or operator seeking to comply with Condition 91 must include the following information with the initial performance test report required under § 60.8:

(a) 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;

(b) 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;

(c) 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;

(d) 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;

(e) 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

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

j. Electronic Reporting

The owner or operator must submit reports electronically according to following:

i. 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:

(a) 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.

(b) 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.

ii. 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.

k. Corrective Action and the Corresponding Timeline

The owner or operator must submit according to the following:

i. For corrective action that is required according to Condition 96.c.iii or Condition 96.e.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.

ii. For corrective action that is required according to Condition 96.c.iii or Condition 96.e.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.

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 Condition 106.j.ii, the following information:

i. Volume of leachate recirculated (gallons per year) and the reported basis of those estimates (records or engineering estimates).

ii. Total volume of all other liquids added (gallons per year) and the reported basis of those estimates (records or engineering estimates).

iii. Surface area (acres) over which the leachate is recirculated (or otherwise applied).

iv. Surface area (acres) over which any other liquids are applied.

v. 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.

vi. 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.

vii. The initial report must contain items in Conditions 106.l.i through vi 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:

(a) September 27, 2017, for landfills that commenced construction, modification, or reconstruction after July 17, 2014 but before August 29, 2016; or

(b) 365 days after the date of commenced construction, modification, or reconstruction for landfills that commence construction, modification, or reconstruction after August 29, 2016.

viii. Subsequent annual reports must contain items in Conditions 106.l.i through vi 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.

ix. Landfills in the closed landfill subcategory are exempt from reporting requirements contained in Conditions 106.l.i through vii.

x. Landfills may cease annual reporting of items in Conditions 106.l.i through vi once they have submitted the closure report in Condition 106.f.

m. Tier 4 Notification

i. 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 must provide a notification of the date(s) upon which it intends to demonstrate site-specific surface methane emissions are below 500 parts per million methane, based on the Tier 4 provisions of Condition 107.f. The landfill must also include a description of the wind barrier to be used during the SEM in the notification. Notification must be postmarked not less than 30 days prior to such date.

ii. If there is a delay to the scheduled Tier 4 SEM date due to weather conditions, including not meeting the wind requirements in Condition 107.f.iii.(a), the owner or operator of a landfill shall notify the Administrator by email or telephone no later than 48 hours before any known delay in the original test date, and arrange an updated date with the Administrator by mutual agreement.

§ 7: Testing

[40 CFR 60.35f & 40 CFR 63.1960]

107. The Permittee shall use the following provisions to calculate the landfill NMOC emission rate or to conduct a surface emission monitoring demonstration.

a. NMOC Emission Rate

The landfill owner or operator must calculate the NMOC emission rate using either Equation 4 provided in Condition 107.a.i or Equation 5 provided in Condition 107.a.ii below. Both Equation 4 and Equation 5 may be used if the actual year-to-year solid waste acceptance rate is known, as specified in Condition 107.a.i, for part of the life of the landfill and the actual year-to-year solid waste acceptance rate is unknown, as specified in Condition 107.a.ii, for part of the life of the landfill. The values to be used in both Equation 4 and Equation 5 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 C_{NMOC}. 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 meteorological site, the k value to be used is 0.02 per year. [40 CFR 60.35f(a)(1)]

i. Equation 4 must be used if the actual year-to-year solid waste acceptance rate is known.

$$M_{NMOC} = \sum_{i=1}^{n} 2kL_oM_i\,(e^{-kt_i})(C_{NMOC})(3.6x10^{-9}) \qquad \text{(Equation 4)}$$

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 ith section, megagram.
t_i = Age of the solid waste in the ith 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. Equation 5 must be used if the actual year-to-year solid waste acceptance rate is unknown.

$$M_{NMOC} = 2L_oR\,(\,e^{-kc} - e^{-kt}\,)\,C_{NMOC}\,(3.6x10^{-9}) \qquad \text{(Equation. 5)}$$

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 the 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.

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.

b. Tier 1

The owner or operator must compare the calculated NMOC mass emission rate to the standard of 34 megagrams per year. [40 CFR 60.35f(a)(2)]

i. If the NMOC emission rate calculated in Condition 107.a is less than 34 megagrams per year, then the owner or operator must submit an NMOC emission rate report according to Condition 106.c, and must recalculate the NMOC mass emission rate annually as required under Condition 93.

ii. If the NMOC emission rate calculated in Condition 107.a 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 Condition 106.d and install and operate a gas collection and control system within 30 months according to Conditions 90 and 91;

(b) Determine a site-specific NMOC concentration and recalculate the NMOC emission rate using the Tier 2 procedures provided in Condition 107.c below; or

(c) Determine a site-specific methane generation rate constant and recalculate the NMOC emission rate using the Tier 3 procedures provided in Condition 107.d below.

c. Tier 2 [40 CFR 60.35f(a)(3)]

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 40 CFR 60 Appendix A. 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 C_{NMOC} as carbon to C_{NMOC} 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 Condition 106.j.ii.

ii. The landfill owner or operator must recalculate the NMOC mass emission rate using Equation 4 or Equation 5 provided in Conditions 107.a.i or ii using the average site-specific NMOC concentration from the collected samples instead of the default value provided in Condition 107.a.

