STATE OF TENNESSEE
AIR POLLUTION CONTROL BOARD
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
NASHVILLE, TENNESSEE 37243

OPERATING PERMIT (TITLE V) Issued Pursuant to Tennessee Air Quality Act

This permit fulfills the requirements of Title V of the Federal Clean Air Act (42 U.S.C. 7661a-7661e) and the federal regulations promulgated thereunder at 40 CFR Part 70. (FR Vol. 57, No. 140, Tuesday, July 21, 1992 p.32295-32312). This permit is issued in accordance with the provisions of paragraph 1200-03-09-.02(11) of the Tennessee Air Pollution Control Regulations. The permittee has been granted permission to operate an air contaminant source in accordance with emissions limitations and monitoring requirements set forth herein.

Date Issued: November 14, 2016 **Permit Number:** 569595

Date Expires: November 13, 2021

Issued To:
Santek Waste Services, LLC
(dba Loudon County (Matlock Bend) Landfill)

Installation Address:
21712 Highway 72
Loudon

Installation Description:
Municipal Solid Waste Landfill

NSPS Part 60 Subpart WWW
NESHAP Part 61 Subpart M

Emission Source Reference No.: 53-0110

Renewal Application Due Date:
Between February 16, 2021, and May 17, 2021

Primary SIC: 49

Information Relied Upon:
Title V Permit Application dated November 20, 2014
Letter dated April 22, 2016

(continued on next page)

Michael W. Averby
TECHNICAL SECRETARY

No Authority is Granted by this Permit to Operate, Construct, or Maintain any Installation in Violation of any Law, Statute, Code, Ordinance, Rule, or Regulation of the State of Tennessee or any of its Political Subdivisions.

POST AT INSTALLATION ADDRESS

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SECTION A
GENERAL PERMIT CONDITIONS

A permit issued under the provisions of paragraph 1200-03-09-.02(11) is a permit issued pursuant to the requirements of Title V of the Federal Act and its implementing Federal regulations promulgated at 40 CFR, Part 70.

A1. **Definitions.** Terms not otherwise defined in the permit shall have the meaning assigned to such terms in the referenced regulation.

TAPCR 1200-03

A2. **Compliance requirement.** All terms and conditions in a permit issued pursuant to paragraph 1200-03-09-.02(11) including any provisions designed to limit a source's potential to emit, are enforceable by the Administrator and citizens under the Federal Act.

The permittee shall comply with all conditions of its permit. Except for requirements specifically designated herein as not being federally enforceable (State Only), non-compliance with the permit requirements is a violation of the Federal Act and the Tennessee Air Quality Act and is grounds for enforcement action; for a permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application. Non-compliance with permit conditions specifically designated herein as not being federally enforceable (State Only) is a violation of the Tennessee Air Quality Act and may be grounds for these actions.

TAPCR 1200-03-09-.02(11)(e)2(i) and 1200-03-09-.02(11)(e)1(vi)(I)

A3. **Need to halt or reduce activity.** The need to halt or reduce activity is not a defense for noncompliance. 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 the permit. However, nothing in this item shall be construed as precluding consideration of a need to halt or reduce activity as a mitigating factor in assessing penalties for noncompliance if the health, safety or environmental impacts of halting or reducing operations would be more serious than the impacts of continuing operations.

TAPCR 1200-03-09-.02(11)(e)1(vi)(II)

A4. **The permit.** The permit may be modified, revoked, reopened, and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance does not stay any permit condition.

TAPCR 1200-03-09-.02(11)(e)1(vi)(III)

A5. **Property rights.** The permit does not convey any property rights of any sort, or any exclusive privilege.

TAPCR 1200-03-09-.02(11)(e)1(vi)(IV)

A6. **Submittal of requested information.** The permittee shall furnish to the Technical Secretary, within a reasonable time, any information that the Technical Secretary may request in writing to determine whether cause exists for modifying, revoking and reissuing, or termination of the permit or to determine compliance with the permit. Upon request, the permittee shall also furnish to the Technical Secretary copies of records required to be kept by the permit. If the permittee claims that such information is confidential, the Technical Secretary may review that claim and hold the information in protected status until such time that the Board can hear any contested proceedings regarding confidentiality disputes. If the information is desired by EPA, the permittee may mail the information directly to EPA. Any claims of confidentiality for federal purposes will be determined by EPA.

TAPCR 1200-03-09-.02(11)(e)1(vi)(V)

A7. **Severability clause.** The requirements of this permit are severable. A dispute regarding one or more requirements of this permit does not invalidate or otherwise excuse the permittee from their duty to comply with the remaining portion of the permit.

TAPCR 1200-03-09-.02(11)(e)1(v)

A8. Fee payment.

(a) The permittee shall pay an annual major source emission fee based upon the responsible official's choice of actual emissions or allowable emissions. An emission cap of 4,000 tons per year per regulated pollutant per major source SIC Code shall apply to actual or allowable based emission fees. A major source annual emission fee will not be charged for emissions in excess of the cap (s) or for carbon monoxide.

(b) Major sources who have filed a timely, complete operating permit application in accordance with 1200-03-09-.02(11), shall pay allowable emission based fees until the beginning of the next annual accounting period following receipt of their major source operating permit. At that time, the permittee shall begin paying their annual emission fee based upon their choice of actual or allowable based fees, or mixed actual and allowable based fees as stated under SECTION E of this permit. Once permitted, altering the existing choice shall be accomplished by a written request of the major source, filed in the office of the Technical Secretary at least one hundred eighty days prior to the expiration or reissuance of the major source operating permit.

(c) Major sources must conform to the following requirements with respect to fee payments:

1. If a major source choosing an allowable based annual emission fee wishes to restructure its allowable emissions for the purposes of lowering its annual emission fees, a mutually agreed upon, more restrictive regulatory requirement may be established to minimize the allowable emissions and thus the annual emission fee. The more restrictive requirement must be specified on the permit, and must include the method used to determine compliance with the limitation. The documentation procedure to be followed by the major source must also be included to insure that the limit is not exceeded. Restructuring the allowable emissions is permissible only in the annual accounting periods of eligibility and only, if the written request for restructuring is filed with the Technical Secretary at least 120 days prior to the beginning of the annual accounting period of eligibility. These periods of eligibility occur upon expiration of the initial major source operating permit, renewal of an expired major source operating permit or reissuance of a major source operating permit.

2. Beginning with the annual accounting period beginning July 1, 2004 to June 30, 2005, major sources paying on allowable based emission fees will be billed by the Division no later than April 1 prior to the end of the accounting period. The major source annual emission fee is due July 1 following the end of the accounting period.

3. Beginning with the annual accounting period beginning July 1, 2004 to June 30, 2005, major sources choosing an actual based annual emission fee shall file an actual emissions analysis with the Technical Secretary which summarizes the actual emissions of all regulated pollutants at the air contaminant sources of their facility. Based upon the actual emissions analysis, the source shall calculate the fee due and submit the payment and the analysis each July 1st following the end of the annual accounting period.

4. Beginning with the annual accounting period beginning July 1, 2004 to June 30, 2005, major sources choosing a mixture of allowable and actual based emission fees shall file an actual emissions and allowable emissions analysis with the Technical Secretary which summarizes the actual and allowable emissions of all regulated pollutants at the air contaminant sources of their facility. Based upon the analysis, the source shall calculate the fee due and submit the payment and the analysis each July 1st following the end of the annual accounting period.

The mixed based fee shall be calculated utilizing the 4,000 ton cap specified in subparagraph 1200-03-26-.02(2)(i). In determining the tonnages to be applied toward the regulated pollutant 4,000 ton cap in a mixed based fee, the source shall first calculate the actual emission based fees for a regulated pollutant and apply that tonnage toward the regulated pollutant's cap. The remaining tonnage available in the 4,000 ton category of a regulated pollutant shall be subject to allowable emission based fee calculations for the sources that were not included in the actual emission based fee calculations. Once the 4,000 ton cap has been reached for a regulated pollutant, no additional fee shall be required.

5. Major sources choosing to pay their major source annual emission fee based on actual based emissions or a mixture of allowable and actual based emissions may request an extension of time to file their emissions analysis with the Technical Secretary. The extension may be granted by the Technical Secretary up to ninety (90) days. The request for extension must be postmarked no later than July 1 or the request for extension shall be denied. The request for extension to file must state the reason and give an adequate explanation.

An estimated annual emission fee payment of no less than eighty percent (80%) of the fee due July 1 must accompany the request for extension to avoid penalties and interest on the underpayment of the annual emission fee. A remaining balance due must accompany the emission analysis. If there has been an overpayment, a refund may be requested in writing to the Division or be applied as a credit toward next year's major source annual emission fee. The

request for extension of time is not available to major sources choosing to pay their major source annual emission fee based on allowable emissions.

6. Newly constructed major sources or minor existing sources modifying their operations such that they become a major source in the midst of the standard July 1st to June 30th annual accounting period, shall pay allowable based annual emission fees for the fractional remainder of the annual accounting period commencing upon their start-up. At the beginning of the next annual accounting period, the "responsible official" of the source may choose to pay annual emission fees based on actual or allowable emissions or a mixture of the two as provided for in this rule 1200-03-26-.02.

(d) Where more than one (1) allowable emission limit is applicable to a regulated pollutant, the allowable emissions for the regulated pollutants shall not be double counted. Major sources subject to the provisions of paragraph 1200-03-26-.02(9) shall apportion their emissions as follows to ensure that their fees are not double counted.

1. Sources that are subject to federally promulgated hazardous air pollutant standards that can be imposed under Chapter 1200-03-11 or Chapter 1200-03-31 will place such regulated emissions in the specific hazardous air pollutant under regulation. If the pollutant is also in the family of volatile organic compounds or the family of particulates, the pollutant shall not be placed in that respective family category.

2. A miscellaneous category of hazardous air pollutants shall be used for hazardous air pollutants listed at part 1200-3-26-.02(2)(i)12 that do not have an allowable emission standard. A pollutant placed in this category shall not be subject to being placed in any other category such as volatile organic compounds or particulates.

3. Each individual hazardous air pollutant and the miscellaneous category of hazardous air pollutants is subject to the 4,000 ton cap provisions of subparagraph 1200-03-26-.02(2)(i).

4. Major sources that wish to pay annual emission fees for PM_{10} on an allowable emission basis may do so if they have a specific PM_{10} allowable emission standard. If a major source has a total particulate emission standard, but wishes to pay annual emission fees on an actual PM_{10} emission basis, it may do so if the PM_{10} actual emission levels are proven to the satisfaction of the Technical Secretary. The method to demonstrate the actual PM_{10} emission levels must be made as part of the source's major source operating permit in advance in order to exercise this option. The PM_{10} emissions reported under these options shall not be subject to fees under the family of particulate emissions. The 4,000 ton cap provisions of subparagraph 1200-03-26-.02(2)(i) shall also apply to PM_{10} emissions.

TAPCR 1200-03-26-.02 (3) and (9) and 1200-03-09-.02(11)(e)1(vii)

A9. **Permit revision not required.** A permit revision will not be required under any approved economic incentives, marketable permits, emissions trading and other similar programs or process for changes that are provided for in the permit.

TAPCR 1200-03-09-.02(11)(e)1(viii)

A10. **Inspection and entry.** Upon presentation of credentials and other documents as may be required by law, the permittee shall allow the Technical Secretary or his authorized representative to perform the following for the purposes of determining compliance with the permit applicable requirements:

(a) Enter upon, at reasonable times, the permittee's premises where a source is located or emissions-related activity is conducted, or where records must be kept under the conditions of the permit;

(b) Have access to and copy, at reasonable times, any records that must 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; and

(d) As authorized by the Clean Air Act and Chapter 1200-03-10 of TAPCR, sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the permit or applicable requirements.

(e) "Reasonable times" shall be considered to be customary business hours unless reasonable cause exists to suspect noncompliance with the Act, Division 1200-3 or any permit issued pursuant thereto and the Technical Secretary specifically authorizes an inspector to inspect a facility at any other time.

TAPCR 1200-03-09-.02(11)(e)3.(ii)

A11. **Permit shield.**

(a) Compliance with the conditions of this permit shall be deemed compliance with all applicable requirements as of the date of permit issuance, provided that:

1. Such applicable requirements are included and are specifically identified in the permit; or

2. The Technical Secretary, in acting on the permit application or revision, determines in writing that other requirements specifically identified are not applicable to the source, and the permit includes the determination or a concise summary thereof.

(b) Nothing in this permit shall alter or affect the following:

1. The provisions of section 303 of the Federal Act (emergency orders), including the authority of the Administrator under that section. Similarly, the provisions of T.C.A. §68-201-109 (emergency orders) including the authority of the Governor under the section;

2. The liability of an owner or operator of a source for any violation of applicable requirements prior to or at the time of permit issuance;

3. The applicable requirements of the acid rain program, consistent with section 408(a) of the Federal Act; or

4. The ability of EPA to obtain information from a source pursuant to section 114 of the Federal Act.

(c) Permit shield is granted to the permittee.

A12. Permit renewal and expiration.

(a) An application for permit renewal must be submitted at least 180 days, but no more than 270 days prior to the expiration of this permit. Permit expiration terminates the source's right to operate unless a timely and complete renewal application has been submitted.

(b) Provided that the permittee submits a timely and complete application for permit renewal the source will not be considered in violation of paragraph 1200-03-09-.02(11) until the Technical Secretary takes final action on the permit application, except as otherwise noted in paragraph 1200-03-09-.02(11).

(c) This permit, its shield provided in Condition A11, and its conditions will be extended and effective after its expiration date provided that the source has submitted a timely, complete renewal application to the Technical Secretary.

TAPCR 1200-03-09-.02(11)(f)3 and 2, 1200-03-09-.02(11)(d)1(i)(III), and 1200-03-09-.02(11)(a)2

A13. Reopening for cause.

(a) A permit shall be reopened and revised prior to the expiration of the permit under any of the circumstances listed below:

1. Additional applicable requirements under the Federal Act become applicable to the sources contained in this permit provided the permit has a remaining term of 3 or more years. Such a reopening shall be completed not later than 18 months after promulgation of the applicable requirement. No such reopening is required if the effective date of the requirement is later than the permit expiration date of this permit, unless the original has been extended pursuant to 1200-03-09-.02(11)(a)2.

2. Additional requirements become applicable to an affected source under the acid rain program.

3. The Technical Secretary or EPA 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.

4. The Technical Secretary or EPA determines that the permit must be revised or revoked to assure compliance with the applicable requirements.

(b) Proceedings to reopen and issue a permit shall follow the same proceedings as apply to initial permit issuance and shall affect only those parts of the permit for which cause to reopen exists, and not the entire permit. Such reopening shall be made as expeditiously as practicable.

(c) Reopenings for cause shall not be initiated before a notice of such intent is provided to the permittee by the Technical Secretary at least 30 days in advance of the date that the permit is to be reopened except that the Technical Secretary may provide a shorter time period in the case of an emergency. An emergency shall be established by the criteria of T.C.A. 68-201-109 or other compelling reasons that public welfare is being adversely affected by the operation of a source that is in compliance with its permit requirements.

(d) If the Administrator finds that cause exists to terminate, modify, or revoke and reissue a permit as identified in A13, he is required under federal rules to notify the Technical Secretary and the permittee of such findings in writing. Upon receipt of such notification, the Technical Secretary shall investigate the matter in order to determine if he agrees or disagrees with the

Administrator's findings. If he agrees with the Administrator's findings, the Technical Secretary shall conduct the reopening in the following manner:

1. The Technical Secretary shall, within 90 days after receipt of such notification, forward to EPA a proposed determination of termination, modification, or revocation and reissuance, as appropriate. If the Administrator grants additional time to secure permit applications or additional information from the permittee, the Technical Secretary shall have the additional time period added to the standard 90 day time period.

2. EPA will evaluate the Technical Secretary's proposed revisions and respond as to their evaluation.

3. If EPA agrees with the proposed revisions, the Technical Secretary shall proceed with the reopening in the same manner prescribed under Condition A13 (b) and Condition A13 (c).

4. If the Technical Secretary disagrees with either the findings or the Administrator that a permit should be reopened or an objection of the Administrator to a proposed revision to a permit submitted pursuant to Condition A13(d), he shall bring the matter to the Board at its next regularly scheduled meeting for instructions as to how he should proceed. The permittee shall be required to file a written brief expressing their position relative to the Administrator's objection and have a responsible official present at the meeting to answer questions for the Board. If the Board agrees that EPA is wrong in their demand for a permit revision, they shall instruct the Technical Secretary to conform to EPA's demand, but to issue the permit under protest preserving all rights available for litigation against EPA.

TAPCR 1200-03-09-.02(11)(f)6 and 7.

A14. **Permit transference.** An administrative permit amendment allows for a change of ownership or operational control of a source where the Technical Secretary determines that no other change in the permit is necessary, provided that the following requirements are met:

(a) Transfer of ownership permit application is filed consistent with the provisions of 1200-03-09-.03(6), and

(b) written agreement containing a specific date for transfer of permit responsibility, coverage, and liability between the current and new permittee has been submitted to the Technical Secretary.

TAPCR 1200-03-09-.02(11)(f)4(i)(IV) and 1200-3-9-.03(6)

A15. **Air pollution alert.** When the Technical Secretary has declared that an air pollution alert, an air pollution warning, or an air pollution emergency exists, the permittee must follow the requirements for that episode level as outlined in TAPCR 1200-03-09-.03(1) and TAPCR 1200-03-15-.03.

A16. **Construction permit required.** Except as exempted in TAPCR 1200-03-09-.04, or excluded in subparagraph TAPCR 1200-03-02-.01(1)(aa) or subparagraph TAPCR 1200-03-02-.01(1)(cc), this facility shall not begin the construction of a new air contaminant source or the modification of an air contaminant source which may result in the discharge of air contaminants without first having applied for and received from the Technical Secretary a construction permit for the construction or modification of such air contaminant source. The construction and operation of landfill gas flares and landfill cells in the current permitted volume design capacity of the landfill are exempt from the permitting requirements of this condition, except as the landfill operation may be regulated by the applicable requirements of 40 CFR 60 Subpart WWW. A landfill horizontal or vertical expansion to increase the volume design capacity of the landfill shall require a permit modification.

TAPCR 1200-03-09-.01(1)(a)

A17. **Notification of changes.** The permittee shall notify the Technical Secretary 30 days prior to commencement of any of the following changes to an air contaminant source which would not be a modification requiring a construction permit.

(a) change in air pollution control equipment

(b) change in stack height or diameter

(c) change in exit velocity of more than 25 percent or exit temperature of more than 15 percent based on absolute temperature.

TAPCR 1200-03-09-.02(7)

A18. **Schedule of compliance.** The permittee will comply with any applicable requirement that becomes effective during the permit term on a timely basis. If the permittee is not in compliance, the permittee must submit a schedule for coming into compliance, which must include a schedule of remedial measure(s), including an enforceable set of deadlines for specific actions.

TAPCR 1200-03-09-.02(11)(d)3 and 40 CFR Part 70.5(c)

A19. Title VI.

(a) The permittee shall comply with the standards for recycling and emissions reduction pursuant to 40 CFR, Part 82, Subpart F, except as provided for motor vehicle air conditioners (MVACs) in Subpart B:

1. Persons opening appliances for maintenance, service, repair, or disposal must comply with the required practices pursuant to Section 82.156.

2. Equipment used during the maintenance, service, repair, or disposal of appliances must comply with the standards for recycling and recovery equipment pursuant to Section 82.158.

3. Persons performing maintenance, service, repair, or disposal of appliances must be certified by an approved technician certification program pursuant to Section 82.161.

(b) If the permittee performs a service on motor (fleet) vehicles when this service involves ozone depleting substance refrigerant in the motor vehicle air conditioner (MVAC), the permittee is subject to all the applicable requirements as specified in 40 CFR, Part 82, Subpart B, Servicing of Motor Vehicle Air Conditioners.

(c) The permittee shall be allowed to switch from any ozone-depleting substance to any alternative that is listed in the Significant New Alternatives Program (SNAP) promulgated pursuant to 40 CFR, Part 82, Subpart G, Significant New Alternatives Policy Program.

A20. 112 (r). The permittee shall comply with the requirement to submit to the Administrator or designated State Agency a risk management plan, including a registration that reflects all covered processes, by June 21, 1999, if the permittee's facility is required pursuant to 40 CFR 68 to submit such a plan.

TAPCR 1200-03-32-.03(3)

SECTION B

GENERAL CONDITIONS for MONITORING, REPORTING, and ENFORCEMENT

B1. **Recordkeeping.** Monitoring and related record keeping shall be performed in accordance with the requirements specified in the permit conditions for each individual permit unit. In no case shall reports of any required monitoring and record keeping be submitted less frequently than every six months.

(a) Where applicable, records of required monitoring information include the following:

1. The date, place as defined in the permit, and time of sampling or measurements;
2. The date(s) analyses were performed;
3. The company or entity that performed the analysis;
4. The analytical techniques or methods used;
5. The results of such analyses; and
6. The operating conditions as existing at the time of sampling or measurement.