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 Condition 106.c, and must recalculate the NMOC mass emission rate annually as required under Condition 93. 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 Condition 106.d and install and operate a gas collection and control system within 30 months according to Conditions 90 and 91;

(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 Condition 107.d below; or

(c) Conduct a surface emission monitoring demonstration using the Tier 4 procedures specified in Condition 107.f below.

d. Tier 3 [40 CFR 60.35f(a)(4)]

The site-specific methane generation rate constant must be determined using the procedures provided in Method 2E of 40 CFR 60 Appendix A. The landfill owner or operator must estimate the NMOC mass emission rate using Equation 4 or Equation 5 in Conditions 107.a.i or ii and using a site-specific methane generation rate constant, and the site-specific NMOC concentration as determined in Condition 107.c instead of the default values provided in Condition 107.a. The landfill owner or operator must compare the resulting NMOC mass emission rate to the standard of 34 megagrams per year.

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:

(a) Submit a gas collection and control system design plan within 1 year as specified in Condition 106.d and install and operate a gas collection and control system within 30 months according to Conditions 90 and 91; or

(c) Conduct a surface emission monitoring demonstration using the Tier 4 procedures specified in Condition 107.f below.

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 4 or Equation 5 in Condition 107.a 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 Condition 106.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.

e. Other methods [40 CFR 60.35f(a)(5)]

The owner or operator may use other methods to determine the NMOC concentration or a site-specific methane generation rate constant as an alternative to the methods required in Conditions 107.c and 107.d above if the method has been approved by the Administrator.

f. Tier 4 [40 CFR 60.35f(a)(6)]

The landfill owner or operator must demonstrate that surface methane emissions are below 500 parts per million. Surface emission monitoring must be conducted on a quarterly basis using the following procedures. Tier 4 is allowed only if the landfill owner or operator can demonstrate that NMOC emissions are greater than or equal to 34 Mg/yr but less than 50 Mg/yr using Tier 1 or Tier 2. If both Tier 1 and Tier 2 indicate NMOC emissions are 50 Mg/yr or greater, then Tier 4 cannot be used. In addition, the landfill must meet the criteria in Condition 107.f.viii below.

i. The owner or operator must measure surface concentrations of methane along the entire perimeter of the landfill and along a pattern that traverses the landfill at no more than 30-meter intervals using an organic vapor analyzer, flame ionization detector, or other portable monitor meeting the specifications provided in Condition 99.

ii. The background concentration must be determined by moving the probe inlet upwind and downwind at least 30 meters from the waste mass boundary of the landfill.

iii. Surface emission monitoring must be performed in accordance with section 8.3.1 of Method 21 of 40 CFR 60 Appendix A, except that the probe inlet must be placed no more than 5 centimeters above the landfill surface; the constant measurement of distance above the surface should be based on a mechanical device such as with a wheel on a pole.

(a) The owner or operator must use a wind barrier, similar to a funnel, when onsite average wind speed exceeds 4 miles per hour or 2 meters per second or gust exceeding 10 miles per hour. Average on-site wind speed must also be determined in an open area at 5-minute intervals using an on-site anemometer with a continuous recorder and data logger for the entire duration of the monitoring event. The wind barrier must surround the SEM monitor, and must be placed on the ground, to ensure wind turbulence is blocked. SEM cannot be conducted if average wind speed exceeds 25 miles per hour.

(b) Landfill surface areas where visual observations indicate elevated concentrations of landfill gas, such as distressed vegetation and cracks or seeps in the cover, and all cover penetrations must also be monitored using a device meeting the specifications provided in Condition 99.

iv. Each owner or operator seeking to comply with the Tier 4 provisions in Condition 107.f must maintain records of surface emission monitoring as provided in Condition 105.g and submit a Tier 4 surface emissions report as provided in Condition 106.d.iv.(c).

v. If there is any measured concentration of methane of 500 parts per million or greater from the surface of the landfill, the owner or operator must submit a gas collection and control system design plan within 1 year of the first measured concentration of methane of 500 parts per million or greater from the surface of the landfill according to Condition 106.d and install and operate a gas collection and control system according to Conditions 90 and 91 within 30 months of the most recent NMOC emission rate report in which the NMOC emission rate equals or exceeds 34 megagrams per year based on Tier 2.

vi. If after four consecutive quarterly monitoring periods at a landfill, other than a closed landfill, there is no measured concentration of methane of 500 parts per million or greater from the surface of the landfill, the owner or operator must continue quarterly surface emission monitoring using the methods specified in this section.

vii. If after four consecutive quarterly monitoring periods at a closed landfill there is no measured concentration of methane of 500 parts per million or greater from the surface of the landfill, the owner or operator must conduct annual surface emission monitoring using the methods specified in this section.

viii. If a landfill has installed and operates a collection and control system that is not required by this Part C, then the collection and control system must meet the following criteria:

(a) The gas collection and control system must have operated for at least 6,570 out of 8,760 hours preceding the Tier 4 surface emissions monitoring demonstration.

(b) During the Tier 4 surface emissions monitoring demonstration, the gas collection and control system must operate as it normally would to collect and control as much landfill gas as possible.

g. After the installation and startup of a collection and control system in compliance with this Part C, 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 Condition 94, using Equation 6: [40 CFR 60.35f(b)]

$$M_{NMOC} = 1.89 \times 10^{-3} Q_{LFG} C_{NMOC} \quad \text{(Equation 6)}$$

Where:

M_{NMOC} = Mass emission rate of NMOC, megagrams per year.
Q_{LFG} = Flow rate of landfill gas, cubic meters per minute.
C_{NMOC} = NMOC concentration, parts per million by volume as hexane.

i. The flow rate of landfill gas, Q_{LFG}, 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 40 CFR 60 Appendix A.

ii. The average NMOC concentration, C_{NMOC}, 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 40 CFR 60 Appendix A. 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 C_{NMOC} as carbon to C_{NMOC} as hexane.

iii. 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.

(a) 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 Condition 106.j.ii.

(b) [Reserved]

h. 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 40 CFR § 51.166 or 40 CFR § 52.21 using Compilation of Air Pollutant Emission Factors, Volume I: Stationary Point and Area Sources (AP-42) or other approved measurement procedures. [40 CFR 60.35f(c)]

i. For the performance test required in Condition 91.a, the net heating value of the combusted landfill gas as determined in Condition 26.c.ii.(h).(iii) 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 Condition 26.c.ii.(h).(iv). [40 CFR 60.35f(d)]

i. 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 Conditions 107.g or 107.i including any associated fuel analyses, according to Condition 106.j.i.

j. For the performance test required in Condition 91.b, Method 25 or 25C (Method 25C may be used at the inlet only) of 40 CFR 60 Appendix A 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 Condition 106.d.ii. 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 C_{NMOC} as carbon to C_{NMOC} as hexane. Equation 7 must be used to calculate efficiency: [40 CFR 60.35f(e)]

Control Efficiency = $(NMOC_{IN} - NMOC_{OUT}) / (NMOC_{IN})$

Where:

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

i. 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 Condition 106.j.i.

ATTACHMENT 1

APPLICABLE REGULATIONS

Requirements Specifically Identified as Applicable:

Code of Federal Regulations Title 40:

Part 60 Subpart A	New Source Performance Standards (NSPS) General Provisions
Part 60 Subpart Cf	Em Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills (Applies upon approval of a state plan by the Administrator of the EPA).
Part 60, Subpart WWW	NSPS for Municipal Solid Waste Landfills
Part 63 Subpart A	National Emissions Standards for Hazardous Air Pollutants (NESHAP) General Provisions
Part 63, Subpart AAAA	National Emissions Standards for Hazardous Air Pollutants (NESHAP): Municipal Solid Waste Landfills

Pima County State Implementation Plan (SIP):

Rule 224	Fugitive Dust Producing Activities
Rule 315	Roads and Streets parts E, and F
Rule 316	Particulate Materials
Rule 318	Vacant Lots and Open Spaces
Rule 321	Emissions-Discharge: Opacity Limiting Standards and Applicability
Rule 343	Visibility Limiting Standard
Rule 344	Odor Limiting Standard

Pima County Code (PCC) Title 17, Chapter 17.16:

17.16.030	Odor Limiting Standards
17.16.040	Standards and Applicability (Visible Emissions)
17.16.050	Visibility Limiting Standards
17.16.060	Fugitive Dust Producing Activities
17.16.080	Vacant Lots and Open Spaces
17.16.090	Roads and Streets
17.16.100	Particulate Materials
17.16.110	Storage Piles
17.16.390	Municipal Solid Waste Landfills

ATTACHMENT 2

EQUIPMENT LIST

Name (Equipment ID)	Emission Point	Make	Model	Serial Number	Date of Manufacture	Fuel	Capacity	Type
Candlestick Flare	FL-1	John Zink	ZEF 1030	911468	1998	Propane/ LFG	2690 scfm @ 50% methane	10” diameter x 30’ high

ATTACHMENT 3

SUMMARY OF COMPLIANCE PROVISIONS

Part A, General Provisions

§ A. 4 Copy of Permit and Appoved Gas Collection and Control System Desing Plan is onsite; equipment and operations are readily identifiable.