(b) Digital data accumulation which utilizes valid data compression techniques shall be acceptable for compliance determination as long as such compression does not violate an applicable requirement and its use has been approved in advance by the Technical Secretary.

TAPCR 1200-03-09-.02(11)(e)1(iii)

B2. **Retention of monitoring data.** 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 for continuous monitoring instrumentation, and copies of all reports required by the permit.

TAPCR 1200-03-09-.02(11)(e)1(iii)(II)II

B3. **Reporting.** Reports of any required monitoring and record keeping shall be submitted to the Technical Secretary in accordance with the frequencies specified in the permit conditions for each individual permit unit. Reporting periods will be dated from the end of the first complete calendar quarter following issuance of this permit unless otherwise noted. Reports shall be submitted within 60 days of the close of the reporting period unless otherwise noted. All instances of deviations from permit requirements must be clearly identified in such reports. All required reports must be certified by a responsible official. Reports required under "State only requirements" are not required to be certified by a responsible official.

TAPCR 1200-03-09-.02(11)(e)1(iii)

B4. **Certification.** Except for reports required under "State Only" requirements, any application form, report or compliance certification submitted pursuant to the requirements of this permit shall contain certification by a responsible official of truth, accuracy and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate and complete.

TAPCR 1200-03-09-.02(11)(d)4

B5. **Annual compliance certification.** The permittee shall submit annually compliance certifications with the terms and conditions contained in Sections A, B, D and E of this permit, including emission limitations, standards, or work practices. This compliance certification shall include all of the following (provided that the identification of applicable information may cross-reference the permit or previous reports, as applicable):

(a) The identification of each term or condition of the permit that is the basis of the certification;

(b) The identification of the method(s) or other means used by the owner or operator for determining the compliance status with each term and condition during the certification period; such methods and other means shall include, at a minimum, the methods and means required by this permit. If necessary, the owner or operator also shall identify any other material information that must be included in the certification to comply with section 113(c)(2) of the Federal Act, which prohibits knowingly making a false certification or omitting material information;

(c) 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 method or means designated in B5(b) above. The certification shall identify each deviation and take it into account in the compliance certification. The certification shall also identify as possible exceptions to compliance any periods during which compliance is required and in which an *excursion or **exceedance as defined below occurred; and

(d) Such other facts as the Technical Secretary may require to determine the compliance status of the source.

* "Excursion" shall mean a departure from an indicator range established for monitoring under this paragraph, consistent with any averaging period specified for averaging the results of the monitoring.

** "Exceedance" shall mean a condition that is detected by monitoring that provides data in terms of an emission limitation or standard and that indicates that emissions (or opacity) are greater than the applicable emission limitation or standard (or less than the applicable standard in the case of a percent reduction requirement) consistent with any averaging period specified for averaging the results of the monitoring.

40 CFR Part 70.6(c)(5)(iii) as amended in the Federal Register Vol. 79, No.144, July 28, 2014, pages 43661 through 43667

B6. **Submission of compliance certification.** The compliance certification shall be submitted to:

The Tennessee Department of Environment and Conservation Environmental Field Office specified in Section E of this permit	and	Air and EPCRA Enforcement Branch US EPA Region IV 61 Forsyth Street, SW Atlanta, Georgia 30303

TAPCR 1200-03-09-.02(11)(e)3(v)(IV)

B7. **Emergency provisions.** An emergency constitutes an affirmative defense to an enforcement action brought against this source for noncompliance with a technology based emission limitation due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventative maintenance, careless or improper operation, or operator error.

(a) The affirmative defense of the emergency shall be demonstrated through properly signed, contemporaneous operating logs, or other relevant evidence that:

1. An emergency occurred and that the permittee can identify the probable cause(s) of the emergency. "Probable" must be supported by a credible investigation into the incident that seeks to identify the causes and results in an explanation supported by generally accepted engineering or scientific principles.

2. The permitted source was at the time being properly operated. In determining whether or not a source was being properly operated, the Technical Secretary shall examine the source's written standard operating procedures which were in effect at the time of the noncompliance and any other code as detailed below that would be relevant to preventing the noncompliance. Adherence to the source's standard operating procedures will be the test of adequate preventative maintenance, careless operation, improper operation or operator error to the extent that such adherence would prevent noncompliance. The source's failure to follow recognized standards of practice to the extent that adherence to such a standard would have prevented noncompliance will disqualify the source from any claim of an emergency and an affirmative defense.

3. During the period of the emergency, the permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards, or other requirements in the permit.

4. The permittee submitted notice of the emergency to the Technical Secretary according to the notification criteria for malfunctions in rule 1200-03-20-.03. For the purposes of this condition, "emergency" shall be substituted for "malfunction(s)" in rule 1200-03-20-.03 to determine the relevant notification threshold. The notice shall include a description of the emergency, any steps taken to mitigate emissions, and corrective actions taken.

(b) In any enforcement proceeding the permittee seeking to establish the occurrence of an emergency has the burden of proof.

(c) The provisions of this condition are in addition to any emergency, malfunction or upset requirement contained in Division 1200-03 or other applicable requirement.

TAPCR 1200-03-09-.02(11)(e)7

B8. **Excess emissions reporting.**

(a) The permittee shall promptly notify the Technical Secretary when any emission source, air pollution control equipment, or related facility breaks down in such a manner to cause the emission of air contaminants in excess of the applicable emission standards contained in Division 1200-3 or any permit issued thereto, or of sufficient duration to cause damage to property or public health. The permittee must provide the Technical Secretary with a statement giving all pertinent facts, including the estimated duration of the breakdown. Violations of the visible emission standard which occur for less than 20 minutes in one day (midnight to midnight) need not be reported. Prompt notification will be within 24 hours of the malfunction and shall be provided by telephone to the Division's Nashville office. The Technical Secretary shall be notified when the condition causing the failure or breakdown has been corrected. In attainment and unclassified areas if emissions other than from sources designated as significantly impacting on a nonattainment area in excess of the standards will not and do not occur over more than a 24-hour period (or will not recur over more than a 24-hour period) and no damage to property and or public health is anticipated, notification is not required.

(b) Any malfunction that creates an imminent hazard to health must be reported by telephone immediately to the Division's Nashville office and to the State Civil Defense.

(c) A log of all malfunctions, startups, and shutdowns resulting in emissions in excess of the standards in Division 1200-3 or any permit issued thereto must be kept at the plant. All information shall be entered in the log no later than twenty-four (24) hours after the startup or shutdown is complete, or the malfunction has ceased or has been corrected. Any later discovered corrections can be added in the log as footnotes with the reason given for the change. This log must record at least the following:

1. Stack or emission point involved
2. Time malfunction, startup, or shutdown began and/or when first noticed
3. Type of malfunction and/or reason for shutdown
4. Time startup or shutdown was complete or time the air contaminant source returned to normal operation
5. The company employee making entry on the log must sign, date, and indicate the time of each log entry. The information under items 1. and 2. must be entered into the log by the end of the shift during which the malfunction or startup began. For any source utilizing continuous emission(s) monitoring, continuous emission(s) monitoring collection satisfies the above log keeping requirement.

TAPCR 1200-3-20-.03 and .04

B9. **Malfunctions, startups and shutdowns - reasonable measures required.** The permittee must take all reasonable measures to keep emissions to a minimum during startups, shutdowns, and malfunctions. These measures may include installation and use of alternate control systems, changes in operating methods or procedures, cessation of operation until the process equipment and/or air pollution control equipment is repaired, maintaining sufficient spare parts, use of overtime labor, use of outside consultants and contractors, and other appropriate means. Failures that are caused by poor maintenance, careless operation or any other preventable upset condition or preventable equipment breakdown shall not be considered malfunctions. This provision does not apply to standards found in 40 CFR, Parts 60 (Standards of performance for new stationary sources), 61 (National emission standards for hazardous air pollutants) and 63 (National emission standards for hazardous air pollutants for source categories).

TAPCR 1200-03-20-.02

B10. **Reserved**

TAPCR 1200-03-20-.04(2) (no longer in the SIP)

B11. **Report required upon the issuance of a notice of violation for excess emissions.** The permittee must submit within twenty (20) days after receipt of the notice of violation, the data shown below to assist the Technical Secretary in deciding whether to excuse or validate the violation. If this data has previously been available to the Technical Secretary prior to the issuance of the notice of violation no further action is required of the violating source. However, if the source desires to submit additional information, then this must be submitted within the same twenty (20) day time period. The minimum data requirements are:

(a) The identity of the stack and/or other emission point where the excess emission(s) occurred;

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

(c) The time and duration of the emissions;

(d) The nature and cause of such emissions;

(e) For malfunctions, the steps taken to correct the situation and the action taken or planned to prevent the recurrence of such malfunctions;

(f) The steps taken to limit the excess emissions during the occurrence reported, and

(g) If applicable, documentation that the air pollution control equipment, process equipment, or processes were at all times maintained and operated in a manner consistent with good operating practices for minimizing emissions.

Failure to submit the required report within the twenty (20) day period specified shall preclude the admissibility of the data for consideration of excusal for malfunctions.

TAPCR 1200-03-20-.06(2), (3) and (4)

SECTION C
PERMIT CHANGES

C1. **Operational flexibility changes.** The source may make operational flexibility changes that are not addressed or prohibited by the permit without a permit revision subject to the following requirements:

(a) The change cannot be subject to a requirement of Title IV of the Federal Act or Chapter 1200-03-30.

(b) The change cannot be a modification under any provision of Title I of the federal Act or Division 1200-03.

(c) Each change shall meet all applicable requirements and shall not violate any existing permit term or condition.

(d) The source must provide contemporaneous written notice to the Technical Secretary and EPA of each such change, except for changes that are below the threshold of levels that are specified in Rule 1200-03-09-.04.

(e) Each change shall be described in the notice including the date, any change in emissions, pollutants emitted, and any applicable requirements that would apply as a result of the change.

(f) The change shall not qualify for a permit shield under the provisions of part 1200-03-09-.02(11)(e)6.

(g) The permittee shall keep a record describing the changes made at the source that result in emissions of a regulated air pollutant subject to an applicable requirement, but not otherwise regulated under the permit, and the emissions resulting from those changes. The records shall be retained until the changes are incorporated into subsequently issued permits.

TAPCR 1200-03-09-.02(11)(a)4 (ii)

C2. **Section 502(b)(10) changes.**

(a) The permittee can make certain changes without requiring a permit revision, if the changes are not modifications under Title I of the Federal Act or Division 1200-03 and the changes do not exceed the emissions allowable under the permit. The permittee must, however, provide the Administrator and Technical Secretary with written notification within a minimum of 7 days in advance of the proposed changes. The Technical Secretary may waive the 7 day advance notice in instances where the source demonstrates in writing that an emergency necessitates the change. Emergency shall be demonstrated by the criteria of TAPCR 1200-03-09-.02(11)(e)7 and in no way shall it include changes solely to take advantages of an unforeseen business opportunity. The Technical Secretary and EPA shall attach each such notice to their copy of the relevant permit.

(b) The written notification must be signed by a facility Title V Responsible Official and include the following:

1. a brief description of the change within the permitted facility;

2. specifies the date on which the change will occur;

3. declares and quantifies where possible any change in emissions;

4. declares any permit term or condition that is no longer applicable as a result of the change; and

5. declares the requested change is not a Title I modification and will not exceed allowable emissions under the permit.

(c) The permit shield provisions of TAPCR 1200-03-09-.02(11)(e)6 shall not apply to Section 502(b)(10) changes.

TAPCR 1200-03-09-.02(11)(a)4 (i)

C3. **Administrative amendment.**

(a) Administrative permit amendments to this permit shall be in accordance with 1200-03-09-.02(11)(f)4. The source may implement the changes addressed in the request for an administrative amendment immediately upon submittal of the request.

(b) The permit shield shall be extended as part of an administrative permit amendment revision consistent with the provisions of TAPCR 1200-03-09-.02(11)(e)6 for such revisions made pursuant to item (c) of this condition which meet the relevant requirements of TAPCR 1200-03-09-0.02(11)(e), TAPCR 1200-03-09-.02(11)(f) and TAPCR 1200-03-09-.02(11)(g) for significant permit modifications.

(c) Proceedings to review and grant administrative permit amendments shall be limited to only those parts of the permit for which cause to amend exists, and not the entire permit.

TAPCR 1200-03-09-.02(11)(f)4

C4. **Minor permit modifications.**

(a) The permittee may submit an application for a minor permit modification in accordance with TAPCR 1200-03-09-.02(11)(f)5(ii).

(b) The permittee may make the change proposed in its minor permit modification immediately after an application is filed with the Technical Secretary.

(c) Proceedings to review and modify permits shall be limited to only those parts of the permit for which cause to modify exists, and not the entire permit.

(d) Minor permit modifications do not qualify for a permit shield.

TAPCR 1200-03-09-.02(11)(f)5(ii)

C5. **Significant permit modifications.**

(a) The permittee may submit an application for a significant modification in accordance with TAPCR 1200-03-09-.02(11)(f)5(iv).

(b) Proceedings to review and modify permits shall be limited to only those parts of the permit for which cause to modify exists, and not the entire permit.

TAPCR 1200-03-09-.02(11)(f)5(iv)

C6. **New construction or modifications.**

Future construction at this source that is subject to the provisions of TAPCR 1200-03-09-.01 shall be governed by the following:

(a) The permittee shall designate in their construction permit application the route that they desire to follow for the purposes of incorporating the newly constructed or modified sources into their existing operating permit. The Technical Secretary shall use that information to prepare the operating permit application submittal deadlines in their construction permit.

(b) Sources desiring the permit shield shall choose the administrative amendment route of TAPCR 1200-03-09-.02(11)(f)4 or the significant modification route of TAPCR 1200-03-09-.02(11)(f)5(iv).

(c) Sources desiring expediency instead of the permit shield shall choose the minor permit modification procedure route of TAPCR 1200-03-09-.02(11)(f)5(ii) or group processing of minor modifications under the provisions of TAPCR 1200-03-09-.02(11)(f)5(iii) as applicable to the magnitude of their construction.

TAPCR 1200-03-09-.02(11)(d) 1(i)(V)

SECTION D

GENERAL APPLICABLE REQUIREMENTS

D1. **Visible emissions.** With the exception of air emission sources exempt from the requirements of TAPCR Chapter 1200-03-05 and air emission sources for which a different opacity standard is specifically provided elsewhere in this permit, the permittee shall not cause, suffer, allow or permit discharge of a visible emission from any air contaminant source with an opacity in excess of twenty (20) percent for an aggregate of more than five (5) minutes in any one (1) hour or more than twenty (20) minutes in any twenty-four (24) hour period; provided, however, that for fuel burning installations with fuel burning equipment of input capacity greater than 600 million btu per hour, the permittee shall not cause, suffer, allow, or permit discharge of a visible emission from any fuel burning installation with an opacity in excess of twenty (20) percent (6-minute average) except for one six minute period per one (1) hour of not more than forty (40) percent opacity. Sources constructed or modified after July 7, 1992 shall utilize 6-minute averaging.

Consistent with the requirements of TAPCR Chapter 1200-3-20, due allowance may be made for visible emissions in excess of that permitted under TAPCR 1200-03-05 which are necessary or unavoidable due to routine startup and shutdown conditions. The facility shall maintain a continuous, current log of all excess visible emissions showing the time at which such conditions began and ended and that such record shall be available to the Technical Secretary or his representative upon his request.

TAPCR 1200-03-05-.01(1), TAPCR 1200-03-05-.03(6) and TAPCR 1200-03-05-.02(1)

D2. **General provisions and applicability for non-process gaseous emissions.** Any person constructing or otherwise establishing a non-portable air contaminant source emitting gaseous air contaminants after April 3, 1972, or relocating an air contaminant source more than 1.0 km from the previous position after November 6, 1988, shall install and utilize the best equipment and technology currently available for controlling such gaseous emissions.

TAPCR 1200-03-06-.03(2)

D3. **Non-process emission standards.** The permittee shall not cause, suffer, allow, or permit particulate emissions from non-process sources in excess of the standards in TAPCR 1200-03-06.

D4. **General provisions and applicability for process gaseous emissions.** Any person constructing or otherwise establishing an air contaminant source emitting gaseous air contaminants after April 3, 1972, or relocating an air contaminant source more than 1.0 km from the previous position after November 6, 1988, shall install and utilize equipment and technology which is deemed reasonable and proper by the Technical Secretary.

TAPCR 1200-03-07-.07(2)

D5. **Particulate emissions from process emission sources.** The permittee shall not cause, suffer, allow, or permit particulate emissions from process sources in excess of the standards in TAPCR 1200-03-07.

D6. **Sulfur dioxide emission standards.** The permittee shall not cause, suffer, allow, or permit Sulfur dioxide emissions from process and non-process sources in excess of the standards in TAPCR 1200-03-14. Regardless of the specific emission standard, new process sources shall utilize the best available control technology as deemed appropriate by the Technical Secretary of the Tennessee Air Pollution Control Board.

D7. **Fugitive Dust.**

(a) The permittee shall not cause, suffer, allow, or permit any materials to be handled, transported, or stored; or a building, its appurtenances, or a road to be used, constructed, altered, repaired, or demolished without taking reasonable precautions to prevent particulate matter from becoming airborne. Such reasonable precautions shall include, but not be limited to, the following:

1. Use, where possible, of water or chemicals for control of dust in demolition of existing buildings or structures, construction operations, grading of roads, or the clearing of land;

2. Application of asphalt, oil, water, or suitable chemicals on dirt roads, material stock piles, and other surfaces which can create airborne dusts;

3. Installation and use of hoods, fans, and fabric filters to enclose and vent the handling of dusty materials. Adequate containment methods shall be employed during sandblasting or other similar operations.

(b) The permittee shall not cause, suffer, allow, or permit fugitive dust to be emitted in such manner to exceed five (5) minutes per hour or twenty (20) minutes per day as to produce a visible emission beyond the property line of the property on which the emission originates, excluding malfunction of equipment as provided in Chapter 1200-3-20.

TAPCR 1200-03-08

D8. **Open burning.** The permittee shall comply with the TAPCR 1200-03-04-.04 for all open burning activities at the facility.

TAPCR 1200-03-04

D9. **Asbestos.** Where applicable, the permittee shall comply with the requirements of 1200-03-11-.02(d) when conducting any renovation or demolition activities at the facility.

TAPCR 1200-03-11-.02(d) and 40 CFR, Part 61

D10. **Annual certification of compliance.** The generally applicable requirements set forth in Section D of this permit are intended to apply to activities and sources that are not subject to source-specific applicable requirements contained in State of Tennessee and U.S. EPA regulations. By annual certification of compliance, the permittee shall be considered to meet the monitoring and related record keeping and reporting requirements of TAPCR 1200-03-09-.02(11)(e)1.(iii) and 1200-03-10-.04(2)(b)1 and compliance requirements of TAPCR 1200-03-09-.02(11)(e)3.(i). The permittee shall submit compliance certification for these conditions annually.

SECTION E

SOURCE SPECIFIC EMISSION STANDARDS, OPERATING LIMITATIONS, and MONITORING, RECORDKEEPING and REPORTING REQUIREMENTS

53-0110	**Facility Description:**	Santek Waste Services, LLC dba Loudon County (Matlock Bend) Landfill is a municipal solid waste landfill located in Loudon. The landfill (53-0110) is subject to the **New Source Performance Standards (NSPS) for Municipal Solid Waste Landfills of 40 CFR 60 Subpart WWW, but not subject to the gas collection and control requirements of this rule.** The facility determined by Tier 2 testing that emissions of nonmethane organic compounds (NMOC) are less than 50 megagrams per year; consequently, the facility is not presently subject to the landfill gas collection and control system installation requirements of the NSPS rule or the requirements of **40 CFR 63 Subpart AAAA (National Emission Standards for Hazardous Air Pollutants for Municipal Solid Waste Landfills).**

E1. Fee payment: actual emissions basis.

FEE EMISSIONS SUMMARY TABLE FOR MAJOR SOURCE 53-0110

REGULATED POLLUTANTS	ALLOWABLE EMISSIONS (tons per AAP)	ACTUAL EMISSIONS (tons per AAP)	COMMENTS
PARTICULATE MATTER (PM)	N/A	AEAR	
PM_{10}	N/A	AEAR	
SO_2	N/A	AEAR	
VOC	N/A	AEAR	
NO_X	N/A	AEAR	
CATEGORY OF MISCELLANEOUS HAZARDOUS AIR POLLUTANTS (HAP WITHOUT A STANDARD)*			
VOC FAMILY GROUP	N/A	N/A	See Notes Below****
NON-VOC GASEOUS GROUP	N/A	N/A	See Notes Below****
PM FAMILY GROUP	N/A	N/A	
CATEGORY OF SPECIFIC HAZARDOUS AIR POLLUTANTS (HAP WITH A STANDARD)**			
VOC FAMILY GROUP	N/A	N/A	
NON-VOC GASEOUS GROUP	N/A	N/A	
PM FAMILY GROUP	N/A	N/A	
CATEGORY OF NSPS POLLUTANTS NOT LISTED ABOVE***			
EACH NSPS POLLUTANT NOT LISTED ABOVE	N/A	N/A	

NOTES

AAP The **Annual Accounting Period (AAP)** is a twelve (12) consecutive month period that **begins each July 1st and ends June 30th of the following year.** The **present Annual Accounting Period began July 1, 2016, and ends June 30, 2017.** The **next Annual Accounting Period begins July 1, 2017, and ends June 30, 2018.**

N/A **N/A** indicates that no emissions are specified for fee computation.