§ A. 12, 13 Copies of all notifications, reports, and support documentation required by permit are kept for at least 5 years.

§ 1: Applicability

§ 1.24.b Upon approval by the Administrator of the EPA of a state plan or federal plan to implement 40 CFR Part 60, Supbart Cf – Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills, the Permittee shall be subject to the terms and Conditions in Part C of the permit. The terms and Conditions in Part C of the permit shall supersede the terms and Conditions in § 3B through § 3H in Part B of the permit, except for the provisions in Conditions 26.c, 38, 39.c and 40.

§3: Flare Compliance Provisions

§ 3B.26.c The Permittee shall either:

i. Route all the collected gas to a treatment system that processes the collected gas for subsequent sale or use, or,

ii. Route all the collected gas to an open flare designed and operated in accordance with the approved Gas Collection and Control System design Plan and the provisions in Condition 26.c.ii.(a) through (h).

§3: Landfill Compliance Provisions (Part B – NSPS WWW; after implementation plan date see Part C)

§ 3B.26.c The Permittee shall either:

i. Route all the collected gas to a treatment system that processes the collected gas for subsequent sale or use, or,
ii. Route all the collected gas to an open flare designed and operated in accordance with the approved Gas Collection and Control System design Plan.

§ 3B.26.d The Permittee shall operate the collection and control device in accordance with the approved Gas Collection and Control System Design Plan and the provisions of the Permit.

§ 3C.28.b To determine sufficient density of gas collectors for compliance with Condition 26.b.ii, the Permittee shall 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.

§ 3C.28.c To demonstrate whether the gas collection system flow rate is sufficient to determine compliance with Condition 26.b.iii, the Permittee shall measure gauge pressure in the gas collection header at each individual well, monthly. If a positive pressure exists, action shall be initiated to correct the exceedance within 5 calendar days, except for the three conditions allowed under Condition 26.e.ii. If negative pressure cannot be achieved without excess air infiltration within 15 calendar days of the first measurement, the gas collection system shall be expanded to correct the exceedance within 120 days of the initial measurement of positive pressure. Any attempted corrective measure shall not cause exceedances of other operational or performance standards. An alternative timeline for correcting the exceedance may be submitted to the Administrator for approval.

§ 3C.28.e To identify whether excess air infiltration into the landfill is occurring, the Permittee shall monitor each well monthly for temperature and nitrogen or oxygen as provided in Condition 26.e.iii. If a well exceeds one of these operating parameters, action shall be initiated to correct the exceedance within 5 calendar days. If correction of the exceedance cannot be achieved within 15 calendar days of the first measurement, the gas collection system shall be expanded to correct the exceedance within 120 days of the initial exceedance. Any attempted corrective measure shall not cause exceedances of other operational or performance standards. An alternative timeline for correcting the exceedance may be submitted to the Administrator for approval.

§ 3C.29 To determine compliance with Condition 26.e.i, the Permittee shall place each well or design component as specified in an approved design plan. Each well shall be installed no later than 60 days after the date on which the initial solid waste has been in place for a period of:

a. 5 years or more if active; or
b. 2 years or more if closed or at final grade.

§ 3C.30 The procedures in Conditions 30.a through 30.e shall be used for compliance with the surface methane operational standard as provided in Condition 26.e.iv. After installation of the collection system, the Permittee shall monitor surface concentrations of methane along the entire perimeter of the collection area and along a pattern that traverses the landfill at 30 meter intervals (or a site-specific established spacing) for each collection area on a quarterly basis using an organic vapor analyzer, flame ionization detector, or the SEM 500, or other portable monitor meeting the specifications provided in Condition 31.

§ 3C.33 The Permittee must develop and implement a written start-up, shutdown & malfunction (SSM) plan according to the provisions in 40 CFR 63.6(e)(3).

§ 4: Fugitive Dust Activity Compliance Provisions

§ 4.44 Opacity Limiting Standard

a. The Permittee shall not cause or permit the effluent from any single emission point, multiple emission point, or fugitive emission source to have an average optical density greater than 20%.

b. Visibility Limiting Standard: The Permittee shall not allow diffusion of visible emissions including fugitive dust beyond the property boundary line within which the emissions become airborne without taking reasonably necessary precautions to control generation of airborne particulate matter.

   i. This provision shall not apply when wind speeds exceed twenty-five miles per hour (using the Beaufort Scale of Wind Speed Equivalents, or SIP rule as recorded by the National Weather Service). This exception does not apply if control measures have not been taken or were not commensurate with the size or scope of the activity.

   ii. This shall also not apply to emissions from undisturbed land.

c. The Permittee shall apply adequate amounts of water, chemical stabilizer, or other effective dust suppressant until the area becomes permanently stabilized by paving, landscaping or otherwise.

d–h. Follow standards in PCC 17.16.060 & 17.16.080 – 100: Roads and Streets, Particulate Materials, Storage Piles, Fugitive Dust Producing Activities

§ 3: Landfill Compliance Provisions (Part C, NSPS Cf)

§ 3C.96 Except as provided in Condition 106.d.ii, the specified methods in Conditions 96.a through 96.f must be used by the Permittee to determine whether the gas collection system is in compliance with Condition 90.b.

a. For the purposes of calculating the maximum expected gas generation flow rate from the landfill to determine compliance with Condition 90.b.i, either Equation 1 or Equation 2 in Conditions 96.a.i or 96.a.ii 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 Condition 107.d, 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.

b. For the purposes of determining sufficient density of gas collectors for compliance with Condition 90.b.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 in § 3B. (Ref. Approved Design Plan)

c. For the purpose of demonstrating whether the gas collection system flow rate is sufficient to determine compliance with Condition 90.b.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 Condition 95.b. Any attempted corrective measure must not cause exceedances of other operational or performance standards.

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 Condition 105.e.iii.

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 positive pressure measurement. The owner or operator must submit the items listed in Condition 106.h.vii as part of the next annual report. The owner or operator must keep records according to Condition 105.e.iv.

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 Condition 106.h.vii and Condition 106.k. The owner or operator must keep records according to Condition 105.e.v.

e. 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 Condition 95.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 Condition 105.e.iv.

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 Condition 106.h.vii. as part of the next annual report. The owner or operator must keep records according to Condition 105.e.iv.

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 Condition 106.h.vii and Condition 106.k. The owner or operator must keep records according to Condition 105.e.v.

§ 3C.97 For purposes of compliance with Condition 95.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 Condition 106.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:

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

§ 3C.98 The following procedures must be used for compliance with the surface methane operational standard as provided in Condition 95.d:

a. 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 Condition 99.

b. 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.

c. 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.

d. 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 Condition 98.d.i through v below must be taken. As long as the specified actions are taken, the exceedance is not a violation of the operational requirements of Condition 95.d.

   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 Condition 98.d.v must be taken, and no further monitoring of that location is required until the action specified in Condition 98.d.v 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 Conditions 98.d.ii or iii 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 Condition 98.d.iii or Condition 98.d.v must be taken.

   v. For any location where monitored methane concentration equals or exceeds 500 parts per million above background three times within a quarterly period, a new well or other collection device 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.

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

§ 3C.99 Each owner or operator seeking to comply with the provisions in Condition 98 or Condition 107.f must comply with the following instrumentation specifications and procedures for surface emission monitoring devices:

a. 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”.
b. The calibration gas must be methane, diluted to a nominal concentration of 500 parts per million in air.
c. 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.
d. 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.

§ 3C.100 The provisions of this Part C apply at all times, including periods of startup, shutdown, or malfunction.

a. During periods of startup, shutdown, and malfunction, the Permittee must comply with the work practice specified in Condition 95.e in lieu of the compliance provisions in § 3C of Part C of the permit.
b. The Permittee must develop and implement a written start-up, shutdown, & malfunction (SSM) plan according to the provisions in 40 CFR 40 CFR 63.6(e)(3).

ATTACHMENT 4

SUMMARY OF MONITORING & RECORDKEEPING PROVISIONS

§3: Flare Monitoring & Recordkeeping Requirements (Part B)

§ 3E.37.b The Permittee shall install, calibrate, maintain, and operate according to the manufacturer's specifications the following equipment:

i. 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.
ii. A device that records flow to or bypass of the flare. The Permittee shall either:
   (a) Install, calibrate, and maintain a gas flow rate measuring device that shall record the flow to the control device at least every 15 minutes; or
   (b) Secure the bypass line valve in the closed position with a car-seal or a lock-and-key type configuration. A visual inspection of the seal or closure mechanism shall be performed at least once every month to ensure that the valve is maintained in the closed position and that the gas flow is not diverted through the bypass line.

§ 3F.39.b.ii The Permittee shall keep up-to-date, readily accessible records of the following for the life of the control equipment of the data listed below as measured during the initial performance test or compliance determination. Records of subsequent tests or monitoring shall be maintained for a minimum of 5 years. Records of the control device vendor specifications shall be maintained until removal.

i. All visible emission readings, heat content determination, flow rate or bypass flow rate measurements, and exit velocity determinations made during the performance test; continuous records of the flare pilot flame or flare flame monitoring and records of all periods of operations during which the pilot flame of the flare flame is absent.