AEAR **AEAR** indicates that an Actual Emissions Analysis is Required to determine the actual emissions of:

(1) **each regulated pollutant** (Particulate matter, SO_2, VOC, NO_X and so forth. See TAPCR 1200-03-26-.02(2)(i) for the definition of a regulated pollutant.),

(2) **each pollutant group** (VOC Family, Non-VOC Gaseous, and Particulate Family), and

(3) the **Miscellaneous HAP Category**
under consideration during the **Annual Accounting Period.**

* **Category Of Miscellaneous HAP (HAP Without A Standard):** This category is made-up of hazardous air pollutants that do not have a federal or state standard. Each HAP is classified into one of three groups, the **VOC Family** group, **the Non-VOC Gaseous** group, or the **Particulate (PM) Family** group. **For fee computation**, the **Miscellaneous HAP Category** is subject to the 4,000 ton cap provisions of subparagraph 1200-3-26-.02(2)(i).

** **Category Of Specific HAP (HAP With A Standard):** This category is made-up of hazardous air pollutants (HAP) that are subject to Federally promulgated Hazardous Air Pollutant Standards that can be imposed under Chapter 1200-03-11 or Chapter 1200-03-31. Each individual hazardous air pollutant is classified into one of three groups, the **VOC Family** group, **the Non-VOC Gaseous** group, or the **Particulate (PM) Family** group. **For fee computation**, each individual hazardous air pollutant of the **Specific HAP Category** is subject to the 4,000 ton cap provisions of subparagraph 1200-03-26-.02(2)(i).

*** **Category Of NSPS Pollutants Not Listed Above:** This category is made-up of each New Source Performance Standard (NSPS) pollutant whose emissions are not included in the **PM, SO_2, VOC** or **NO_X** emissions from each source in this permit. **For fee computation**, each **NSPS pollutant not listed above** is subject to the 4,000 ton cap provisions of subparagraph 1200-03-26-.02(2)(i).

**** **HAP of Fee Table:** negligible amounts of HAPs may be emitted per AP-42 emission factors.

END NOTES

The permittee shall:

(1) Pay major source annual **emission fees**, as requested by the responsible official, for each annual accounting period (AAP) by July 1 of each year.

(2) Prepare an **actual emissions analysis** in accordance with the above **Fee Emissions Summary Table** for each AAP (July 1 of each year through June 30 of the following year). If the permittee has elected to report emissions every five years as available in **Condition E4-3(a)** of this permit, then the actual emissions analysis is not required and the five year report shall serve as the actual emissions analysis. The **actual emissions analysis** shall include:
- (a) the completed **Fee Emissions Summary Table, and**
- (b) each **AEAR** required by the above **Fee Emissions Summary Table.**

(3) Submit the **actual emissions analysis** at the time the fees are paid in full unless the permittee has elected to report emissions every five years as available in **Condition E4-3(a)** of this permit.

(4) Calculate the fee due based upon the **current NMOC reporting or the minimum Title V fee**, and submit the payment on July 1st following the end of the **annual accounting period**. If any part of any fee imposed under TAPCR 1200-03-26-.02 is not paid within fifteen (15) days of the due date, penalties shall at once accrue as specified in TAPCR 1200-03-26-.02(8). Major sources may request an extension of time to file their emissions analysis with the Technical Secretary as specified in Condition A8(c)5 of this permit. Emissions for regulated pollutants shall not be double counted as specified in Condition A8(d) of this permit.

The actual emissions analysis shall be submitted to The Technical Secretary at either of the addresses below:

Tennessee Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 15th Floor
Nashville, TN 37243

Or via electronic submittal:
Adobe Portable Document Format (PDF) Copy to:
Air.Pollution.Control@tn.gov

Payment of the fee due shall be submitted to the following address:

Tennessee Department of Environment and Conservation
Division of Fiscal Services
Consolidated Fee Section – APC
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 10th Floor
Nashville, TN 37243

TAPCR 1200-03-26-.02 (3) and (9), and 1200-03-09-.02(11)(e)1 (iii) and (vii)

E2. Reporting requirements.

(a) Annual compliance certification. The permittee shall submit annually compliance certifications with the terms and conditions contained in Sections A, B, D and E of this permit, including emission limitations, standards, or work practices. This compliance certification shall include all of the following (provided that the identification of applicable information may cross-reference the permit or previous reports, as applicable):

(1) The identification of each term or condition of the permit that is the basis of the certification;

(2) The identification of the method(s) or other means used by the owner or operator for determining the compliance status with each term and condition during the certification period; such methods and other means shall include, at a minimum, the methods and means required by this permit. If necessary, the owner or operator also shall identify any other material information that must be included in the certification to comply with section 113(c)(2) of the Federal Act, which prohibits knowingly making a false certification or omitting material information;

(3) 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 method or means designated in E2(a)2 above. The certification shall identify each deviation and take it into account in the compliance certification. The certification shall also identify as possible exceptions to compliance any periods during which compliance is required and in which an *excursion or **exceedance as defined below occurred; and

(4) Such other facts as the Technical Secretary may require to determine the compliance status of the source.

* "Excursion" shall mean a departure from an indicator range established for monitoring under this paragraph, consistent with any averaging period specified for averaging the results of the monitoring.

** "Exceedance" shall mean a condition that is detected by monitoring that provides data in terms of an emission limitation or standard and that indicates that emissions (or opacity) are greater than the applicable emission limitation or standard (or less than the applicable standard in the case of a percent reduction requirement) consistent with any averaging period specified for averaging the results of the monitoring.

These certifications shall be submitted within 60 days after the end of each calendar year to: Tennessee Division of Air Pollution Control (TN APCD) and EPA. The certifications may be submitted to TN APCD at the address below or via electronic mail.

Technical Secretary
Knoxville Environmental Field Office
Tennessee Division of Air Pollution Control
3711 Middlebrook Pike
Knoxville, TN 37921

and

Air and EPCRA Enforcement Branch
US EPA Region IV
61 Forsyth Street, SW
Atlanta, Georgia 30303

Or via electronic submittal:
Adobe Portable Document Format (PDF)
Copy to: APC.KnoxEFO@tn.gov

The first certification submittal for this permit shall be due by March 1, 2018, for the calendar year 2017.

40 CFR Part 70.6(c)(5)(iii) as amended in the Federal Register Vol. 79, No.144, July 28, 2014, pages 43661 through 43667

(b) **Retention of Records** All records required by any condition in Section E of this permit must be retained for a period of not less than five years. Additionally, these records shall be kept available for inspection by the Technical Secretary or his representative.

TAPCR 1200-03-09-.02(11)(e)1.(iii)(II)II

E3. General Permit Conditions

E3-1. Identification of Responsible Official, Technical Contact, and Billing Contact

a) The application that was utilized in the preparation of this permit is dated November 20, 2014, and signed by the Responsible Official Matt Dillard, Executive VP of Operations of the permitted facility. If this person terminates employment or is assigned different duties and is no longer a Responsible Official for this facility as defined in part 1200-03-09-.02(11)(b)21 of the Tennessee Air Pollution Control Regulations, the owner or operator of this air contaminant source shall notify the Technical Secretary of the change. Said notification must be in writing and must be submitted within thirty (30) days of the change. The notification shall include the name and title of the new Responsible Official and certification of truth and accuracy. All representations, agreement to terms and conditions, and covenants made by the former Responsible Official that were used in the establishment of the permit terms and conditions will continue to be binding on the facility until such time that a revision to this permit is obtained that would change said representations, agreements, and/or covenants.

b) The letter that was utilized in the preparation of this permit is dated April 22, 2016, and identifies Robert Hudson as the Principal Technical Contact for the permitted facility. If this person terminates employment or is assigned different duties and is no longer the Principal Technical Contact for this facility, the owner or operator of this air contaminant source shall notify the Technical Secretary of the change. Said notification must be in writing and must be submitted within thirty (30) days of the change. The notification shall include the name and title of the new Principal Technical Contact and certification of truth and accuracy.

c) The application that was utilized in the preparation of this permit is dated November 20, 2014, and identifies Matt Dillard as the Billing Contact for the permitted facility. If this person terminates employment or is assigned different duties and is no longer the Billing Contact for this facility, the owner or operator of this air contaminant source shall notify the Technical Secretary of the change. Said notification must be in writing and must be submitted within thirty (30) days of the change. The notification shall include the name and title of the new Billing Contact and certification of truth and accuracy.

TAPCR 1200-03-09-.02(6)

E3-2. The passive vent flares that are used at the landfill are "smokeless flares or safety flares for the combustion of waste gases." Therefore the flares are considered "exempt" based on Rule 1200-03-04-.04(1)(g) of the Tennessee Air Pollution Control Regulations (TAPCR). Provided the landfill is required in the future to install a landfill gas collection and control system in accordance with the **New Source Performance Standards (NSPS) for Municipal Solid Waste Landfills of 40 CFR 60 Subpart WWW**, a control system used to comply with the NSPS rule will be required to meet the specific requirements of the NSPS rule.

TAPCR 1200-03-04-.04(1)

E3-3. The permittee is not required to file an accidental release plan pursuant to **Section 112(r) of the Clean Air Act** and Chapter 1200-03-32 of the TAPCR.

TAPCR 1200-03-32

E3-4. This facility is not subject to the requirements of **40 CFR Part 64 (Compliance Assurance Monitoring).**

TAPCR 1200-03-09-.03(8) and 40 CFR Part 64

E3-5. Insignificant activities identified in the Title V application per Rules 1200-03-09-.04(5) and 1200-03-04-.04(1) of the Tennessee Air Pollution Control Regulations are listed below. Additional insignificant activities may be added and operated at any time with the provision that a written notification shall be submitted to the Technical Secretary including an updated APC V.2 application form with a Truth, Accuracy, and Completeness statement signed by a responsible official. The permit may be updated to include additional insignificant sources by means of an administrative amendment if necessary.

Activity or Emissions Unit	Rule (TAPCR) for Insignificant or Exempt Status
2,000 gallon diesel fuel storage tank	1200-03-09-.04(5)(f)17
3 x 500 gallon Motor Oil, Hydraulic Oil, and Transmission fluid storage tanks	1200-03-09-.04(5)(f)17
250 gallon used oil storage tank	1200-03-09-.04(5)(a)4(i)
3 x 10,000 gallon leachate storage tanks	1200-03-09-.04(5)(a)4(i)
100,000 gallon leachate storage tank	1200-03-09-.04(5)(a)4(i)
Portable Air Compressor	1200-03-09-.04(5)(g)18
Portable Pressure Washer	1200-03-09-.04(5)(a)4(i)
6 Passive Utility (Open) Flares (for leachate cleanout risers)	1200-03-04-.04(1)(g)
Paved/ unpaved roads and parking areas	1200-03-09-.04(5)(f) 1 and 2

TAPCR 1200-03-09-.04(5) and TAPCR 1200-03-04-.04(1)

E3-6. The permittee shall comply with all applicable federal and state regulations concerning the operation of the sources in this permit. This includes but is not limited to federal regulations published under **40 CFR Part 63** for sources of hazardous air pollutants and **40 CFR Part 60, New Source Performance Standards.**

TAPCR 1200-03-09-.03(8)

E3-7. The sources in this permit shall operate in accordance with the terms of this permit and the information submitted in the approved application.

TAPCR 1200-03-09-.02(6) and the application dated November 20, 2014

E3-8. **Asbestos:** This landfill receives, handles, and disposes of asbestos containing material. The handling and disposal of regulated-asbestos-containing material must be managed in accordance with those applicable requirements in the current **National Emission Standard for Asbestos of 40 CFR Part 61 Subpart M** and the current Rule 1200-03-11-.02 of the Tennessee Air Pollution Control Regulations (TAPCR) listed in Attachments 2 and 3 of this permit. It should be noted this is no new requirement, and the existing regulations have been in place. However, regulatory citations are now included in this permit to explicitly specify the requirements. Upon receipt of asbestos at the landfill, the permittee is subject to the **Standard for Active Disposal Sites** per Rule 1200-03-11-.02(5) of the TAPCR and the federal counterpart 40 CFR §61.154. Upon closure of an active disposal site, the permittee shall comply with the provisions of Rule 1200-03-11-.02(2)(l) of the TAPCR entitled **Standard for Inactive Waste Disposal Sites for Asbestos Mills and Manufacturing and Fabricating Operations** and the federal counterpart 40 CFR §61.151.

TAPCR 1200-03-11-.02, TAPCR 1200-03-09-.03(8) and 40 CFR Part 61 Subpart M

E3-9. **Visible Emissions:** Visible emissions from this source shall not exhibit greater than twenty percent (20%) opacity, except for one (1) six-minute period in any one (1) hour period, and for no more than four (4) six-minute periods in any twenty-four (24) hour period. Visible emissions from this source shall be determined by EPA Method 9, as published in the current 40 CFR 60, Appendix A (six-minute average).

TAPCR 1200-03-05-.03(6) and TAPCR 1200-03-05-.01(1)

Compliance Method: The permittee is currently not required to conduct periodic monitoring and reporting of visible emission evaluations of any existing landfill operations.

E3-10. **Recordkeeping:** If required by the conditions of this permit, recordkeeping requirements for this source, including all data and calculations, must be updated and maintained based on the following schedule:

Record Keeping Type	Update Requirement
Monthly Log	Recorded within 30 days after the end of the month
Weekly Log	Recorded within 7 days after the end of the week
Daily Log	Recorded within 7 days after the end of the day

Records shall be recorded in a permanent suitable format and retained at the source location for a period of not less than five (5) years.

TAPCR 1200-03-10-.04(2)(b) and TAPCR 1200-03-09-.02(11)(e)1.(iii)

E4. Source Specific Conditions for New Source Performance Standards (NSPS) for Municipal Solid Waste Landfills of 40 CFR 60 Subpart WWW

53-0110	**Source Description:**	Santek Waste Services, LLC dba Loudon County (Matlock Bend) Landfill is a municipal solid waste landfill near the city of Loudon. The landfill is owned by the Loudon County Solid Waste Disposal Commission and operated by Santek Waste Services, LLC. The landfill has a design capacity of 4.141 million tons (3.765 million megagrams) and is subject to the **New Source Performance Standards (NSPS) for Municipal Solid Waste Landfills of 40 CFR 60 Subpart WWW.** Emissions of nonmethane organic compounds (NMOC) are less than 50 megagrams per year; consequently, the landfill is not presently subject to the gas collection and control system installation requirements of the NSPS rule or the requirements of **40 CFR 63 Subpart AAAA (National Emission Standards for Hazardous Air Pollutants for Municipal Solid Waste Landfills).** In April 2014, a Tier 2 test was conducted at the facility, and based upon the test results NMOC emissions will remain below 50 megagrams per year through 2019. A Tier 2 Five Year retest will be conducted in 2019.

E4-1. Except as provided in 40 CFR §60.752(b)(2)(i)(B), the permittee shall keep for at least five (5) years up-to-date, readily accessible, on-site records of the design capacity report which triggered 40 CFR §60.752(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 four (4) hours. Either paper copy or electronic formats are acceptable.

TAPCR 1200-03-09-.03(8) and 40 CFR 60 Subpart WWW - §60.758(a)

E4-2. The permittee shall calculate an NMOC emission rate for the landfill using the procedures specified in **Condition E4-5.** The NMOC emission rate shall be recalculated annually, except as provided in **Condition E4-3(a).** If the calculated NMOC emission rate is less than 50 megagrams per year, the permittee shall:

(a) Submit an annual NMOC emission rate report to the Technical Secretary, except as provided for in **Conditions E4-3(a)** and **E4-3(c)**; and

(b) Recalculate the NMOC emission rate annually, except as provided in **Condition E4-3(a)**, using the procedures specified in **Condition E4-5** until such time as the calculated NMOC emission rate is equal to or greater than 50 megagrams per year, or the landfill is closed.

(1) If the NMOC emission rate, upon recalculation, is equal to or greater than 50 megagrams per year, the permittee shall notify the Technical Secretary and install a gas collection and control system in compliance with 40 CFR §60.752(b)(2), 40 CFR §60.753(a)(2), and 40 CFR §60.755(b). In addition, this permit will be reopened to include additional requirements as specified in **Condition E4-6.**

(2) If the landfill is permanently closed, a closure notification shall be submitted to the Technical Secretary as provided for in **Condition E4-7.**

TAPCR 1200-03-09-.03(8) and 40 CFR 60 Subpart WWW - §60.752(b)

E4-3. The permittee shall submit an NMOC emission rate report to the Technical Secretary annually, except as provided for in **Conditions E4-3(a)** and **E4-3(c).** The Technical Secretary may request such additional information as may be necessary to verify the reported NMOC emission rate.

(a) The NMOC emission rate report shall contain an annual or 5-year estimate of the NMOC emission rate calculated using the formulas and procedures provided in **Condition E4-5.**

If the estimated NMOC emission rate as reported in the annual report to the Technical Secretary 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 Technical Secretary. 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 Technical Secretary. 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.

These reports must be certified by a responsible official consistent with condition B4 of this permit and shall be submitted to The Technical Secretary at the address in Condition E4-5 of this permit.

(b) The NMOC emission rate report shall include all the data, calculations, sample reports and measurements used to estimate the annual or 5-year emissions. The annual report shall be submitted to the Division by July 1 of each year.

(c) The permittee is exempted from the requirements of **Conditions E4-3(a)** and **E4-3(b)**, after the installation of a collection and control system in compliance with 40 CFR §60.752(b)(2), during such time as the collection and control system is in operation and in compliance with 40 CFR §60.753 and 40 CFR §60.755.

TAPCR 1200-03-09-.03(8) and 40 CFR 60 Subpart WWW - §60.757(b)(1)(ii), (b)(2), and (b)(3)

E4-4. The permittee shall submit a landfill gas collection and control system design plan as required under 40 CFR §60.752(b)(2)(i) to the Technical Secretary within 1 year of the first report required under **Condition E4-3** in which the NMOC emission rate equals or exceeds 50 megagrams per year, except as follows:

(a) If permittee elects to recalculate the NMOC emission rate after **Tier 2** NMOC sampling and analysis as provided in **Condition E4-5(c)** and the resulting NMOC emission rate (for the entire landfill) is less than 50 megagrams per year, 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.

(b) 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 E4-5(d)** , and the resulting NMOC emission rate (for the entire landfill) is less than 50 Mg/yr, 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 E4-3** and the resulting site-specific methane generation rate constant (k) shall be submitted to the Technical Secretary within 1 year of the first calculated emission rate exceeding 50 megagrams per year.

The collection and control system design plan must meet the requirements of 40 CFR §60.752(b)(2)(i) and shall be submitted to The Technical Secretary at the address in Condition E4-5 of this permit.

TAPCR 1200-03-09-.03(8) and 40 CFR 60 Subpart WWW - §60.757(c)

E4-5. The permittee shall comply with the following requirements regarding test methods and procedures:

(a) The permittee shall calculate the NMOC emission rate using the equation provided in **Condition E4-5(a)(1),** the equation provided in **Condition E4-5(a)(2).** Both equations in **Condition E4-5(a)(1)** and in **Condition E4-5(a)(2)** may be used if the actual year-to-year solid waste acceptance rate is known, as specified in **Condition E4-5(a)(1),** for part of the life of the landfill; and the actual year-to-year solid waste acceptance rate is unknown, as specified in **Condition E4-5(a)(2),** for part of the life of the landfill. The values to be used in both equations are 0.05 per year for k, 170 cubic meters per megagram for L_O, and 4,000 parts per million by volume as hexane for the C_{NMOC}.

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

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

where,

M_{NMOC}	=	Total NMOC emission rate from the landfill, megagrams per year
k	=	methane generation rate constant, $year^{-1}$
L_O	=	methane generation potential, cubic meters per megagram solid waste
M_i	=	mass of solid waste in the i^{th} section, megagrams
t_i	=	age of the i^{th} section, years
C_{NMOC}	=	concentration of NMOC, parts per million by volume as hexane
3.6×10^{-9}	=	conversion factor

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.

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

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

where:

M_{NMOC}	=	mass emission rate of NMOC, megagrams per year
L_O	=	methane generation potential, cubic meters per megagram solid waste
R	=	average annual acceptance rate, megagrams per year
k	=	methane generation rate constant, $year^{-1}$
t	=	age of landfill, years
C_{NMOC}	=	concentration of NMOC, parts per million by volume as hexane
c	=	time since closure, years; for active landfill c = 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.

(3) After installation of a gas collection and control system in compliance with 40 CFR §60.755, the owner or operator shall calculate the NMOC emission rate for purposes of determining when the system can be removed as provided in 40 CFR §60.752(b)(2)(v), using the following equation:

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

Where:

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

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

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

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

(ii) The average NMOC concentration, C_{NMOC}, shall be determined by collecting and analyzing landfill gas sampled from the common header pipe before the gas moving or condensate removal equipment using the procedures in Method 25C or Method 18 of appendix A of 40 CFR part 60. If using Method 18 of Appendix A of 40 CFR part

60, 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 shall be before any condensate removal or other gas refining units. The landfill owner or operator shall divide the NMOC concentration from Method 25C of Appendix A of 40 CFR part 60 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 of the US Environmental Protection Agency.