§ 3F.39.c.ii The Permittee shall keep up-to-date, readily accessible continuous records of the flame or flare pilot flame monitoring specified under Condition 37.b, and up-to-date, readily accessible records of all periods of operation in which the flame or flare pilot flame is absent.

Note: To comply with the above requirement, (Condition 39.c.ii), the Permittee shall install, calibrate, maintain, and operate according to the manufacturer's specifications, a mechanism that closes or shuts off the flow of LFG to the flare when the operating temperature of the flare is below 150 F. Records of the installation date and maintenance dates shall be maintained onsite for the life of the flare. If there are no manufacturer's specifications or Operations and Maintenance Plans for the mechanism, the Permittee shall test the mechanism approximately once every 12 month period.

§ 3E.38 Keep records of flare startups and checks as described in Condition 40.a, for Visible emissions during the first few minutes of operation, or during the first few hours of daylight when the operator is present if the flare is started during night darkness. Records of VE checks on a weekly basis while the flame is present as described in Condition 40.b. Records of Method 22 tests as described in Condition 26.c.ii.(h).(i). If any visible emissions are observed. Records of Excess emissions reports for Method 22 results in excess of the standard.

§ 3F.40 Visible Emissions Checks. For each observation made in compliance with Conditions 38.a.and b, the Permittee shall keep a log book on site with a record of the following:

i. The date and time the flare was started.
ii. The time the Visible Emissions observation was made.
iii. The name of the person who performed the Visible Emissions check
iv. Indicate whether there were, or were not, any visible emissions observed during the check.
v. If Visible Emissions are observed, indicate a pass or fail for the required follow-up Method 22 Testing.
vi. The cause, or suspected cause, of the observed visible emissions.
vii. Corrective action taken, including the name of the person who completed or supervised the corrective action, the date and time of the completion of the corrective action, and a description of the corrective action

When a Test Method 22 reading is required, a record shall be kept of the observations made during the test. A note of a pass or fail of the standard of 5 minutes of visible emissions in any 2 hour period shall be noted in the log book as described above in Condition 40.a.v. A note that shows a fail result is evidence of Excess Emissions.

§3: Landfill Monitoring & Recordkeeping Requirements (Part B, NSPS Subpart WWW)

§ 3F.39.a The Permittee shall keep, for at least 5 years, up-to-date, readily accessible, on-site records of the design capacity report which triggered Condition 26.b, 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.

§ 3F.39.b The Permittee shall keep up-to-date, readily accessible records for the life of the control equipment of the data listed below as measured during the initial performance test or compliance determination. Records of subsequent tests or monitoring shall be maintained for a minimum of 5 years. Records of the control device vendor specifications shall be maintained until removal.

i. Where the Permittee seeks to demonstrate compliance with Condition 26.b:

(a) The maximum expected gas generation flow rate as calculated in Condition 28.a. The Permittee may use another method to determine the maximum gas generation flow rate, if the method has been approved by the Administrator.

(b) The density of wells, horizontal collectors, surface collectors, or other gas extraction devices determined using the procedures specified in Condition 34.a.

§ 3F.39.c The Permittee shall keep for 5 years up-to-date, readily accessible continuous records of the equipment operating parameters below 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.

a. For an active gas collection system, the Permittee shall install a sampling port and a thermometer, other temperature measuring device, or an access port for temperature measurements at each wellhead and:

i. Measure the gauge pressure in the gas collection header on a monthly basis as provided in Condition 28.c; and

ii. Monitor nitrogen or oxygen concentration in the LFG on a monthly basis as provided in Condition 28.e; and

iii. Monitor temperature of the LFG on a monthly basis as provided in Condition 28.e.

b. The Permittee seeking to demonstrate compliance with Condition 30 shall monitor surface concentrations of methane according to the instrument specifications and procedures provided in Condition 31. Any closed landfill that has no monitored exceedances of the operational standard in three consecutive quarterly monitoring periods may skip to annual monitoring. Any methane reading of 500 ppm or more above background detected during the annual monitoring returns the frequency for that landfill to quarterly monitoring.

c. The Permittee shall keep up-to-date, readily accessible continuous records of the indication of flow to the control device or the indication of bypass flow or records of monthly inspections of car-seals or lock-and-key configurations used to seal bypass lines, specified under Condition 37.

§ 3F.39.d The Permittee shall keep for the life of the collection system an up-to-date, readily accessible plot map showing each existing and planned collector in the system and providing a unique identification location label for each collector.

i. The Permittee shall keep up-to-date, readily accessible records of the installation date and location of all newly installed collectors as specified under Condition 29.

ii. The Permittee shall keep readily accessible documentation of the nature, date of deposition, amount, and location of asbestos-containing or nondegradable waste excluded from collection as provided in Condition 34.c.i as well as any nonproductive areas excluded from collection as provided in Condition 34.c.ii.

§ 3F.39.e The Permittee shall keep for at least 5 years up-to-date, readily accessible records of all collection and control system exceedances of the operational standards in Conditions 26.e.i through vii, the reading in the subsequent month whether or not the second reading is an exceedance, and the location of each exceedance.

§ 3F.39.g The Permittee shall maintain a copy of the SSM plan and SSM plan reports on site. Failure to write, implement, or maintain a copy of the SSM plan is a deviation from the requirements of 40 CFR 63 Subpart AAAA.

§ 4: Fugitive Dust Activity Monitoring & Recordkeeping Requirements (Part B)

§ 4.45 Airborne Particulate Matter

a. At least once in each consecutive 14-day period, a certified Method 9 observer shall conduct a visual survey of visible emissions from the sources of fugitive dust listed in Condition 43.

b. If the observer sees visible emissions from a source that on an instantaneous basis appears to exceed 20 percent, then the observer shall, if possible, take a six-minute Method 9 observation of the plume.

c. If the six-minute opacity of the plume exceeds the opacity standard, then the Permittee shall immediately take whatever action is necessary to reduce the opacity such that it falls within the standard.

§ 4.46 Airborne Particulate Matter

For each observation made in compliance with Condition 46 the Permittee shall keep a record of the name of the observer, the date on which the observation was made, the fugitive dust source being observed, the results of the observation; and the corrective action taken if necessary.

§ 4 & 5: Landfill Monitoring & Recordkeeping Requirements (Part C, Subpart Cf after date of state implementation plan)

§ 4.104 The Permittee shall monitor according to the following provisions, except as provided in Condition 106.d.ii:

a. To comply with Condition 90.b for an active collection system, the Permittee must install a sampling port and thermometer, other temperature measuring device, or an access port for temperature measurements at each wellhead and:

i. Measure the gauge pressure in the gas collection header on a monthly basis as provided in Condition 96.c; and

ii. Monitor nitrogen or oxygen concentration in the landfill gas on a monthly basis as follows:

(a) The nitrogen level must be determined using Method 3C, unless an alternative test method is established as allowed by Condition 106.d.ii.

(b) Unless an alternative test method is established as allowed by Condition 106.d.ii, 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:

(i) The span must be set between 10 and 12 percent oxygen;
(ii) A data recorder is not required;
(iii) Only two calibration gases are required, a zero and span;
(iv) A calibration error check is not required; and
(v) The allowable sample bias, zero drift, and calibration drift are ±10 percent.

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

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

iii. Monitor temperature of the landfill gas on a monthly basis as provided in Condition 96.e. The temperature measuring device must be calibrated annually using the procedure in 40 CFR Part 60, appendix A-1, Method 2, Section 10.3.

b. To comply with Condition 91 using a non-enclosed flare, the Permittee must install, calibrate, maintain, and operate according to the manufacturer's specifications the following equipment:

i. 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.

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

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

(b) Secure the bypass line valve in the closed position with a car-seal or a lock-and-key type configuration. A visual inspection of the seal or closure mechanism must 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.

e. To demonstrate compliance with the 500 parts per million surface methane operational standard in Condition 95.d, the Permittee must monitor surface concentrations of methane according to the procedures provided in Condition 98 and the instrument specifications in Condition 99. 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.

f. To demonstrate compliance with the control system requirements in Condition 91 using a landfill gas treatment system the Permittee must maintain and operate all monitoring systems associated with the treatment system in accordance with the site-specific treatment system monitoring plan required in Condition 105.b.iii.(b) 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:

i. Install, calibrate, and maintain a gas flow rate measuring device that records the flow to the treatment system 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.

g. The monitoring requirements of Conditions 104.b, 104.c, and 104.f 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. The Permittee is required to complete monitoring system repairs in response to monitoring system malfunctions and to return the monitoring system to operation as expeditiously as practicable.

§ 5.105 Except as provided in Condition 106.d.ii, the Permittee shall keep the following records:

a. Each owner or operator of an MSW landfill subject to the provisions of Condition 93 must keep for at least 5 years up-to-date, readily accessible, on-site records of:

i. The design capacity report that triggered Condition 93;
ii. The current amount of solid waste in-place, and the year-by-year waste acceptance rate.