(b) Tier 1. The permittee shall compare the calculated NMOC mass emission rate from **Condition E4-5(a)** above to the standard of 50 megagrams per year.

(i) If the NMOC emission rate calculated in **Condition E4-5(a)** is less than 50 megagrams per year, then the permittee shall submit a periodic NMOC emission rate report as provided in **Conditions E4-2(a)** and **E4-3**, and shall recalculate the NMOC mass emission rate periodically as required under **Condition E4-2(b)**.

(ii) If the calculated NMOC emission rate is equal to or greater than 50 megagrams per year, then the permittee shall either comply with the gas collection and control system requirements of 40 CFR §60.752(b)(2), or determine a site-specific NMOC concentration and recalculate the NMOC emission rate using the Tier 2 procedures provided in **Condition E4-5(c)**.

(c) Tier 2. **The permittee shall notify the Division's Compliance Validation Program at least 60 days prior to a Tier 2 test.** 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 landfill gas from each probe to determine the NMOC concentration using Method 25 or 25C of Appendix A of Part 60 of 40 CFR. Method 18 of Appendix A of Part 60 of 40 CFR may be used to analyze the samples collected by the Method 25 or 25C sampling procedure. Taking composite samples from different probes into a single cylinder is allowed; however, equal sample volumes must be taken from each probe. For each composite, the sampling rate, collection times, beginning and ending cylinder vacuums, or alternative volume measurements must be recorded to verify that composite volumes are equal. Composite sample volumes should not be less than one liter unless evidence can be provided to substantiate the accuracy of smaller volumes. Terminate compositing before the cylinder approaches ambient pressure where measurement accuracy diminishes. If using Method 18, the permittee must identify all compounds in the sample and, as a minimum, test for those compounds published in the most recent Compilation of Air Pollutant Emission Factors (AP–42), minus carbon monoxide, hydrogen sulfide, and mercury. As a minimum, the instrument must be calibrated for each of the compounds on the list. Convert the concentration of each Method 18 compound to C_{NMOC} as hexane by multiplying by the ratio of its carbon atoms divided by six. If more than the required number of samples is taken, all samples must be used in the analysis. The permittee must divide the NMOC concentration from Method 25 or 25C of Appendix A of Part 60 of 40 CFR 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.

(i) The permittee shall recalculate the NMOC mass emission rate using the equations provided in **Conditions E4-5(a)(1)** and **E4-5(a)(2)** and using the average NMOC concentration from the collected samples instead of the default value in the equation provided in **Condition E4-5(a)**.

(ii) If the resulting mass emission rate calculated using the site-specific NMOC concentration is equal to or greater than 50 megagrams per year, then the permittee shall either comply with the gas collection and control system requirements of 40 CFR §60.752(b)(2), or determine the site-specific methane generation rate constant and recalculate the NMOC emission rate using the site-specific methane generation rate using the Tier 3 procedure specified in **Condition E4-5(d)**.

(iii) If the resulting NMOC mass emission rate is less than 50 megagrams per year, the permittee shall submit a periodic NMOC emission rate report as provided in **Conditions E4-2(a)** and **E4-3** and retest the site-specific NMOC concentration every 5 years using the methods specified in **Condition E4-5(c)**.

(d) Tier 3. **The permittee shall notify the Division's Compliance Validation Program at least 60 days prior to a Tier 3 test.** The site-specific methane generation rate constant shall be determined using the procedures provided in Method 2E of Appendix A of Part 60 of 40 CFR.

(i) The permittee shall estimate the NMOC mass emission rate using the equations in **Conditions E4-5(a)(1)** and **E4-5(a)(2),** and using a site-specific methane generation rate constant k, and the site-specific NMOC concentration as determined in **Condition E4-5(c)** instead of the default values provided in **Condition E4-5(a)**. The permittee shall compare the resulting NMOC mass emission rate to the standard of 50 megagrams per year.

(ii) If the NMOC mass emission rate as calculated using the site-specific methane generation rate constant and concentration of NMOC is equal to or greater than 50 megagrams per year, the permittee shall comply with the gas collection and control system requirements of 40 CFR §60.752(b)(2).

(iii) If the NMOC mass emission rate is less than 50 megagrams per year, then the permittee shall submit a periodic NMOC emission rate report as provided in **Conditions E4-2(a)** and **E4-3** and shall recalculate the NMOC mass emission rate annually, as provided in **Condition E4-2(b)** using the equations in **Conditions E4-5(a)(1)** and **E4-5(a)(2),** the NMOC concentration obtained in **Condition E4-5(c),** and the site-specific methane generation rate constant obtained in **Condition E4-5(d).** The calculation of the site-specific 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.

For this facility, the report of the retesting results of a Tier 2 test shall be submitted to the Division by June 1, 2019.

The permittee shall notify the Division's Compliance Validation Program at least 60 days prior to either a Tier 2 or Tier 3 test to allow scheduling a Division observer to be present during the test. The notification shall include a site specific test plan to allow the Technical Secretary to review and approve the test plan prior to the test. The test plan shall include a test program summary, the test schedule, data quality objectives, and both an internal and external quality assurance (QA) program. Data quality objectives are the pretest expectations of precision, accuracy and completeness of data.

The notification, site-specific test plan, and Tier 2 and Tier 3 test reports shall be submitted to the Compliance Validation Program at the following address or via email:

Hard Copy to:

Compliance Validation Program
Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 15th Floor
Nashville, TN 37243

or Adobe Portable Document Format (PDF) Electronic Copy to:

Air.Pollution.Control@tn.gov

These NMOC emission rate reports must be certified by a responsible official consistent with condition B4 of this permit and shall be submitted to The Technical Secretary at the following address or via email:

Hard Copy to:

Technical Secretary
Tennessee Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 15th Floor
Nashville, TN 37243

or Adobe Portable Document Format (PDF) Electronic Copy to:

Air.Pollution.Control@tn.gov

TAPCR 1200-03-09-.03(8), 40 CFR 60 Subpart WWW - §§60.754(a)(1) through (5), 60.754(b), 60.757(a), and TAPCR 1200-03-10-.01

E4-6. The permittee is placed on notice that an increase in Nonmethane Organic Compound (NMOC) emissions to a level equal to or greater than 50 megagrams per year will require the submittal of a landfill gas collection and control system design plan to the Division per **Condition E4-4.** The operation, monitoring, recordkeeping, and reporting requirements of the gas collection and control system installation shall conform to the **New Source Performance Standards (NSPS) for Municipal Solid Waste Landfills of 40 CFR 60 Subpart WWW** and the requirements of the **National Emission Standards for Hazardous Air Pollutants (NESHAP) for Municipal Solid Waste Landfills of 40 CFR 63 Subpart AAAA.** In addition, this permit will be reopened to include additional applicable requirements.

TAPCR 1200-03-09-.03(8) and 40 CFR 60 Subpart WWW - §60.752(b)(2)

E4-7. The permittee is subject to the requirements under Part 70 of 40 CFR. The permittee shall submit a closure report to the Technical Secretary within 30 days of waste acceptance cessation. The Technical Secretary 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 Technical Secretary, no additional wastes may be placed into the landfill without filing a notification of modification to the Technical Secretary as described under 40 CFR §60.7(a)(4). When the landfill is closed, the permittee is no longer subject to the requirements under Part 70 of 40 CFR for the landfill if the landfill is not otherwise subject to the requirements under Part 70 of 40 CFR and if either of the following conditions are met:
(a) The landfill was never subject to the requirement for a control system under 40 CFR §60.752(b)(2); or
(b) The permittee meets the conditions for control system removal specified in 40 CFR §60.752(b)(2)(v).

TAPCR 1200-03-09-.03(8) and 40 CFR 60 Subpart WWW - §§60.752(b) and (d), 60.757(d)

E4-8. The permittee is placed on notice that the federal Environmental Protection Agency (EPA) has promulgated the NSPS rule **40 CFR Part 60 Subpart XXX** for municipal solid waste landfills to replace the current NSPS rule **40 CFR Part 60 Subpart WWW**. The final rule was signed by EPA on July 14, 2016, for publication in the Federal Register. The final rule was published in the Federal Register on August 29, 2016, and will become effective within 60 days of the date of publication in the Federal Register (October 28, 2016). This facility will become subject to the new federal emissions guidelines (EG) rule **40 CFR Part 60 Subpart Cf** for municipal solid waste landfills which will replace the current emissions guidelines (EG) rule **40 CFR Part 60 Subpart Cc. Subpart Cf** describes state program requirements which must be equivalent to the NSPS rule **40 CFR Part 60 Subpart XXX** and will become effective on the effective date of the **40 CFR Part 60 Subpart XXX** landfill rule. This permit will be reopened to add applicable requirements of **40 CFR Part 60 Subpart Cf. 40 CFR Part 60 Subpart Cf** reduces the NMOC emission threshold for installation of the landfill gas collection and control system (GCCS) from 50 megagrams per year to 34 megagrams per year (the same value as **40 CFR Part 60 Subpart XXX**). However, emissions of NMOC in 2016 are less than 10 megagrams per year based on emission calculations using Tier 2 sampling results, and NMOC emissions are not expected to equal or exceed 34 megagrams per year during the next 5 years (less than 12 megagrams per year of NMOC emissions in 2021). Therefore, based on expected future NMOC emissions, no requirement for GCCS installation is indicated during the 5 year term of Title V permit 569595.

TAPCR 1200-03-09-.03(8) and 40 CFR 60 Subparts XXX and Cf - §§60.760 – 60.769, 60.30f – 60.41f

END OF PERMIT NUMBER 569595

ATTACHMENT 1
CALCULATION OF EMISSIONS

Loudon County (Matlock Bend) Landfill
Emission Rate Calculations
From Attachment 2 of the
Title V Permit Application
dated November 19, 2014

SUMMARY OF POTENTIAL AIR POLLUTANT EMISSIONS

Loudon County (Matlock Bend) Landfill
Loudon, Tennessee

Emission Point		Regulated Air Pollutant	Air Pollutant Emission Rates Actual (2014)		Air Pollutant Emission Rates PTE*	
Number	Name		pounds/hour	tons/year	pounds/hour	tons/year
Unit LF02	Paved Roadways	Particulate Matter < 10 Microns	0.01	0.05	0.01	0.06
		Particulate Matter < 2.5 Microns	0.00	0.01	0.00	0.01
		Total Particulate Matter	0.05	0.24	0.07	0.30
Unit LF02	Unpaved Roadways	Particulate Matter < 10 Microns	2.14	9.38	2.68	11.72
		Particulate Matter < 2.5 Microns	0.21	0.94	0.27	1.17
		Total Particulate Matter	7.93	34.74	9.91	43.42
Unit LF02	Loading/Unloading Operations	Particulate Matter < 10 Microns	0.00	0.019	0.00	0.019
		Particulate Matter < 2.5 Microns	0.00	0.003	0.00	0.003
		Particulate Matter	0.01	0.040	0.01	0.040
Unit LF02	Construction and Operations	Particulate Matter < 10 Microns	2.07	9.08	2.59	11.35
		Particulate Matter < 2.5 Microns	0.21	0.91	0.26	1.14
		Total Particulate Matter	7.68	33.64	9.60	42.05
Unit LF01	Landfill Emissions	Particulate Matter < 10 Microns	0.00	0.00	0.00	0.00
		Volatile Organic Compounds	0.39	1.72	0.58	2.56
		Nitrogen Oxide Compounds	0.00	0.00	0.00	0.00
		Total Sulfur Compounds	0.43	1.87	0.64	2.79
		Carbon Monoxide	0.56	2.44	0.83	3.64
		Total Hazardous Air Pollutants	1.42	6.21	2.11	9.24
		Non-Methane Organic Compounds	1.00	4.40	1.50	6.55
		Fugitive Methane (GHG)**	1,285	5,628	1,870	8,189
Combined LF01 + LF02	Total From All Emission Points	Particulate Matter < 10 Microns	4.23	18.53	5.29	23.15
		Total Particulate Matter	15.67	68.65	19.59	85.81
		Volatile Organic Compounds	0.39	1.72	0.58	2.56
		Nitrogen Oxide Compounds	0.00	0.00	0.00	0.00
		Total Sulfur Compounds	0.43	1.87	0.64	2.79
		Carbon Monoxide	0.56	2.44	0.83	3.64
		Total Hazardous Air Pollutants	1.42	6.21	2.11	9.24
		Toluene (Single Highest HAP)	0.51	2.22	0.75	3.30
		Non-Methane Organic Compounds	1.00	4.40	1.50	6.55
		Fugitive Methane (GHG)**	1,285	5,628	1,870	8,255

PTE Basis:

Vehicle Miles Traveled*:	Landfill Roadways =	83,694	miles per year
	Construction and Operations Eq. =	61,545	miles per year
Landfill Gas Generation:	Future MSW Disposal Rate*** =	251,518	tons per year

*MSW Landfill PTE is based on maximum emissions at projected end of current permitted capacity (in year 2020).
For PTE of PM emissions, assume potential 25% increase in vehicle miles in any given year over actual.
**See Tables 2A, 2B, and 2C for GHG emission estimates per Federal GHG Reporting Rule.
*** Based on Actual Disposal Rate for year 2013.

Loudon County (Matlock Bend) Landfill
Loudon, Tennessee

Emission Sources:
Landfill Gas Fugitives

Emission Point Number:
Unit LF01

Pollutant	Molecular Weight (g/Mol)	Average Concentration Found In LFG (ppmv) (2)	ACTUAL ESTIMATES (2014) LFG Generation (tons/yr) (3)	LFG to Flare (tons/yr) (4)	Flare Control Efficiency (5)	LFG Emissions from Flare (tons/yr) (6)	Fugitive Emissions from Landfill (tons/yr) (7)	Total LFG Emissions from Flare and Landfill (tons/yr)
Hazardous Air Pollutants (HAPs) (1)								
1,1,1-Trichloroethane (methyl chloroform)	133.42	0.480	0.039	0.00	98.0%	0.000	0.039	0.039
1,1,2,2-Tetrachloroethane	167.85	1.110	0.114	0.00	98.0%	0.000	0.114	0.114
1,1-Dichloroethane (ethylidene dichloride)	98.95	2.350	0.142	0.00	98.0%	0.000	0.142	0.142
1,1-Dichloroethene (vinylidene chloride)	96.94	0.200	0.012	0.00	98.0%	0.000	0.012	0.012
1,2-Dichloroethane (ethylene dichloride)	98.96	0.410	0.025	0.00	98.0%	0.000	0.025	0.025
1,2-Dichloropropane (propylene dichloride)	112.98	0.180	0.012	0.00	98.0%	0.000	0.012	0.012
Acrylonitrile	53.06	6.330	0.206	0.00	98.0%	0.000	0.206	0.206
Benzene	78.11	1.910	0.091	0.00	98.0%	0.000	0.091	0.091
Carbon disulfide	76.13	0.580	0.027	0.00	98.0%	0.000	0.027	0.027
Carbon tetrachloride	153.84	0.004	0.000	0.00	98.0%	0.000	0.000	0.000
Carbonyl sulfide	60.07	0.490	0.018	0.00	98.0%	0.000	0.018	0.018
Chlorobenzene	112.56	0.250	0.017	0.00	98.0%	0.000	0.017	0.017
Chloroethane (ethyl chloride)	64.52	1.250	0.049	0.00	98.0%	0.000	0.049	0.049
Chloroform	119.39	0.030	0.002	0.00	98.0%	0.000	0.002	0.002
Chloromethane (methyl chloride)	50.49	1.210	0.037	0.00	98.0%	0.000	0.037	0.037
Dichlorobenzene (1,4-Dichlorobenzene)	147.00	0.210	0.019	0.00	98.0%	0.000	0.019	0.019
Dichloromethane (Methylene Chloride)	84.94	14.300	0.744	0.00	98.0%	0.000	0.744	0.744
Ethylbenzene	106.16	4.610	0.300	0.00	98.0%	0.000	0.300	0.300
Ethylene dibromide (1,2-Dibromoethane)	187.88	0.001	0.000	0.00	98.0%	0.000	0.000	0.000
Hexane	86.18	6.570	0.347	0.00	98.0%	0.000	0.347	0.347
Mercury (total)	200.61	0.0003	0.000	0.00	98.0%	0.000	0.000	0.000
Methyl ethyl ketone (8)	72.11	7.090	0.313	0.00	98.0%	0.000	0.313	0.313
Methyl isobutyl ketone	100.16	1.870	0.115	0.00	98.0%	0.000	0.115	0.115
Perchloroethylene (tetrachloroethylene)	165.83	3.730	0.379	0.00	98.0%	0.000	0.379	0.379
Toluene	92.13	39.300	2.218	0.00	98.0%	0.000	2.218	2.218
Trichloroethylene (trichloroethene)	131.38	2.820	0.227	0.00	98.0%	0.000	0.227	0.227
Vinyl chloride	62.50	7.340	0.281	0.00	98.0%	0.000	0.281	0.281
Xylenes	106.16	12.100	0.787	0.00	98.0%	0.000	0.787	0.787
			-	0.00		0.000	-	
Total HAPs			6.210	0.00		0.000	6.210	6.21
Criteria Air Pollutants								
VOCs (10)	86.18	32.0	1.72	0.00	98.0%	0.000	1.72	1.72
Sulfur Dioxide (SO_2)/Total Sulfur (9)	64.1	46.9	1.87	0.00	-	-	1.87	1.871
Carbon Monoxide from Flare (CO) (11)	-	-	-	-	-	0.000	-	0.000
Fugitive Carbon Monoxide (CO) (12)	140.0	28.01	2.44	0.00	-	-	2.44	2.44
Nitrogen Oxides (NO_x) (11)	-	-	-	-	-	0.000	-	0.000
Particulates (PM) (11)	-	-	-	-	-	0.000	-	0.000
Particulates (PM_{10}) (11)	-	-	-	-	-	0.000	-	0.000
Other Regulated Air Pollutants								
NMOCs as Hexane (13)	86.18	82.0	4.40	0.000	98.0%	0.00	4.40	4.40

NOTES:
(1) Listed Hazardous Air Pollutants (HAPs) are among compounds commonly found in landfill gas (LFG), as presented in AP-42 (9/97), Tables 2.4-1and 2.4-2
(2) Average concentrations of pollutants in LFG based on AP-42 (9/97), Tables 2.4-1 and 2.4-2.
(3) Based on average concentrations of compounds found in LFG, and an estimated current LFG generation of 913 scfm (2014), based on USEPA's LandGEM estimates using region-specific k (=0.040) and L_o (= 100 m3/Mg) input parameters (See attached Table 1).
(4) The percentage of LFG generated that is collected and routed to flare.
(5) Minimum typical control efficiency, as found in AP-42 (9/97), Table 2.4-3.
(6) (LFG to flare) * (1-control efficiency) = LFG emissions from flare.
(7) LFG that is not collected or controlled.
(8) Discontinued as a HAP in 2005. Not included in Total HAPs.
(9) Concentration of Total Sulfur from AP-42 (9/97), Section 2.4.4. When gas is not combusted, no SO2 is formed and all sulfur emissions are fugitive.
(10) According to AP-42 (9/97), Table 2.4-2, Note C, VOC content at MSW sites with unknown concentrations equals 39% by weight of total NMOC concentration.
(11) Emission factors for NO_x, CO, and PM_{10} (as CH_4) are from AP-42 (9/97), Table 2.4-5 All PM/PT assumed less than 1 micron (PM=PM10=PM2.5) for flares.
(12) Based on LandGEM model estimate of CO generated in LFG
(13) NMOC concentration modified in accordance with the results of the Tier 2 test performed at the site in 2014.

MODEL INPUT VARIABLES: (Actual)

Estimated Methane Content of LFG	50.00%	
Methane Generation from Landfill	6,793,121	m3/yr in 2014, based on USEPA LandGEM estimates
LFG Generation from Landfill	479,793,644	ft3/yr in 2014, based on USEPA LandGEM estimates
Collection Efficiency (4)	0.0%	
Total LFG Collected	0.0	cu ft (collection system not required)
Landfill Gas Generation Rate (3)	912.8	scfm
Average Landfill Gas Flow To Flare	0.0	scfm (no gas sent to flare until after 2019)

FLARE EMISSION FACTORS:

Pollutant	Emission factor (12)		
CO	0.37	lbs/mmBtu	(from vendor/AP-42)
NO_x	0.068	lbs/mmBtu	(from vendor/AP-42)
PM=PM10=PM2.5	17	lb/million cf CH4	(from AP-42, 11/98)

EXAMPLE CALCULATIONS

Hours of Operations for 2014 = 8,760.00 hrs (estimated)
525,600 mins

(HAPs, VOCs, NMOCs)
Landfill Gas Generation Rate [scfm] = (Methane Generation From Landfill [m3/yr])*(1/Estimated Methane Content of Landfill)*(35.3147 cf/m3)/(525,600 min/year)

LFG Generation [tons/year] = (Molecular Weight of Compound[g/mol])*(Concentration of Compound[ppm]/1,000,000)*(LFG Generation Rate [cfm])
(525,600 min/yr)(1ton/2,000lb)*(1lb/453.6g)*(1mol/24.45L @ STP)*(28.32L/1cf).

LFG To Flare = (Molecular Weight of Compound[g/mol])*(Concentration of Compound[ppm]/1,000,000)*(LFG to Flare [cfm])
(525,600 min/yr)(1ton/2,000lb)*(1lb/453.6g)*(1mol/24.45L @ STP)*(28.32L/1cf).

LFG Emissions From Flare = (LFG To Flare [tons/yr])*(1 - Control Efficiency).

Fugitive Emissions From Landfill = (LFG Generation [tons/year]) - (LFG To Flare [tons/year] - (LFG To Engine Plant [tons/year])

Total LFG Emissions From Flare and Landfill = (Fugitive Emissions From Landfill) + (LFG Emissions from Flare).

(SO_2)
LFG Emissions from Flare = (Molecular Weight of Compound[g/mol])*(Concentration of Compound[ppm]/1,000,000)*(LFG to Flare [cfm])
(525,600 min/yr)(1ton/2,000lb)*(1lb/453.6g)*(1mol/24.45L @ STP)*(28.32L/1cf)

(HCl)
LFG Emissions from Flare = (Molecular Weight of Compound[g/mol])*(Concentration of Compound[ppm]/1,000,000)*(LFG to Flare [cfm])
(525,600 min/yr)(1ton/2,000lb)*(1lb/453.6g)*(1mol/24.45L @ STP)*(28.32L/1cf)*(Control Eff/100).

(CO, NO_x)
LFG Emissions from Flare = (Total LFG Collected by Flare [cf])*(1012 [BTU/cf] * %CH4)*(Emission Factor)/(1,000,000).

(PM)
LFG Emissions from Flare = (Methane Flow to Flare [cf CH4])*1012 Btu/cf*(Emission Factor) or (Methane Flow Rate to Flare [cfm])*(Emission Factor).

London County (Matlock Bend) Landfill
London, Tennessee

Emission Sources:
Landfill Gas Fugitives

Emission Point Number:
Unit LF01

Pollutant	Molecular Weight (g/Mol)	Average Concentration Found In LFG (ppmv) (2)	PTE ESTIMATES					
			LFG Generation (tons/yr) (3)	LFG to Flare (tons/yr) (4)	Flare Control Efficiency (5)	LFG Emissions from Flare (tons/yr) (6)	Fugitive Emissions from Landfill (tons/yr) (7)	Total LFG Emissions from Flare and Landfill (tons/yr)
Hazardous Air Pollutants (HAPs) (1)								
1,1,1-Trichloroethane (methyl chloroform)	133.42	0.480	0.058	0.00	98.0%	0.000	0.058	0.058
1,1,2,2-Tetrachloroethane	167.85	1.110	0.170	0.00	98.0%	0.000	0.170	0.170
1,1-Dichloroethane (ethylidene dichloride)	98.95	2.350	0.212	0.00	98.0%	0.000	0.212	0.212
1,1-Dichloroethene (vinylidene chloride)	96.94	0.200	0.018	0.00	98.0%	0.000	0.018	0.018
1,2-Dichloroethane (ethylene dichloride)	98.96	0.410	0.037	0.00	98.0%	0.000	0.037	0.037
1,2-Dichloropropane (propylene dichloride)	112.98	0.180	0.019	0.00	98.0%	0.000	0.019	0.019
Acrylonitrile	53.06	6.330	0.306	0.00	98.0%	0.000	0.306	0.306
Benzene	78.11	1.910	0.136	0.00	98.0%	0.000	0.136	0.136
Carbon disulfide	76.13	0.580	0.040	0.00	98.0%	0.000	0.040	0.040
Carbon tetrachloride	153.84	0.004	0.001	0.00	98.0%	0.000	0.001	0.001
Carbonyl sulfide	60.07	0.490	0.027	0.00	98.0%	0.000	0.027	0.027
Chlorobenzene	112.56	0.250	0.026	0.00	98.0%	0.000	0.026	0.026
Chloroethane (ethyl chloride)	64.52	1.250	0.074	0.00	98.0%	0.000	0.074	0.074
Chloroform	119.39	0.030	0.003	0.00	98.0%	0.000	0.003	0.003
Chloromethane (methyl chloride)	50.49	1.210	0.056	0.00	98.0%	0.000	0.056	0.056
Dichlorobenzene (1,4-Dichlorobenzene)	147.00	0.210	0.028	0.00	98.0%	0.000	0.028	0.028
Dichloromethane (Methylene Chloride)	84.94	14.300	1.107	0.00	98.0%	0.000	1.107	1.107
Ethylbenzene	106.16	4.610	0.446	0.00	98.0%	0.000	0.446	0.446
Ethylene dibromide (1,2-Dibromoethane)	187.88	0.001	0.000	0.00	98.0%	0.000	0.000	0.000
Hexane	86.18	6.570	0.516	0.00	98.0%	0.000	0.516	0.516
Mercury (total)	200.61	0.0003	0.000	0.00	98.0%	0.000	0.000	0.000
Methyl ethyl ketone (8)	72.11	7.090	0.466	0.00	98.0%	0.000	0.466	0.466
Methyl isobutyl ketone	100.16	1.870	0.171	0.00	98.0%	0.000	0.171	0.171
Perchloroethylene (tetrachloroethylene)	165.83	3.730	0.564	0.00	98.0%	0.000	0.564	0.564
Toluene	92.13	39.300	3.301	0.00	98.0%	0.000	3.301	3.301
Trichloroethylene (trichloroethene)	131.38	2.820	0.338	0.00	98.0%	0.000	0.338	0.338
Vinyl chloride	62.50	7.340	0.418	0.00	98.0%	0.000	0.418	0.418
Xylenes	106.16	12.100	1.171	0.00	98.0%	0.000	1.171	1.171
			-	0.00		0.000	-	
Total HAPs			9.243	0.00		0.000	9.243	9.24
Criteria Air Pollutants								
VOCs (10)	86.18	32.0	2.56	0.00	98.0%	0.000	2.56	2.555
Sulfur Dioxide (SO_2)/Total Sulfur (9)	64.1	46.9	2.79	0.00	-	-	2.79	2.785
Carbon Monoxide from Flare (CO) (11)	-	-	-	-	-	0.000	-	0.000
Fugitive Carbon Monoxide (CO) (12)	140.0	28.01	3.64	0.00	-	-	3.64	3.64
Nitrogen Oxides (NO_x) (11)	-	-	-	-	-	0.000	-	0.000
Particulates (PM) (11)	-	-	-	-	-	0.000	-	0.000
Particulates (PM_{10}) (11)	-	-	-	-	-	0.000	-	0.000
Other Regulated Air Pollutants								
NMOCs as Hexane (13)	86.18	82.0	6.55	0.000	98.0%	0.00	6.55	6.55

NOTES:

(1) Listed Hazardous Air Pollutants (HAPs) are among compounds commonly found in landfill gas (LFG), as presented in AP-42 (9/97), Tables 2.4-1 and 2.4-2.
(2) Average concentrations of pollutants in LFG based on AP-42 (9/97), Tables 2.4-1 and 2.4-2.
(3) Based on average concentrations of compounds found in LFG, and an estimated current LFG generation of 1,359 scfm (2020), based on USEPA's LandGEM estimates using region-specific k (=0.040) and L_o (= 100 m3/Mg) input parameters (See attached Table 1).
(4) The percentage of LFG generated that is collected and routed to flare.
(5) Minimum typical control efficiency, as found in AP-42 (9/97), Table 2.4-3.
(6) (LFG to flare) * (1-control efficiency) = LFG emissions from flare.
(7) LFG that is not collected or controlled.
(8) Discontinued as a HAP in 2005. Not included in Total HAPs.
(9) Concentration of Total Sulfur from AP-42 (9/97), Section 2.4.4. When gas is not combusted, no SO2 is formed and all sulfur emissions are fugitive
(10) According to AP-42 (9/97), Table 2.4-2, Note C, VOC content at MSW sites with unknown concentrations equals 39% by weight of total NMOC concentration
(11) Emission factors for NO_x, CO, and PM_{10} (as CH_4) are from AP-42 (9/97), Table 2.4-5. All PM/PT assumed less than 1 micron (PM=PM10=PM2.5) for flares.
(12) Based on LandGEM model estimate of CO generated in LFG
(13) NMOC concentration modified in accordance with the results of the Tier 2 test performed at the site in 2014.

MODEL INPUT VARIABLES: (Actual)

Estimated Methane Content of LFG	50.00%	
Methane Generation from Landfill	10,110,276	m3/yr in 2020, based on USEPA LandGEM estimates
LFG Generation from Landfill	714,082,107	ft3/yr in 2020, based on USEPA LandGEM estimates
Collection Efficiency (4)	0.0%	
Total LFG Collected	0.0	cu ft (collection system not required)
Landfill Gas Generation Rate (3)	1,358.6	scfm
Average Landfill Gas Flow To Flare	0.0	scfm (no gas sent to flare until after 2019)

FLARE EMISSION FACTORS:

Pollutant	Emission factor (12)		
CO	0.37	lbs/mmBtu	(from vendor/AP-42)
NO_x	0.068	lbs/mmBtu	(from vendor/AP-42)
PM=PM10=PM2.5	17	lb/million cf CH4	(from AP-42, 11/98)

EXAMPLE CALCULATIONS

Hours of Operations for 2020 -- 8,760.00 hrs (estimated)
525,600 mins

(HAPs, VOCs, NMOCs)
Landfill Gas Generation Rate [scfm] = (Methane Generation From Landfill [m3/yr])*(1/Estimated Methane Content of Landfill)*(35.3147 cf/m3)/(525,600 min/year)

LFG Generation [tons/year] = (Molecular Weight of Compound[g/mol])*(Concentration of Compound[ppm]/1,000,000)*(LFG Generation Rate [cfm])
(525,600 min/yr)(1ton/2,000lb)*(1lb/453.6g)*(1mol/24.45L @ STP)*(28.32L/1cf).

LFG To Flare = (Molecular Weight of Compound[g/mol])*(Concentration of Compound[ppm]/1,000,000)*(LFG to Flare [cfm])
(525,600 min/yr)(1ton/2,000lb)*(1lb/453.6g)*(1mol/24.45L @ STP)*(28.32L/1cf)

LFG Emissions From Flare = (LFG To Flare [tons/yr])*(1 - Control Efficiency).

Fugitive Emissions From Landfill = (LFG Generation [tons/year]) - (LFG To Flare [tons/year] - (LFG To Engine Plant [tons/year])

Total LFG Emissions From Flare and Landfill = (Fugitive Emissions From Landfill) + (LFG Emissions from Flare).

(SO_2)
LFG Emissions from Flare = (Molecular Weight of Compound[g/mol])*(Concentration of Compound[ppm]/1,000,000)*(LFG to Flare [cfm])
(525,600 min/yr)(1ton/2,000lb)*(1lb/453.6g)*(1mol/24.45L @ STP)*(28.32L/1cf)

(HCl)
LFG Emissions from Flare = (Molecular Weight of Compound[g/mol])*(Concentration of Compound[ppm]/1,000,000)*(LFG to Flare [cfm])
(525,600 min/yr)(1ton/2,000lb)*(1lb/453.6g)*(1mol/24.45L @ STP)*(28.32L/1cf)*(Control Eff/100).

(CO, NO_x)
LFG Emissions from Flare = (Total LFG Collected by Flare [cf])*(1012 [BTU/cf] * %CH4)*(Emission Factor)/(1,000,000).

(PM)
LFG Emissions from Flare = (Methane Flow to Flare [cf CH4])*1012 Btu/cf*(Emission Factor) or (Methane Flow Rate to Flare [cfm])*(Emission Factor).

Loudon County (Matlock Bend) Landfill
Paved Roadways Emissions

Unit LF02

Type of Vehicle	Avg. Weight (tons)	Avg. Vehicles per yr	Roundtrip distance (feet)	Roundtrip distance (miles)	Vehicle Miles Traveled	Percent of Total Miles Traveled	Wt. Avg. Weight (tons)
6-axle Transfer Trucks	45.0	4500	750	0.14	639	14.91%	6.7
Front/Side Loader & Packer Trucks	28.1	4054	750	0.14	576	13.43%	3.8
5-axle Tractor Trailer Trucks	40.0	1450	750	0.14	206	4.80%	1.9
Roll Off Trucks	20.3	4053	750	0.14	576	13.42%	2.7
Lightweight Selfhaul Trucks	3.5	16133	750	0.14	2,292	53.44%	1.9
Total		30190			4,288	100%	17.0

Average number of waste vehicles per year = 30,190
One way length of Paved Roads = 375 feet = 0.07 miles
Total Vehicle Miles Traveled (VMT) per year = 4,288 miles
Max. VMT @ 25% increase (for PTE) = 5,360 miles

Operation days per year = 280

Weighted average vehicle weight = 17.00 tons

Methodologies:
AP-42, Section 13.2.1.3, Equation (2), for Paved Roads, January 2011 Edition

$$E = [k(sL)^{0.91} * (W)^{1.02}] * (1-P/4N)$$

- E = Emission factor in pounds per vehicle mile traveled (lb/VMT)
- k = Particle size multiplier (lb/VMT)
- sL = Road surface silt loading factor (g/m^2)
- W = Average Vehicle weight in tons
- P = Number of days with rain > 0.01 inches (from Figure 13.2.1-2)
- N = Averaging period (365 for annual; 91 for seasonal; 30 for monthly)

Variables:	k factor[1]	Silt loading[2] (sL)	W	P	N (Long Term)
Pollutant	lb/VMT	g/m^2	Tons	days	days
PM-10	0.0022	7.4	17.00	130	365
PM-2.5	0.00054	7.4	17.00	130	365
PM (TSP)	0.011	7.4	17.00	130	365

[1] from AP-42, Table 13.2.1-1, January 2011 Edition
[2] Mean value for MSW Landfills from Table 13.2.1-3, January 2011 Edition

Assume control efficiency (CE) as 90% for routine watering and washing of paved roads

Actual PM Emissions = E*VMT*(1-CE)

Summary of PM Emissions From Paved Roadway

Pollutant	Emission Factor lb/VMT (daily)	Actual Emissions		PTE Emissions	
		lbs/day	tons/yr	lbs/day	tons/yr
PM-10	0.22	0.34	0.05	0.43	0.06
PM-2.5	0.05	0.08	0.01	0.10	0.01
PM (TSP)	1.11	1.71	0.24	2.13	0.30

Loudon County (Matlock Bend) Landfill
Unpaved Roadways - PM Emissions

Unit LF02

Type of Vehicle	Avg. Weight (tons)	Avg. Vehicles per yr	Roundtrip distance (feet)	Roundtrip distance (miles)	Vehicle Miles Traveled	Percent of Total Miles Traveled	Wt. Avg. Weight (tons)
6-axle Transfer Trucks	45.0	4500	10960	2.08	9,341	14.91%	6.7
Front/Side Loader & Packer Trucks	28.1	4054	10960	2.08	8,415	13.43%	3.8
5-axle Tractor Trailer Trucks	40.0	1450	10960	2.08	3,010	4.80%	1.9
Roll Off Trucks	20.3	4053	10960	2.08	8,413	13.42%	2.7
Lightweight Selfhaul Trucks	3.5	16133	10960	2.08	33,488	53.44%	1.9
Total		30,190			62,667		17.0

Total number of waste vehicles per year =	30,190			
One way length of Unpaved Roads =	5480	feet =	1.04	miles
Total Vehicle Miles Traveled (VMT) per year =			62,667	miles
Max. VMT @ 25% Increase (for PTE) =			78,334	miles

Operation days per year = 280

Weighted average vehicle weight = 17.00 tons (Actual) (See Note 1)

Methodologies:
AP-42, Section 13.2.2.2, Equations (1a) and (2), for Unpaved Roads at Industrial Sites, November 2006 Edition.

$$E = k(s/12)^a * (W/3)^b * [(365-P)/365]$$

- E = Emission factor in pounds per vehicle mile traveled (lb/VMT)
- k = Particle size multiplier (lb/VMT)
- a = Emprical Constant from Table 13.2.2-2
- b = Emprical Constant from Table 13.2.2-2
- s = Surface material silt content (%)
- W = Average Vehicle weight in tons
- P = Number of days with rain > 0.01 inches (from Figure 13.2.2-1)

Variables:	k factor[1]	a	b	Surface Silt Content[2] (%)	W (average)	P
Pollutant	lb/VMT			(%)	Tons	days
PM-10	1.5	0.9	0.45	6.4	17.00	130
PM-2.5	0.15	0.9	0.45	6.4	17.00	130
PM (TSP)	4.9	0.7	0.45	6.4	17.00	130

[1] from AP-42, Section 13.2.2.2, November 2006 Edition

[2] Mean value for MSW Landfills from Table 13.2.2-1, November 2006 Edition

Assume control efficiency (CE) as 75% for routine watering of roads as needed (See Figure 13.2.2-2 in AP-42)

Actual PM Emissions = E*VMT*(1-CE)

Summary of PM Emissions From Unpaved Roadway - Actual

Pollutant	Emission Factor - E lb/VMT	Actual Emissions lbs/day	Actual Emissions tons/yr	PTE Emissions lbs/day	PTE Emissions tons/yr
PM-10	1.20	66.98	9.38	83.73	11.72
PM-2.5	0.12	6.70	0.94	8.37	1.17
PM (TSP)	4.43	248.12	34.74	310.15	43.42

Construction& Operations

Loudon County (Matlock Bend) Landfill
Loudon, Tennessee

Emission Source:
Construction Vehicles on Haul Roads and Landfill Surface
Equipment types are listed equivalent CAT vehicles
Emission Point Number:
Unit LF02

Vehicle Miles Traveled

Number of Vehicles	Type of Construction Vehicle	Average Hrs/day	Average Vehicle Weight (tons)	Average Vehicle Speed (mph)	Vehicle Miles Traveled (VMT) Actual		Percent of Total Miles Traveled
					miles/day	miles/year	
	Compactors						
1	826H Compactor	8	40.75	2	16.0	4,480	9.10%
	Dozers						
1	D6R Dozer	8	20.00	2	16.0	4,480	9.10%
	Scrapers						
1	CAT 621 Scraper-Standard*	8	49.50	5	40.0	8,320	16.90%
	Loaders						
1	963C - Track Loader	8	24.02	1	8.0	2,240	4.55%
1	963B - Track Loader*	6	22.35	1	6.0	1,524	3.10%
	Trackhoes (Excavators)						
1	320D Trackhoe*	8	22.41	1	8.0	2,032	4.13%
	Dumps						
1	Volvo 730*	8	42.20	5	40.0	8,320	16.90%
	Misc. Trucks						
1	Water Truck*	2	24.25	5	10.0	2,540	5.16%
1	Other Truck (Service Truck)*	1	25.00	10	10.0	2,540	5.16%
	Tractor/Mower						
1	Ford FWD Tractor*	2	3.00	5	10.0	1,560	3.17%
	Pickup Trucks						
2	Pickup Trucks	2	3.00	10	40.0	11,200	22.75%
							100%
	Total Vehicle Miles Travelled (VMT) =					49,236	miles
	Max. VMT @ 25% Increase (for PTE) =					61,545	miles

Max. Days of Operation = 280 days/yr (5.5 days per week less 6 holidays per year)
* Indicates Equipment that normally operates less than the max. days or hours per year

Assumptions:
Silt content was taken from AP-42, Table 13.2.2-1 for municipal solid waste landfills
Mean number of days of precipitation was taken from AP-42, Unpaved Roads, Figure 13.2.2-1.
Assume number of tires (w) for all truck vehicles is 18.
Assume aerodynamic particle size is less than 10 microns.

Mean Vehicle Weight (W)

Type of Construction Vehicle	Operating Weight (lbs)	Operating Weight (tons)	Soil/Water Density (lb/cf)	Capacity (cy)	Capacity (tons)	Mean Vehicle Weight (tons)
826H Compactor	81,498	40.75	-	-	-	40.75
D6R Dozer	40,000	20.00	-	-	-	20.00
CAT 621 Scraper-Standard*	66,590	33.30	120.00	20.00	32.40	49.50
963C - Track Loader	43,186	21.59	120.00	3.00	4.86	24.02
963B - Track Loader*	40,490	20.25	120.00	2.60	4.21	22.35
320D Trackhoe*	44,820	22.41	-	-	-	22.41
Volvo 730*	52,000	26.00	120.00	20.0	32.40	42.20
Water Truck*	40,000	20.00	62.40	-	8.50	24.25
Other Truck (Service Truck)*	50,000	25.00	-	-	-	25.00
Ford FWD Tractor*	6,000	3.00	-	-	-	3.00
Pickup Trucks	6,000	3.00	-	-	-	3.00

Note: Equipment weights and capacities are based on similar CATERPILLAR equipment (unless otherwise noted).

Methodologies:
AP-42, Section 13.2.2 for Unpaved Roads.