Off-site records may be maintained if they are retrievable within 4 hours. Either paper copy or electronic formats are acceptable.

b. Each owner or operator of a controlled landfill must keep up-to-date, readily accessible records for the life of the control system equipment of the data listed in Conditions 105.b.i through iv below 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.

i. To demonstrate compliance with Condition 90, the Permittee shall keep the following records:

(a) The maximum expected gas generation flow rate as calculated in Condition 96. 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.
(b) The density of wells, horizontal collectors, surface collectors, or other gas extraction devices determined using the procedures specified in Condition 101.a.

ii. To demonstrate compliance with Condition 91.a through the use of a non-enclosed flare:

(a) The flare type (i.e., steam-assisted, or non-assisted);
(b) All visible emissions readings (Ref. Conditions 38 & 40);
(c) Heat content determination (Ref. Condition 26.c.ii.(h).(iii);
(d) Flow rate or bypass flow rate measurements;
(e) Exit velocity determination made during the performance test as specified in § 60.18 (Ref. Condition 26.c.ii.(e));
(f) Continuous records of the flare pilot flame or flare flame monitoring; and
(g) Records of all periods of operations during which the pilot flame or the flare flame is absent.

Note to Condition 105.c.i.(f). and (g): See Condition 39.c.ii

iii. To demonstrate compliance with Condition 91.c through use of a landfill gas treatment system:

(a) Bypass records. Records of the flow of landfill to, and bypass of, the treatment system (i.e. bypass of treatment system to the flare as secondary control device).
(b) Site Specific Treatment Monitoring Plan to include:
(i) 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, de-watering, and compression parameters that ensure the treatment system is operating properly for each intended end use of the treated landfill gas.
(ii) 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.
(iii) Documentation of the monitoring methods and ranges, along with justification for their use.
(iv) Identify who is responsible (by job title) for data collection.
(v) Processes and methods used to collect the necessary data.
(vi) Description of the procedures and methods that are used for quality assurance, maintenance, and repair of all continuous monitoring systems.

c. Each owner or operator of a controlled landfill subject to this Part C must keep for 5 years up-to-date, readily accessible continuous records of the equipment operating parameters specified to be monitored in § 4 of this Part C 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.

i. The Permittee must keep up-to-date, readily accessible continuous records of the indication of flow to 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 Conditions 104.b and 104.f.

ii. Each owner or operator seeking to comply with the provisions of this Part C 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 Conditions 104.b, and up-to-date, readily accessible records of all periods of operation in which the flame or flare pilot flame is absent.

iii. Each owner or operator of a landfill seeking to comply with Condition 93 using an active collection system designed in accordance with Condition 90 must keep records of periods when the collection system or control device is not operating.

d. Each owner or operator subject to the provisions of this Part C 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.

i. Each owner or operator subject to the provisions of this Part C must keep up-to-date, readily accessible records of the installation date and location of all newly installed collectors as specified under Condition 97.

ii. Each owner or operator subject to the provisions of this Part C 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 Condition 101.c.i as well as any nonproductive areas excluded from collection as provided in Condition 101.c.ii.

e. 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 following:

i. All collection and control system exceedances of the operational standards in § 3B of this Part C, the reading in the subsequent month whether or not the second reading is an exceedance, and the location of each exceedance.

ii. 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.

iii. For any root cause analysis for which corrective actions are required in Conditions 96.c or 96.e, 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.

iv. For any root cause analysis for which corrective actions are required in Conditions 96.c.ii or Condition 96.e.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.

v. For any root cause analysis for which corrective actions are required in Conditions 96.c.iii or 96.e.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.

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 Condition 107.f 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 40 CFR 60, including all of the following items:

i. Calibration records:

(a) Date of calibration and initials of operator performing the calibration.
(b) Calibration gas cylinder identification, certification date, and certified concentration.
(c) Instrument scale(s) used.
(d) A description of any corrective action taken if the meter readout could not be adjusted to correspond to the calibration gas value.
(e) If an owner or operator makes their own calibration gas, a description of the procedure used.

ii. 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.

iii. Timestamp of each surface scan reading:

(a) Timestamp should be detailed to the nearest second, based on when the sample collection begins.
(b) 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).

iv. 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.

v. Monitored methane concentration (parts per million) of each reading.

vi. Background methane concentration (parts per million) after each instrument calibration test.

vii. Adjusted methane concentration using most recent calibration (parts per million).

vii. For readings taken at each surface penetration, the unique identification location label matching the label specified in Condition 105.d.

ix. Records of the operating hours of the gas collection system for each destruction device.

h. Each owner or operator subject to the provisions of this Part C 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 Conditions 104.a.i, ii, and iii.

i. Any records required to be maintained by this Part C that are submitted electronically via the EPA's CDX may be maintained in electronic format.

i. For each owner or operator reporting leachate or other liquids addition under Condition 106.l, 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.

j. The Permittee shall maintain a copy of the SSM plan and SSM plan reports on site. Failure to write, implement, or maintain a copy of the SSM plan is a deviation from the requirements of 40 CFR 63 Subpart AAAA.