Operation days per year = 280

Weighted average vehicle weight = 27.05 tons

Methodologies:
AP-42, Section 13.2.2.2, Equations (1a) and (2), for Unpaved Roads at Industrial Sites, November 2006 Edition.

$$E = k(s/12)^a * (W/3)^b * [(365-P)/365]$$

- E = Emission factor in pounds per vehicle mile traveled (lb/VMT)
- k = Particle size multiplier (lb/VMT)
- a = Emprical Constant from Table 13.2.2-2
- b = Emprical Constant from Table 13.2.2-2
- s = Surface material silt content (%)
- W = Average Vehicle weight in tons
- P = Number of days with rain > 0.01 inches (from Figure 13.2.2-1)

Variables:	k factor[1]	a	b	Surface Silt Content[2] (%)	W	P
Pollutant	lb/VMT			(%)	Tons	days
PM-10	1.5	0.9	0.45	6.4	27.05	130
PM-2.5	0.15	0.9	0.45	6.4	27.05	130
PM (PE)	4.9	0.7	0.45	6.4	27.05	130

[1] from AP-42, Section 13.2.2.2, November 2006 Edition

[2] Mean value for MSW Landfills from Table 13.2.2-1, November 2006 Edition

Assume control efficiency as 75.00%

Summary of PM Emissions From Unpaved Roadway

Pollutant	Emission Factor lb/VMT	Actual Emissions		PTE Emissions	
		lbs/day	tons/yr	lbs/day	tons/yr
PM-10	1.48	64.9	9.08	81.1	11.35
PM-2.5	0.15	6.5	0.91	8.1	1.14
PM (PE)	5.47	240.3	33.64	300.3	42.05

Load-Unload

Loudon County (Matlock Bend) Landfill
Cover Loading and Umloading Emissions

Emission Point Number:
Unit LF02

Operation days per year =	280	
Tons of Waste Disposed =	251,518	tons/yr
Cover Soil Used (20% of waste) =	50,304	tons/yr

Methodologies:
AP-42, Section 13.2.4, Equation (1), November 2006 Edition

$$E = k*(0.0032)*(U/5)^{1.3}/(M/2)^{1.4}$$

- E = Emission factor in pounds per ton of material handled (lb/ton)
- k = Particle size multiplier
- U = Mean wind speed (mph)
- M = Material moisture content (%)

Variables:	k factor[1]	U[2]	M[3]
Pollutant		mph	%
PM-10	0.35	15	12
PM-2.5	0.053	15	12
PM (TSP)	0.74	15	12

[1] from AP-42, Section 13.2.4, 11/06 Edition
[2] Maximum of range given for Eq.1 in AP-42, Section 13.2.4, 11/06 Edition
[3] Mean value for MSW landfill cover from Table 13.2.4-1, 11/06 Edition

Assume control efficiency (CE) as 0%

Actual PM Emissions = E*2*cover soil tons*(1-CE)

Summary of PM Emissions From Cover Loading/Unloading

Pollutant	Emission Factor (lb/ton)	Actual Emissions	
		lbs/day	tons/yr
PM-10	0.0004	0.14	0.019
PM-2.5	0.0001	0.02	0.003
PM (TSP)	0.0008	0.29	0.040

FUGITIVE EMISSIONS FROM LEACHATE COLLECTION TANKS
Loudon County (Mallock Bend) Landfill

Emission Source:
Leachate Collection and Storage

VOC Emission Summary:

Potential Total Volatile Organics (1) (ug/L)	Avg. Annual Precipitation (2) (inches)	2013 Annual Leachate Generation (3) (gal)	2013 Annual Fugitive VOC Emissions (5) (tons)	PTE Annual Leachate Generation (4) (gal)	PTE Annual Fugitive VOC Emissions (5) (tons)
6,186.0	51	7,137,077	0.184	10,000,000	0.258

HAPs Emissions:

Compound (6)	Concentration (ug/L)	Average HAP Emissions		PTE HAP Emissions	
		lbs/yr	tons/yr	lbs/yr	tons/yr
Acrylonitrile	5.0	0.298	1.49E-04	0.417	2.09E-04
Benzene	5.0	0.298	1.49E-04	0.417	2.09E-04
Bromoform	5.0	0.298	1.49E-04	0.417	2.09E-04
Bromomethane	5.0	0.298	1.49E-04	0.417	2.09E-04
2-Butanone (MEK) (7)	3800	226.306	1.13E-01	317.09	1.59E-01
Carbon Disulfide	5.0	0.298	1.49E-04	0.417	2.09E-04
Carbon Tetrachloride	5.0	0.298	1.49E-04	0.417	2.09E-04
Chlorobenzene	5.0	0.298	1.49E-04	0.417	2.09E-04
Chloroethane	5.0	0.298	1.49E-04	0.417	2.09E-04
Chloroform	5.0	0.298	1.49E-04	0.417	2.09E-04
Chloromethane	5.0	0.298	1.49E-04	0.417	2.09E-04
1,2-Dibromo-3-chloropropane (DBCP)	5.0	0.298	1.49E-04	0.417	2.09E-04
1,2-Dibromoethane (EDB)	5.0	0.298	1.49E-04	0.417	2.09E-04
1,4-Dichlorobenzene	5.0	0.298	1.49E-04	0.417	2.09E-04
1,1-Dichloroethane	5.0	0.298	1.49E-04	0.417	2.09E-04
1,2-Dichloroethane	5.0	0.298	1.49E-04	0.417	2.09E-04
1,1-Dichloroethene	5.0	0.298	1.49E-04	0.417	2.09E-04
1,2-Dichlorpropane	5.0	0.298	1.49E-04	0.417	2.09E-04
cis-1,3-Dichloropropene	5.0	0.298	1.49E-04	0.417	2.09E-04
trans-1,3-Dichlorpropene	5.0	0.298	1.49E-04	0.417	2.09E-04
Ethylbenzene	5.0	0.298	1.49E-04	0.417	2.09E-04
Hexachlorobutadiene	5.0	0.298	1.49E-04	0.417	2.09E-04
Isopropylbenzene (Cumune)	5.0	0.298	1.49E-04	0.417	2.09E-04
Methylene chloride	5.0	0.298	1.49E-04	0.417	2.09E-04
Napthalene	5.0	0.298	1.49E-04	0.417	2.09E-04
Styrene	5.0	0.298	1.49E-04	0.417	2.09E-04
1,1,2,2-Tetrachloroethane	5.0	0.298	1.49E-04	0.417	2.09E-04
Tetrachlorethylene	5.0	0.298	1.49E-04	0.417	2.09E-04
Toluene	5.0	0.298	1.49E-04	0.417	2.09E-04
1,2,4-Trichlorobenzene	5.0	0.298	1.49E-04	0.417	2.09E-04
1,1,1-Trichloroethane	5.0	0.298	1.49E-04	0.417	2.09E-04
1,1,2-Trichloroethane	5.0	0.298	1.49E-04	0.417	2.09E-04
Trichloroethene	5.0	0.298	1.49E-04	0.417	2.09E-04
Vinyl Acetate	5.0	0.298	1.49E-04	0.417	2.09E-04
Vinyl Chloride	5.0	0.298	1.49E-04	0.417	2.09E-04
Xylene	5.0	0.298	1.49E-04	0.417	2.09E-04
2-Hexanone (7)	26	1.548	7.74E-04	2.170	1.08E-03
Acetone (7)	2000	119.109	5.96E-02	166.887	8.34E-02
Iodomethane	5.0	0.298	1.49E-04	0.417	2.09E-04
4-Methyl-2-Pentanone	180	10.720	5.36E-03	15.020	7.51E-03
TOTAL VOC	6186.0	368.403	0.184	516.182	0.258
TOTAL HAP (less non-HAP VOCs)	360.00	21.44	0.011	30.04	0.015

Notes:

(1) Based on annual leachate analysis performed from 4/17/2002 to 3/25/2014.
VOC and HAP emission estimates were calculated by using detection limits for compounds listed as non-detect. Those compounds which have no data were not analyzed. The leachate was analyzed by GC/MS, EPA Method 8260B.
(2) Taken from regional rainfall data summarized by Weatherbase website (www.weatherbae com) for Loudon, TN.
(3) Current annual leachate generation as calculated from leachate collection records for 2013
(4) Estimated maximum annual leachate generation.
(5) Assumes that 100 percent of volatile organic compounds detected will volatilize.
(6) Used highest reported value from organic analyses from 2002 to 2014; used 5.0 ug/L for compounds reported as ND or not analyzed.
(7) VOC not counted as a HAP.

Example Calculations

Actual Annual Fugitive VOC Emissions (tons) = (Actual Annual Leachate Generation [gal]) * (3.785 L/1gal) * (1g/1,000,000ug) * (Total VOC [ug/l]) * (1lb/453.6g) * (1 ton/2000 lb)

PTE Annual Fugitive VOC Emissions (tons) = (PTE Annual Leachate Generation [gal]) * (3.785 L/1gal) * (1g/1,000,000ug) * (Total VOC [ug/l]) * (1lb/453.6g) * (1 ton/2000 lb)

TABLE 1. LandGEM GAS GENERATION PROJECTION SUMMARY MATLOCK BEND LANDFILL - LOUDON, TN

Year	Disposal Rate (tons/yr)	Refuse In-Place (tons)	LFG Generation (scfm)	(m3/min)	(MM ft3/yr)	NMOC Generation Rates (tons/yr)	NMOC Generation Rates (Mg/yr)
1987	24,276	0	0	0.0	0	0.0	0.0
1988	55,987	24,276	12	0.3	6	0.1	0.1
1989	67,753	80,263	38	1.1	20	0.2	0.2
1990	73,341	148,016	69	2.0	36	0.3	0.3
1991	106,582	221,357	102	2.9	53	0.5	0.4
1992	96,507	327,939	149	4.2	78	0.7	0.7
1993	94,782	424,446	189	5.4	99	0.9	0.8
1994	134,129	519,228	227	6.4	119	1.1	1.0
1995	59,785	653,357	283	8.0	149	1.4	1.2
1996	40,855	713,142	300	8.5	158	1.4	1.3
1997	50,213	753,997	308	8.7	162	1.5	1.3
1998	52,626	804,210	320	9.1	168	1.5	1.4
1999	59,918	856,836	333	9.4	175	1.6	1.5
2000	55,073	916,754	349	9.9	183	1.7	1.5
2001	48,077	971,827	361	10.2	190	1.7	1.6
2002	45,082	1,019,904	370	10.5	195	1.8	1.6
2003	55,023	1,064,986	377	10.7	198	1.8	1.7
2004	68,151	1,120,009	389	11.0	204	1.9	1.7
2005	79,973	1,188,160	406	11.5	214	2.0	1.8
2006	89,945	1,268,133	429	12.1	225	2.1	1.9
2007	130,972	1,358,078	455	12.9	239	2.2	2.0
2008	167,244	1,489,050	500	14.2	263	2.4	2.2
2009	154,707	1,656,294	561	15.9	295	2.7	2.5
2010	130,486	1,811,001	613	17.4	322	3.0	2.7
2011	236,247	1,941,487	652	18.5	343	3.1	2.9
2012	237,151	2,177,734	740	20.9	389	3.6	3.2
2013	251,518	2,414,885	824	23.3	433	4.0	3.6
2014	251,518	2,666,403	913	25.8	480	4.4	4.0
2015	251,518	2,917,921	998	28.3	524	4.8	4.4
2016	251,518	3,169,439	1,079	30.6	567	5.2	4.7
2017	251,518	3,420,957	1,158	32.8	609	5.6	5.1
2018	251,518	3,672,475	1,233	34.9	648	5.9	5.4
2019	217,360	3,923,993	1,305	37.0	686	6.3	5.7
2020	0	4,141,353	1,359	38.5	714	6.6	5.9
2021	0	4,141,353	1,305	37.0	686	6.3	5.7
2022	0	4,141,353	1,254	35.5	659	6.0	5.5
2023	0	4,141,353	1,205	34.1	633	5.8	5.3
2024	0	4,141,353	1,158	32.8	609	5.6	5.1
2025	0	4,141,353	1,112	31.5	585	5.4	4.9

Methane Content of LFG Adjusted to: 50%
Decay Rate Constant (k): 0.040
Ultimate Methane Recovery Rate (Lo): 100 m3/Mg = 3,204 cu ft/ton
NMOC Concentration in LFG: 82 ppmv as Hexane

TABLE 2A. GHG METHANE MODELING
LOUDON COUNTY (MATLOCK BEND) LANDFILL, LOUDON, TENNESSEE

Year	Disposal Rate (tons/yr)	Refuse In-Place (tons)	Methane Production (Mg/yr)	Methane Production (ton/yr)	Base LFG Production (scfm)	Base LFG Production (scf/year)	LFG Collection (scf/year)
1987	24,276	0	0	0	0	0	0
1988	55,987	24,276	81	90	17	8,780,123	0
1989	67,753	80,263	264	291	54	28,542,981	0
1990	73,341	148,016	477	525	98	51,466,377	0
1991	106,582	221,357	696	767	143	75,140,744	0
1992	96,507	327,939	1,015	1,118	208	109,525,986	0
1993	94,782	424,446	1,282	1,413	263	138,362,165	0
1994	134,129	519,228	1,528	1,684	314	164,976,752	0
1995	59,785	653,357	1,893	2,086	389	204,347,722	0
1996	40,855	713,142	1,989	2,192	408	214,648,633	0
1997	50,213	753,997	2,015	2,221	414	217,532,226	0
1998	52,626	804,210	2,072	2,283	425	223,640,645	0
1999	59,918	856,836	2,134	2,351	438	230,283,353	0
2000	55,073	916,754	2,216	2,442	455	239,195,380	0
2001	48,077	971,827	2,278	2,510	468	245,861,292	0
2002	45,082	1,019,904	2,313	2,549	475	249,627,566	0
2003	55,023	1,064,986	2,336	2,574	480	252,101,937	0
2004	68,151	1,120,009	2,391	2,634	491	258,034,665	0
2005	79,973	1,188,160	2,487	2,740	511	268,386,809	0
2006	89,945	1,268,133	2,617	2,884	537	282,441,153	0
2007	130,972	1,358,078	2,773	3,056	569	299,323,468	0
2008	167,244	1,489,050	3,058	3,370	628	330,109,012	0
2009	154,707	1,656,294	3,449	3,801	708	372,307,679	0
2010	130,486	1,811,001	3,777	4,162	776	407,633,919	0
2011	236,247	1,941,487	4,005	4,413	822	432,242,646	0
2012	237,151	2,177,734	4,574	5,041	939	493,739,450	0
2013	251,518	2,414,885	5,116	5,637	1,051	552,155,924	0
2014	251,518	2,666,403	5,675	6,254	1,165	612,532,023	0
2015	251,518	2,917,921	6,203	6,836	1,274	669,562,928	0
2016	251,518	3,169,439	6,702	7,386	1,376	723,433,982	0
2017	251,518	3,420,957	7,174	7,906	1,473	774,320,261	0
2018	251,518	3,672,475	7,619	8,396	1,565	822,387,138	0
2019	217,360	3,923,993	8,040	8,860	1,651	867,790,825	0
2020	0	4,141,353	8,323	9,172	1,709	898,324,643	0
2021	0	4,141,353	7,862	8,664	1,614	848,552,130	0
2022	0	4,141,353	7,426	8,184	1,525	801,537,310	0
2023	0	4,141,353	7,015	7,730	1,441	757,127,389	0
2024	0	4,141,353	6,626	7,302	1,361	715,178,042	0
2025	0	4,141,353	6,259	6,897	1,285	675,552,937	0

ASSUMED METHANE CONTENT OF LFG: 50%
ASSUME NO LFG COLLECTION SYSTEM
SELECTED DECAY RATE CONSTANT (k): 0.057
L_0: 3,263.9 ft^3/ton
MASS EQUIVALENT L_0: 0.0667 Mg CH4/Mg waste
LFG Collection Rate: 0%

TABLE 2B. GREENHOUSE GAS EMISSIONS
LOUDON COUNTY (MATLOCK BEND) LANDFILL, LOUDON, TENNESSEE

Year	LFG Collection (scf/year)	Methane Generation (ton/year)	Fugitive Methane Emitted Through Surface (ton/year)	Methane From Control Device (ton/year)	Nitrous Oxide from Methane Combustion (ton/year)	Fugitive Carbon Dioxide Emitted Through Surface (ton/year)	Carbon Dioxide from Methane Oxidation in Surface (ton/year)	Carbon Dioxide from Methane Combustion (ton/year)	Carbon Dioxide Passing Through Control Device (ton/year)
1987	0	0	0	0.0	0.0	0	0	0	0
1988	0	90	81	0.0	0.0	247	25	0	0
1989	0	291	262	0.0	0.0	801	80	0	0
1990	0	525	473	0.0	0.0	1,445	145	0	0
1991	0	767	690	0.0	0.0	2,110	211	0	0
1992	0	1,118	1,006	0.0	0.0	3,075	308	0	0
1993	0	1,413	1,271	0.0	0.0	3,885	388	0	0
1994	0	1,684	1,516	0.0	0.0	4,632	463	0	0
1995	0	2,086	1,878	0.0	0.0	5,737	574	0	0
1996	0	2,192	1,972	0.0	0.0	6,027	603	0	0
1997	0	2,221	1,999	0.0	0.0	6,108	611	0	0
1998	0	2,283	2,055	0.0	0.0	6,279	628	0	0
1999	0	2,351	2,116	0.0	0.0	6,466	647	0	0
2000	0	2,442	2,198	0.0	0.0	6,716	672	0	0
2001	0	2,510	2,259	0.0	0.0	6,903	690	0	0
2002	0	2,549	2,294	0.0	0.0	7,009	701	0	0
2003	0	2,574	2,317	0.0	0.0	7,078	708	0	0
2004	0	2,634	2,371	0.0	0.0	7,245	724	0	0
2005	0	2,740	2,466	0.0	0.0	7,536	754	0	0
2006	0	2,884	2,595	0.0	0.0	7,930	793	0	0
2007	0	3,056	2,750	0.0	0.0	8,404	840	0	0
2008	0	3,370	3,033	0.0	0.0	9,268	927	0	0
2009	0	3,801	3,421	0.0	0.0	10,453	1,045	0	0
2010	0	4,162	3,746	0.0	0.0	11,445	1,145	0	0
2011	0	4,413	3,972	0.0	0.0	12,136	1,214	0	0
2012	0	5,041	4,537	0.0	0.0	13,863	1,386	0	0
2013	0	5,637	5,074	0.0	0.0	15,503	1,550	0	0
2014	0	6,254	5,628	0.0	0.0	17,198	1,720	0	0
2015	0	6,836	6,153	0.0	0.0	18,799	1,880	0	0
2016	0	7,386	6,648	0.0	0.0	20,312	2,031	0	0
2017	0	7,906	7,115	0.0	0.0	21,741	2,174	0	0
2018	0	8,396	7,557	0.0	0.0	23,090	2,309	0	0
2019	0	8,860	7,974	0.0	0.0	24,365	2,437	0	0
2020	0	9,172	8,255	0.0	0.0	25,222	2,522	0	0
2021	0	8,664	7,797	0.0	0.0	23,825	2,382	0	0
2022	0	8,184	7,365	0.0	0.0	22,505	2,250	0	0
2023	0	7,730	6,957	0.0	0.0	21,258	2,126	0	0
2024	0	7,302	6,572	0.0	0.0	20,080	2,008	0	0
2025	0	6,897	6,208	0.0	0.0	18,968	1,897	0	0

No (0%) gas collection efficiency assumed for calculation of GHG PTE.
Used default 10% oxidation of methane in landfill surface based on EPA GHG Reporting Rule

TABLE 2C. - SUMMARY OF 2020 GHG PTE
LOUDON COUNTY (MATLOCK BEND) LANDFILL, LOUDON, TENNESSEE

Source	(tons/yr)	(tons CO_2e/yr)	Biogenic?	Fugitive?
Fugitive Methane Emissions	8,255	206,364	No	Yes
Fugitive Carbon Dioxide Emissions	27,745	27,745	Yes	Yes
Stack Carbon Dioxide	0	0	Yes	No
Methane from Combustion	0	0	No	No
Nitrous Oxide from Combustion	0	0	No	No
Total GHG Emissions (PTE)		234,109		
Total Methane (PTE)	8,255	206,364		
Total Non-Biogenic GHG (PTE)		206,364		
Total Fugitive GHG (PTE)		234,109		
Stack GHG Emissions (PTE)		0		

Note: GWP for Methane = 25 (to convert to tons CO2e) per revised GHG rule.

Summary Report

Landfill Name or Identifier: Loudon County (Matlock Bend) Landfill

Date: Tuesday, November 11, 2014

Description/Comments:
Title V estimated emissions based on AP-42 emission factors.

About LandGEM:

First-Order Decomposition Rate Equation:

$$Q_{CH_4} = \sum_{i=1}^{n} \sum_{j=0.1}^{1} kL_o \left(\frac{M_i}{10}\right) e^{-kt_{ij}}$$

Where,
Q_{CH4} = annual methane generation in the year of the calculation ($m^3/year$)
i = 1-year time increment
n = (year of the calculation) - (initial year of waste acceptance)
j = 0.1-year time increment
k = methane generation rate ($year^{-1}$)
L_o = potential methane generation capacity (m^3/Mg)
M_i = mass of waste accepted in the i^{th} year (Mg)
t_{ij} = age of the j^{th} section of waste mass M_i accepted in the i^{th} year (*decimal years*, e.g., 3.2 years)

LandGEM is based on a first-order decomposition rate equation for quantifying emissions from the decomposition of landfilled waste in municipal solid waste (MSW) landfills. The software provides a relatively simple approach to estimating landfill gas emissions. Model defaults are based on empirical data from U.S. landfills. Field test data can also be used in place of model defaults when available. Further guidance on EPA test methods, Clean Air Act (CAA) regulations, and other guidance regarding landfill gas emissions and control technology requirements can be found at http://www.epa.gov/ttnatw01/landfill/landflpg.html.

LandGEM is considered a screening tool — the better the input data, the better the estimates. Often, there are limitations with the available data regarding waste quantity and composition, variation in design and operating practices over time, and changes occurring over time that impact the emissions potential. Changes to landfill operation, such as operating under wet conditions through leachate recirculation or other liquid additions, will result in generating more gas at a faster rate. Defaults for estimating emissions for this type of operation are being developed to include in LandGEM along with defaults for convential landfills (no leachate or liquid additions) for developing emission inventories and determining CAA applicability. Refer to the Web site identified above for future updates.

Input Review

LANDFILL CHARACTERISTICS

Landfill Open Year	1987	
Landfill Closure Year (with 80-year limit)	2019	
Actual Closure Year (without limit)	*2019*	
Have Model Calculate Closure Year?	No	
Waste Design Capacity	3,764,868	*megagrams*

MODEL PARAMETERS

Methane Generation Rate, k	0.040	$year^{-1}$
Potential Methane Generation Capacity, L_o	100	m^3/Mg
NMOC Concentration	82	*ppmv as hexane*
Methane Content	50	*% by volume*

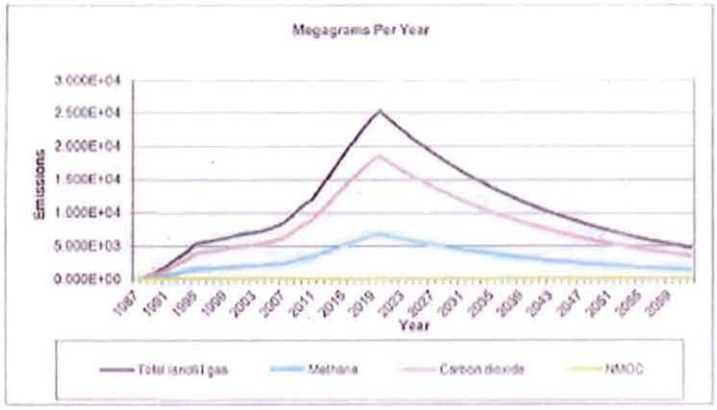
GASES / POLLUTANTS SELECTED

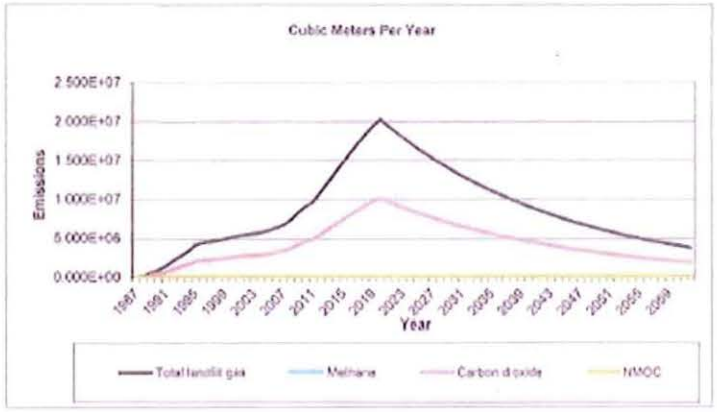
Gas / Pollutant #1:	Total landfill gas
Gas / Pollutant #2:	Methane
Gas / Pollutant #3:	Carbon dioxide
Gas / Pollutant #4:	NMOC

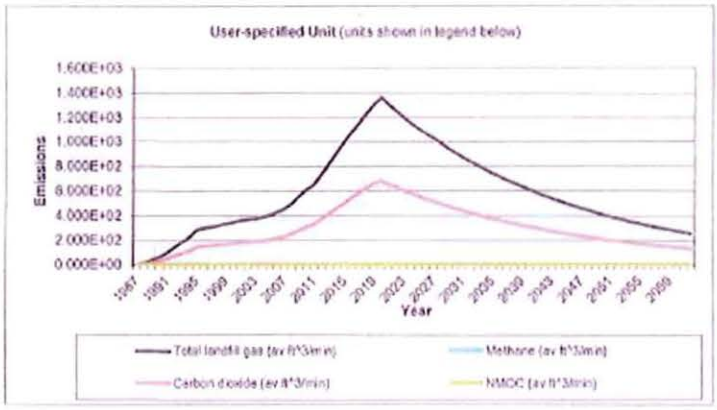
WASTE ACCEPTANCE RATES

Year	Waste Accepted		Waste-In-Place	
	(Mg/year)	*(short tons/year)*	*(Mg)*	*(short tons)*
1987	22,069	24,276	0	0
1988	50,897	55,987	22,069	24,276
1989	61,594	67,753	72,966	80,263
1990	66,674	73,341	134,560	148,016
1991	96,893	106,582	201,234	221,357
1992	87,734	96,507	298,126	327,939
1993	86,165	94,782	385,860	424,446
1994	121,935	134,129	472,025	519,228
1995	54,350	59,785	593,961	653,357
1996	37,141	40,855	648,311	713,142
1997	45,648	50,213	685,452	753,997
1998	47,842	52,626	731,100	804,210
1999	54,471	59,918	778,942	856,836
2000	50,066	55,073	833,413	916,754
2001	43,706	48,077	883,479	971,827
2002	40,984	45,082	927,185	1,019,904
2003	50,021	55,023	968,169	1,064,986
2004	61,955	68,151	1,018,190	1,120,009
2005	72,703	79,973	1,080,145	1,188,160
2006	81,768	89,945	1,152,848	1,268,133
2007	119,065	130,972	1,234,616	1,358,078
2008	152,040	167,244	1,353,682	1,489,050
2009	140,643	154,707	1,505,722	1,656,294
2010	118,624	130,486	1,646,365	1,811,001
2011	214,770	236,247	1,764,988	1,941,487
2012	215,592	237,151	1,979,758	2,177,734
2013	228,653	251,518	2,195,350	2,414,885
2014	228,653	251,518	2,424,003	2,666,403
2015	228,653	251,518	2,652,655	2,917,921
2016	228,653	251,518	2,881,308	3,169,439
2017	228,653	251,518	3,109,961	3,420,957
2018	228,653	251,518	3,338,614	3,672,475
2019	197,600	217,360	3,567,266	3,923,993
2020	0	0	3,764,866	4,141,353
2021	0	0	3,764,866	4,141,353
2022	0	0	3,764,866	4,141,353
2023	0	0	3,764,866	4,141,353
2024	0	0	3,764,866	4,141,353
2025	0	0	3,764,866	4,141,353
2026	0	0	3,764,866	4,141,353

Graphs


Megagrams Per Year
Emissions
Year
Total landfill gas
Methane
Carbon dioxide
NMOC


Cubic Meters Per Year
Emissions
Year
Total landfill gas
Methane
Carbon dioxide
NMOC


User-specified Unit (units shown in legend below)
Emissions
Year
Total landfill gas (av ft^3/min)
Methane (av ft^3/min)
Carbon dioxide (av ft^3/min)
NMOC (av ft^3/min)

Results

Year	Total landfill gas			Methane		
	(Mg/year)	(m^3/year)	(av ft^3/min)	(Mg/year)	(m^3/year)	(av ft^3/min)
1987	0	0	0	0	0	0
1988	2.166E+02	1.734E+05	1.165E+01	5.785E+01	8.671E+04	5.826E+00
1989	7.075E+02	5.666E+05	3.807E+01	1.890E+02	2.833E+05	1.903E+01
1990	1.284E+03	1.028E+06	6.909E+01	3.430E+02	5.142E+05	3.455E+01
1991	1.888E+03	1.512E+06	1.016E+02	5.043E+02	7.560E+05	5.079E+01
1992	2.765E+03	2.214E+06	1.488E+02	7.385E+02	1.107E+06	7.438E+01
1993	3.517E+03	2.817E+06	1.892E+02	9.395E+02	1.408E+06	9.462E+01
1994	4.225E+03	3.383E+06	2.273E+02	1.129E+03	1.692E+06	1.137E+02
1995	5.256E+03	4.209E+06	2.828E+02	1.404E+03	2.104E+06	1.414E+02
1996	5.583E+03	4.471E+06	3.004E+02	1.491E+03	2.235E+06	1.502E+02
1997	5.729E+03	4.587E+06	3.082E+02	1.530E+03	2.294E+06	1.541E+02
1998	5.952E+03	4.766E+06	3.202E+02	1.590E+03	2.383E+06	1.601E+02
1999	6.188E+03	4.955E+06	3.329E+02	1.653E+03	2.478E+06	1.665E+02
2000	6.480E+03	5.189E+06	3.486E+02	1.731E+03	2.594E+06	1.743E+02
2001	6.717E+03	5.379E+06	3.614E+02	1.794E+03	2.689E+06	1.807E+02
2002	6.883E+03	5.511E+06	3.703E+02	1.838E+03	2.756E+06	1.852E+02
2003	7.015E+03	5.617E+06	3.774E+02	1.874E+03	2.809E+06	1.887E+02
2004	7.231E+03	5.790E+06	3.890E+02	1.931E+03	2.895E+06	1.945E+02
2005	7.555E+03	6.050E+06	4.065E+02	2.018E+03	3.025E+06	2.032E+02
2006	7.972E+03	6.384E+06	4.289E+02	2.130E+03	3.192E+06	2.145E+02
2007	8.462E+03	6.776E+06	4.553E+02	2.260E+03	3.388E+06	2.276E+02
2008	9.299E+03	7.446E+06	5.003E+02	2.484E+03	3.723E+06	2.502E+02
2009	1.043E+04	8.349E+06	5.610E+02	2.785E+03	4.174E+06	2.805E+02
2010	1.140E+04	9.127E+06	6.132E+02	3.044E+03	4.563E+06	3.066E+02
2011	1.211E+04	9.701E+06	6.518E+02	3.236E+03	4.850E+06	3.259E+02
2012	1.375E+04	1.101E+07	7.396E+02	3.672E+03	5.504E+06	3.698E+02
2013	1.532E+04	1.227E+07	8.245E+02	4.093E+03	6.135E+06	4.122E+02
2014	1.697E+04	1.359E+07	9.128E+02	4.532E+03	6.793E+06	4.564E+02
2015	1.855E+04	1.485E+07	9.978E+02	4.954E+03	7.425E+06	4.989E+02
2016	2.006E+04	1.606E+07	1.079E+03	5.359E+03	8.032E+06	5.397E+02
2017	2.152E+04	1.723E+07	1.158E+03	5.748E+03	8.616E+06	5.789E+02
2018	2.292E+04	1.835E+07	1.233E+03	6.122E+03	9.176E+06	6.165E+02
2019	2.426E+04	1.943E+07	1.305E+03	6.481E+03	9.715E+06	6.527E+02
2020	2.525E+04	2.022E+07	1.359E+03	6.745E+03	1.011E+07	6.793E+02
2021	2.426E+04	1.943E+07	1.305E+03	6.481E+03	9.714E+06	6.527E+02
2022	2.331E+04	1.867E+07	1.254E+03	6.226E+03	9.333E+06	6.271E+02
2023	2.240E+04	1.793E+07	1.205E+03	5.982E+03	8.967E+06	6.025E+02
2024	2.152E+04	1.723E+07	1.158E+03	5.748E+03	8.615E+06	5.789E+02
2025	2.067E+04	1.656E+07	1.112E+03	5.522E+03	8.276E+06	5.562E+02
2026	1.986E+04	1.591E+07	1.069E+03	5.306E+03	7.953E+06	5.344E+02
2027	1.908E+04	1.528E+07	1.027E+03	5.098E+03	7.641E+06	5.134E+02
2028	1.834E+04	1.468E+07	9.865E+02	4.898E+03	7.341E+06	4.933E+02
2029	1.762E+04	1.411E+07	9.479E+02	4.706E+03	7.054E+06	4.739E+02
2030	1.693E+04	1.355E+07	9.107E+02	4.521E+03	6.777E+06	4.553E+02
2031	1.626E+04	1.302E+07	8.750E+02	4.344E+03	6.511E+06	4.375E+02
2032	1.563E+04	1.251E+07	8.407E+02	4.174E+03	6.256E+06	4.203E+02
2033	1.501E+04	1.202E+07	8.077E+02	4.010E+03	6.011E+06	4.039E+02
2034	1.442E+04	1.155E+07	7.760E+02	3.853E+03	5.775E+06	3.880E+02
2035	1.386E+04	1.110E+07	7.456E+02	3.702E+03	5.549E+06	3.728E+02
2036	1.332E+04	1.066E+07	7.164E+02	3.557E+03	5.331E+06	3.582E+02

Results (Continued)

Year	Carbon dioxide			NMOC		
	(Mg/year)	(m^3/year)	(av ft^3/min)	(Mg/year)	(m^3/year)	(av ft^3/min)
1987	0	0	0	0	0	0
1988	1.587E+02	8.671E+04	5.826E+00	5.097E-02	1.422E+01	9.554E-04
1989	5.185E+02	2.833E+05	1.903E+01	1.665E-01	4.646E+01	3.121E-03
1990	9.412E+02	5.142E+05	3.455E+01	3.023E-01	8.432E+01	5.666E-03
1991	1.384E+03	7.560E+05	5.079E+01	4.444E-01	1.240E+02	8.330E-03
1992	2.026E+03	1.107E+06	7.438E+01	6.508E-01	1.815E+02	1.220E-02
1993	2.578E+03	1.408E+06	9.462E+01	8.279E-01	2.310E+02	1.552E-02
1994	3.096E+03	1.692E+06	1.137E+02	9.944E-01	2.774E+02	1.864E-02
1995	3.852E+03	2.104E+06	1.414E+02	1.237E+00	3.451E+02	2.319E-02
1996	4.092E+03	2.235E+06	1.502E+02	1.314E+00	3.666E+02	2.463E-02
1997	4.199E+03	2.294E+06	1.541E+02	1.348E+00	3.762E+02	2.527E-02
1998	4.362E+03	2.383E+06	1.601E+02	1.401E+00	3.908E+02	2.626E-02
1999	4.535E+03	2.478E+06	1.665E+02	1.456E+00	4.063E+02	2.730E-02
2000	4.749E+03	2.594E+06	1.743E+02	1.525E+00	4.255E+02	2.859E-02
2001	4.923E+03	2.689E+06	1.807E+02	1.581E+00	4.411E+02	2.964E-02
2002	5.044E+03	2.756E+06	1.852E+02	1.620E+00	4.519E+02	3.037E-02
2003	5.141E+03	2.809E+06	1.887E+02	1.651E+00	4.606E+02	3.095E-02
2004	5.299E+03	2.895E+06	1.945E+02	1.702E+00	4.748E+02	3.190E-02
2005	5.537E+03	3.025E+06	2.032E+02	1.778E+00	4.961E+02	3.333E-02
2006	5.843E+03	3.192E+06	2.145E+02	1.876E+00	5.235E+02	3.517E-02
2007	6.202E+03	3.388E+06	2.276E+02	1.992E+00	5.556E+02	3.733E-02
2008	6.815E+03	3.723E+06	2.502E+02	2.189E+00	6.106E+02	4.102E-02
2009	7.641E+03	4.174E+06	2.805E+02	2.454E+00	6.846E+02	4.600E-02
2010	8.353E+03	4.563E+06	3.066E+02	2.683E+00	7.484E+02	5.028E-02
2011	8.879E+03	4.850E+06	3.259E+02	2.851E+00	7.955E+02	5.345E-02
2012	1.008E+04	5.504E+06	3.698E+02	3.236E+00	9.027E+02	6.065E-02
2013	1.123E+04	6.135E+06	4.122E+02	3.607E+00	1.006E+03	6.761E-02
2014	1.243E+04	6.793E+06	4.564E+02	3.993E+00	1.114E+03	7.485E-02
2015	1.359E+04	7.425E+06	4.989E+02	4.365E+00	1.218E+03	8.182E-02
2016	1.470E+04	8.032E+06	5.397E+02	4.722E+00	1.317E+03	8.851E-02
2017	1.577E+04	8.616E+06	5.789E+02	5.065E+00	1.413E+03	9.494E-02
2018	1.680E+04	9.176E+06	6.165E+02	5.394E+00	1.505E+03	1.011E-01
2019	1.778E+04	9.715E+06	6.527E+02	5.711E+00	1.593E+03	1.070E-01
2020	1.851E+04	1.011E+07	6.793E+02	5.943E+00	1.658E+03	1.114E-01
2021	1.778E+04	9.714E+06	6.527E+02	5.710E+00	1.593E+03	1.070E-01
2022	1.708E+04	9.333E+06	6.271E+02	5.486E+00	1.531E+03	1.028E-01
2023	1.641E+04	8.967E+06	6.025E+02	5.271E+00	1.471E+03	9.881E-02
2024	1.577E+04	8.616E+06	5.789E+02	5.065E+00	1.413E+03	9.493E-02
2025	1.515E+04	8.278E+06	5.562E+02	4.866E+00	1.358E+03	9.121E-02
2026	1.456E+04	7.953E+06	5.344E+02	4.675E+00	1.304E+03	8.763E-02
2027	1.399E+04	7.641E+06	5.134E+02	4.492E+00	1.253E+03	8.420E-02
2028	1.344E+04	7.341E+06	4.933E+02	4.316E+00	1.204E+03	8.090E-02
2029	1.291E+04	7.054E+06	4.739E+02	4.146E+00	1.157E+03	7.772E-02
2030	1.241E+04	6.777E+06	4.553E+02	3.984E+00	1.111E+03	7.466E-02
2031	1.192E+04	6.511E+06	4.375E+02	3.828E+00	1.068E+03	7.175E-02
2032	1.145E+04	6.256E+06	4.203E+02	3.678E+00	1.026E+03	6.894E-02
2033	1.100E+04	6.011E+06	4.039E+02	3.533E+00	9.858E+02	6.623E-02
2034	1.057E+04	5.775E+06	3.880E+02	3.395E+00	9.471E+02	6.364E-02
2035	1.016E+04	5.549E+06	3.728E+02	3.262E+00	9.100E+02	6.114E-02
2036	9.758E+03	5.331E+06	3.582E+02	3.134E+00	8.743E+02	5.874E-02

ATTACHMENT 2

Applicable Parts from Code of Federal Regulations, Title 40, Part 61, Subpart M, National Emission Standards for Asbestos

Title 40: Protection of Environment
PART 61—NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS

Applicable Parts from
Subpart M—National Emission Standard for Asbestos

Contents

Authority: 42 U.S.C. 7401, 7412, 7414, 7416, 7601.

Source: 49 FR 13661, Apr. 5, 1984, unless otherwise noted.

§61.140 Applicability.

The provisions of this subpart are applicable to those sources specified in §§61.142 through 61.151, 61.154, and 61.155.

[55 FR 48414, Nov. 20, 1990]

§61.141 Definitions.

All terms that are used in this subpart and are not defined below are given the same meaning as in the Act and in subpart A of this part.

Active waste disposal site means any disposal site other than an inactive site.

Adequately wet means sufficiently mix or penetrate with liquid to prevent the release of particulates. If visible emissions are observed coming from asbestos-containing material, then that material has not been adequately wetted. However, the absence of visible emissions is not sufficient evidence of being adequately wet.

Asbestos means the asbestiform varieties of serpentinite (chrysotile), riebeckite (crocidolite), cummingtonite-grunerite, anthophyllite, and actinolite-tremolite.

Asbestos-containing waste materials means mill tailings or any waste that contains commercial asbestos and is generated by a source subject to the provisions of this subpart. This term includes filters from control devices, friable asbestos waste material, and bags or other similar packaging contaminated with commercial asbestos. As applied to demolition and renovation operations, this term also includes regulated asbestos-containing material waste and materials contaminated with asbestos including disposable equipment and clothing.

Asbestos mill means any facility engaged in converting, or in any intermediate step in converting, asbestos ore into commercial asbestos. Outside storage of asbestos material is not considered a part of the asbestos mill.

Asbestos tailings means any solid waste that contains asbestos and is a product of asbestos mining or milling operations.

Asbestos waste from control devices means any waste material that contains asbestos and is collected by a pollution control device.

Category I nonfriable asbestos-containing material (ACM) means asbestos-containing packings, gaskets, resilient floor covering, and asphalt roofing products containing more than 1 percent asbestos as determined using the method specified in appendix E, subpart E, 40 CFR part 763, section 1, Polarized Light Microscopy.

Category II nonfriable ACM means any material, excluding Category I nonfriable ACM, containing more than 1 percent asbestos as determined using the methods specified in appendix E, subpart E, 40 CFR part 763, section 1, Polarized Light Microscopy that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.

Commercial asbestos means any material containing asbestos that is extracted from ore and has value because of its asbestos content.

Cutting means to penetrate with a sharp-edged instrument and includes sawing, but does not include shearing, slicing, or punching.

Demolition means the wrecking or taking out of any load-supporting structural member of a facility together with any related handling operations or the intentional burning of any facility.

Emergency renovation operation means a renovation operation that was not planned but results from a sudden, unexpected event that, if not immediately attended to, presents a safety or public health hazard, is necessary to protect equipment from damage, or is necessary to avoid imposing an unreasonable financial burden. This term includes operations necessitated by nonroutine failures of equipment.

Fabricating means any processing (*e.g.*, cutting, sawing, drilling) of a manufactured product that contains commercial asbestos, with the exception of processing at temporary sites (field fabricating) for the construction or restoration of facilities. In the case of friction products, fabricating includes bonding, debonding, grinding, sawing, drilling, or other similar operations performed as part of fabricating.

Facility means any institutional, commercial, public, industrial, or residential structure, installation, or building (including any structure, installation, or building containing condominiums or individual dwelling units operated as a residential cooperative, but excluding residential buildings having four or fewer dwelling units); any ship; and any active or inactive waste disposal site. For purposes of this definition, any building, structure, or installation that contains a loft used as a dwelling is not considered a residential structure, installation, or building. Any structure, installation or building that was previously subject to this subpart is not excluded, regardless of its current use or function.

Facility component means any part of a facility including equipment.

Friable asbestos material means any material containing more than 1 percent asbestos as determined using the method specified in appendix E, subpart E, 40 CFR part 763, section 1, Polarized Light Microscopy, that, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure. If the asbestos content is less than 10 percent as determined by a method other than point counting by polarized light microscopy (PLM), verify the asbestos content by point counting using PLM.

Fugitive source means any source of emissions not controlled by an air pollution control device.

Glove bag means a sealed compartment with attached inner gloves used for the handling of asbestos-containing materials. Properly installed and used, glove bags provide a small work area enclosure typically used for small-scale asbestos stripping operations. Information on glove-bag installation, equipment and supplies, and work practices is contained in the Occupational Safety and Health Administration's (OSHA's) final rule on occupational exposure to asbestos (appendix G to 29 CFR 1926.58).

Grinding means to reduce to powder or small fragments and includes mechanical chipping or drilling.

In poor condition means the binding of the material is losing its integrity as indicated by peeling, cracking, or crumbling of the material.

Inactive waste disposal site means any disposal site or portion of it where additional asbestos-containing waste material has not been deposited within the past year.

Installation means any building or structure or any group of buildings or structures at a single demolition or renovation site that are under the control of the same owner or operator (or owner or operator under common control).

Leak-tight means that solids or liquids cannot escape or spill out. It also means dust-tight.

Malfunction means any sudden and unavoidable failure of air pollution control equipment or process equipment or of a process to operate in a normal or usual manner so that emissions of asbestos are increased. Failures of equipment shall not be considered malfunctions if they are caused in any way by poor maintenance, careless operation, or any other preventable upset conditions, equipment breakdown, or process failure.

Manufacturing means the combining of commercial asbestos—or, in the case of woven friction products, the combining of textiles containing commercial asbestos—with any other material(s), including commercial asbestos, and the processing of this combination into a product. Chlorine production is considered a part of manufacturing.

Natural barrier means a natural object that effectively precludes or deters access. Natural barriers include physical obstacles such as cliffs, lakes or other large bodies of water, deep and wide ravines, and mountains. Remoteness by itself is not a natural barrier.

Nonfriable asbestos-containing material means any material containing more than 1 percent asbestos as determined using the method specified in appendix E, subpart E, 40 CFR part 763, section 1, Polarized Light Microscopy, that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.

Nonscheduled renovation operation means a renovation operation necessitated by the routine failure of equipment, which is expected to occur within a given period based on past operating experience, but for which an exact date cannot be predicted.

Outside air means the air outside buildings and structures, including, but not limited to, the air under a bridge or in an open air ferry dock.

Owner or operator of a demolition or renovation activity means any person who owns, leases, operates, controls, or supervises the facility being demolished or renovated or any person who owns, leases, operates, controls, or supervises the demolition or renovation operation, or both.

Particulate asbestos material means finely divided particles of asbestos or material containing asbestos.

Planned renovation operations means a renovation operation, or a number of such operations, in which some RACM will be removed or stripped within a given period of time and that can be predicted. Individual nonscheduled operations are included if a number of such operations can be predicted to occur during a given period of time based on operating experience.

Regulated asbestos-containing material (RACM) means (a) Friable asbestos material, (b) Category I nonfriable ACM that has become friable, (c) Category I nonfriable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading, or (d) Category II nonfriable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition or renovation operations regulated by this subpart.

Remove means to take out RACM or facility components that contain or are covered with RACM from any facility.

Renovation means altering a facility or one or more facility components in any way, including the stripping or removal of RACM from a facility component. Operations in which load-supporting structural members are wrecked or taken out are demolitions.

Resilient floor covering means asbestos-containing floor tile, including asphalt and vinyl floor tile, and sheet vinyl floor covering containing more than 1 percent asbestos as determined using polarized light microscopy according to the method specified in appendix E, subpart E, 40 CFR part 763, section 1, Polarized Light Microscopy.

Roadways means surfaces on which vehicles travel. This term includes public and private highways, roads, streets, parking areas, and driveways.

Strip means to take off RACM from any part of a facility or facility components.

Structural member means any load-supporting member of a facility, such as beams and load supporting walls; or any nonload-supporting member, such as ceilings and nonload-supporting walls.

Visible emissions means any emissions, which are visually detectable without the aid of instruments, coming from RACM or asbestos-containing waste material, or from any asbestos milling, manufacturing, or fabricating operation. This does not include condensed, uncombined water vapor.

Waste generator means any owner or operator of a source covered by this subpart whose act or process produces asbestos-containing waste material.

Waste shipment record means the shipping document, required to be originated and signed by the waste generator, used to track and substantiate the disposition of asbestos-containing waste material.

Working day means Monday through Friday and includes holidays that fall on any of the days Monday through Friday.

[49 FR 13661, Apr. 5, 1984; 49 FR 25453, June 21, 1984, as amended by 55 FR 48414, Nov. 20, 1990; 56 FR 1669, Jan. 16, 1991; 60 FR 31920, June 19, 1995]

Generator	1. Work site name and mailing address	Owner's name	Owner's telephone no.
	2. Operator's name and address		Operator's telephone no.
	3. Waste disposal site (WDS) name, mailing address, and physical site location		WDS phone no.
	4. Name, and address of responsible agency		
	5. Description of materials	6. Containers No. Type	7. Total quantity m^3 (yd^3)
	8. Special handling instructions and additional information		
	9. OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.		
	Printed/typed name & title	Signature	Month Day Year
Transporter	10. Transporter 1 (Acknowledgment of receipt of materials)		
	Printed/typed name & title Address and telephone no.	Signature	Month Day Year
	11. Transporter 2 (Acknowledgment of receipt of materials)		
	Printed/typed name & title Address and telephone no.	Signature	Month Day Year
Disposal Site	12. Discrepancy indication space		
	13. Waste disposal site owner or operator: Certification of receipt of asbestos materials covered by this manifest except as noted in item 12.		
	Printed/typed name & title	Signature	Month Day Year

(Continued)

Figure 4. Waste Shipment Record

INSTRUCTIONS

Waste Generator Section (Items 1-9)

1. Enter the name of the facility at which asbestos waste is generated and the address where the facility is located. In the appropriate spaces, also enter the name of the owner of the facility and the owner's phone number.

2. If a demolition or renovation, enter the name and address of the company and authorized agent responsible for performing the asbestos removal. In the appropriate spaces, also enter the phone number of the operator.

3. Enter the name, address, and physical site location of the waste disposal site (WDS) that will be receiving the asbestos materials. In the appropriate spaces, also enter the phone number of the WDS. Enter 'on-site' if the waste will be disposed of on the generator's property.

4. Provide the name and address of the local, State, or EPA Regional office responsible for administering the asbestos NESHAP program.

5. Indicate the types of asbestos waste materials generated. If from a demolition or renovation, indicate the amount of asbestos that is

   - Friable asbestos material
   - Nonfriable asbestos material

6. Enter the number of containers used to transport the asbestos materials listed in item 5. Also enter one of the following container codes used in transporting each type of asbestos material (specify any other type of container used if not listed below):

   CM - Metal drums, barrels
   CP - Plastic drums, barrels
   BA - 6 mil plastic bags or wrapping

7. Enter the quantities of each type of asbestos material removed in units of cubic meters (cubic yards).

8. Use this space to indicate special transportation, treatment, storage or disposal or Bill of Lading information. If an alternate waste disposal site is designated, note it here. Emergency response telephone numbers or similar information may be included here.

9. The authorized agent of the waste generator must read and then sign and date this certification. The date is the date of receipt by transporter.

NOTE: The waste generator must retain a copy of this form.

(continued)

Figure 4. Waste Shipment Record

Transporter Section (Items 10 & 11)

10. & 11. Enter name, address, and telephone number of each transporter used, if applicable. Print or type the full name and title of person accepting responsibility and acknowledging receipt of materials as listed on this waste shipment record for transport. Enter date of receipt and signature.

NOTE: The transporter must retain a copy of this form.

Disposal Site Section (Items 12 & 13)

12. The authorized representative of the WDS must note in this space any discrepancy between waste described on this manifest and waste actually received as well as any improperly enclosed or contained waste. Any rejected materials should be listed and destination of those materials provided. A site that converts asbestos-containing waste material to nonasbestos material is considered a WDS.

13. The signature (by hand) of the authorized WDS agent indicates acceptance and agreement with statements on this manifest except as noted in item 12. The date is the date of signature and receipt of shipment.

NOTE: The WDS must retain a completed copy of this form. The WDS must also send a completed copy to the operator listed in item 2.

Figure 4. Waste Shipment Record

§61.151 Standard for inactive waste disposal sites for asbestos mills and manufacturing and fabricating operations.

Each owner or operator of any inactive waste disposal site that was operated by sources covered under §61.142, 61.144, or 61.147 and received deposits of asbestos-containing waste material generated by the sources, shall:

(a) Comply with one of the following:

(1) Either discharge no visible emissions to the outside air from an inactive waste disposal site subject to this paragraph; or

(2) Cover the asbestos-containing waste material with at least 15 centimeters (6 inches) of compacted nonasbestos-containing material, and grow and maintain a cover of vegetation on the area adequate to prevent exposure of the asbestos-containing waste material. In desert areas where vegetation would be difficult to maintain, at least 8 additional centimeters (3 inches) of well-graded, nonasbestos crushed rock may be placed on top of the final cover instead of vegetation and maintained to prevent emissions; or

(3) Cover the asbestos-containing waste material with at least 60 centimeters (2 feet) of compacted nonasbestos-containing material, and maintain it to prevent exposure of the asbestos-containing waste; or

(4) For inactive waste disposal sites for asbestos tailings, a resinous or petroleum-based dust suppression agent that effectively binds dust to control surface air emissions may be used instead of the methods in paragraphs (a) (1), (2), and (3) of this section. Use the agent in the manner and frequency recommended for the particular asbestos tailings by the manufacturer of the dust suppression agent to achieve and maintain dust control. Obtain prior written approval of the Administrator to use other equally effective dust suppression agents. For purposes of this paragraph, any used, spent, or other waste oil is not considered a dust suppression agent.

(b) Unless a natural barrier adequately deters access by the general public, install and maintain warning signs and fencing as follows, or comply with paragraph (a)(2) or (a)(3) of this section.

(1) Display warning signs at all entrances and at intervals of 100 m (328 ft) or less along the property line of the site or along the perimeter of the sections of the site where asbestos-containing waste material was deposited. The warning signs must:

(i) Be posted in such a manner and location that a person can easily read the legend; and

(ii) Conform to the requirements for 51 cm×36 cm (20″×14″) upright format signs specified in 29 CFR 1910.145(d)(4) and this paragraph; and

(iii) Display the following legend in the lower panel with letter sizes and styles of a visibility at least equal to those specified in this paragraph.

Legend	Notation
Asbestos Waste Disposal Site	2.5 cm (1 inch) Sans Serif, Gothic or Block
Do Not Create Dust	1.9 cm (3/4 inch) Sans Serif, Gothic or Block
Breathing Asbestos is Hazardous to Your Health	14 Point Gothic.

Spacing between any two lines must be at least equal to the height of the upper of the two lines.

(2) Fence the perimeter of the site in a manner adequate to deter access by the general public.

(3) When requesting a determination on whether a natural barrier adequately deters public access, supply information enabling the Administrator to determine whether a fence or a natural barrier adequately deters access by the general public.

(c) The owner or operator may use an alternative control method that has received prior approval of the Administrator rather than comply with the requirements of paragraph (a) or (b) of this section.

(d) Notify the Administrator in writing at least 45 days prior to excavating or otherwise disturbing any asbestos-containing waste material that has been deposited at a waste disposal site under this section, and follow the procedures specified in the notification. If the excavation will begin on a date other than the one contained in the original notice, notice of the new start date must be provided to the Administrator at least 10 working days before excavation begins and in no event shall excavation begin earlier than the date specified in the original notification. Include the following information in the notice:

(1) Scheduled starting and completion dates.

(2) Reason for disturbing the waste.

(3) Procedures to be used to control emissions during the excavation, storage, transport, and ultimate disposal of the excavated asbestos-containing waste material. If deemed necessary, the Administrator may require changes in the emission control procedures to be used.

(4) Location of any temporary storage site and the final disposal site.

(e) Within 60 days of a site becoming inactive and after the effective date of this subpart, record, in accordance with State law, a notation on the deed to the facility property and on any other instrument that would normally be examined during a title search; this notation will in perpetuity notify any potential purchaser of the property that:

(1) The land has been used for the disposal of asbestos-containing waste material;

(2) The survey plot and record of the location and quantity of asbestos-containing waste disposed of within the disposal site required in §61.154(f) have been filed with the Administrator; and

(3) The site is subject to 40 CFR part 61, subpart M.

[49 FR 13661, Apr. 5, 1984, as amended at 53 FR 36972, Sept. 23, 1988. Redesignated and amended at 55 FR 48429, Nov. 20, 1990]

§61.154 Standard for active waste disposal sites.

Each owner or operator of an active waste disposal site that receives asbestos-containing waste material from a source covered under §61.149, 61.150, or 61.155 shall meet the requirements of this section:

(a) Either there must be no visible emissions to the outside air from any active waste disposal site where asbestos-containing waste material has been deposited, or the requirements of paragraph (c) or (d) of this section must be met.

(b) Unless a natural barrier adequately deters access by the general public, either warning signs and fencing must be installed and maintained as follows, or the requirements of paragraph (c)(1) of this section must be met.

(1) Warning signs must be displayed at all entrances and at intervals of 100 m (330 ft) or less along the property line of the site or along the perimeter of the sections of the site where asbestos-containing waste material is deposited. The warning signs must:

(i) Be posted in such a manner and location that a person can easily read the legend; and

(ii) Conform to the requirements of 51 cm × 36 cm (20″×14″) upright format signs specified in 29 CFR 1910.145(d)(4) and this paragraph; and

(iii) Display the following legend in the lower panel with letter sizes and styles of a visibility at least equal to those specified in this paragraph.

Legend	Notation
Asbestos Waste Disposal Site	2.5 cm (1 inch) Sans Serif, Gothic or Block.
Do Not Create Dust	1.9 cm (3/4 inch) Sans Serif, Gothic or Block.
Breathing Asbestos is Hazardous to Your Health	14 Point Gothic.

Spacing between any two lines must be at least equal to the height of the upper of the two lines.

(2) The perimeter of the disposal site must be fenced in a manner adequate to deter access by the general public.

(3) Upon request and supply of appropriate information, the Administrator will determine whether a fence or a natural barrier adequately deters access by the general public.

(c) Rather than meet the no visible emission requirement of paragraph (a) of this section, at the end of each operating day, or at least once every 24-hour period while the site is in continuous operation, the asbestos-containing waste material that has been deposited at the site during the operating day or previous 24-hour period shall:

(1) Be covered with at least 15 centimeters (6 inches) of compacted nonasbestos-containing material, or

(2) Be covered with a resinous or petroleum-based dust suppression agent that effectively binds dust and controls wind erosion. Such an agent shall be used in the manner and frequency recommended for the particular dust by the dust suppression agent manufacturer to achieve and maintain dust control. Other equally effective dust suppression agents may be used upon prior approval by the Administrator. For purposes of this paragraph, any used, spent, or other waste oil is not considered a dust suppression agent.

(d) Rather than meet the no visible emission requirement of paragraph (a) of this section, use an alternative emissions control method that has received prior written approval by the Administrator according to the procedures described in §61.149(c)(2).

(e) For all asbestos-containing waste material received, the owner or operator of the active waste disposal site shall:

(1) Maintain waste shipment records, using a form similar to that shown in Figure 4, and include the following information:

(i) The name, address, and telephone number of the waste generator.

(ii) The name, address, and telephone number of the transporter(s).

(iii) The quantity of the asbestos-containing waste material in cubic meters (cubic yards).

(iv) The presence of improperly enclosed or uncovered waste, or any asbestos-containing waste material not sealed in leak-tight containers. Report in writing to the local, State, or EPA Regional office responsible for administering the asbestos NESHAP program for the waste generator (identified in the waste shipment record), and, if different, the local, State, or EPA Regional office responsible for administering the asbestos NESHAP program for the disposal site, by the following working day, the presence of a significant amount of improperly enclosed or uncovered waste. Submit a copy of the waste shipment record along with the report.

(v) The date of the receipt.

(2) As soon as possible and no longer than 30 days after receipt of the waste, send a copy of the signed waste shipment record to the waste generator.

(3) Upon discovering a discrepancy between the quantity of waste designated on the waste shipment records and the quantity actually received, attempt to reconcile the discrepancy with the waste generator. If the discrepancy is not resolved within 15 days after receiving the waste, immediately report in writing to the local, State, or EPA Regional office responsible for administering the asbestos NESHAP program for the waste generator (identified in the waste shipment record), and, if different, the local, State, or EPA Regional office responsible for administering the asbestos NESHAP program for the disposal site. Describe the discrepancy and attempts to reconcile it, and submit a copy of the waste shipment record along with the report.

(4) Retain a copy of all records and reports required by this paragraph for at least 2 years.

(f) Maintain, until closure, records of the location, depth and area, and quantity in cubic meters (cubic yards) of asbestos-containing waste material within the disposal site on a map or diagram of the disposal area.

(g) Upon closure, comply with all the provisions of §61.151.

(h) Submit to the Administrator, upon closure of the facility, a copy of records of asbestos waste disposal locations and quantities.

(i) Furnish upon request, and make available during normal business hours for inspection by the Administrator, all records required under this section.

(j) Notify the Administrator in writing at least 45 days prior to excavating or otherwise disturbing any asbestos-containing waste material that has been deposited at a waste disposal site and is covered. If the excavation will begin on a date other than the one contained in the original notice, notice of the new start date must be provided to the Administrator at least 10 working days before excavation begins and in no event shall excavation begin earlier than the date specified in the original notification. Include the following information in the notice:

(1) Scheduled starting and completion dates.

(2) Reason for disturbing the waste.

(3) Procedures to be used to control emissions during the excavation, storage, transport, and ultimate disposal of the excavated asbestos-containing waste material. If deemed necessary, the Administrator may require changes in the emission control procedures to be used.

(4) Location of any temporary storage site and the final disposal site.

(Secs. 112 and 301(a) of the Clean Air Act as amended (42 U.S.C. 7412, 7601(a))

[49 FR 13661, Apr. 5, 1990. Redesignated and amended at 55 FR 48431, Nov. 20, 1990; 56 FR 1669, Jan. 16, 1991]

ATTACHMENT 3

Tennessee Air Pollution Control Regulations, Applicable Parts from Rule 1200-03-11-.02 Hazardous Air Contaminants-Asbestos

1200-03-11 HAZARDOUS AIR CONTAMINANTS (August, 2011)

APPLICABLE PARTS FROM 1200-03-11-.02 ASBESTOS

The provisions of this rule are applicable to those sources specified in 1200-03-11-.02(2)(a) through (l), 1200-03-11-.02(5) and 1200-03-11-.02(6).

1200-03-11-.02(1) Definitions.

All terms that are used in this rule and are not defined below are given the same meaning as provided in Chapter 1200-03-2 DEFINITIONS.

(a) "Active waste disposal site" means any disposal site other than an inactive site.

(b) "Adequately wet" means sufficiently mix or penetrate with liquid to prevent the release of particulates. If visible emissions are observed coming from asbestos-containing material, then that material has not been adequately wetted. However, the absence of visible emissions is not sufficient evidence of being adequately wet.

(c) "Asbestos" means the asbestiform varieties of serpentinite (chrysotile), riebeckite (crocidolite), cummingtonite-grunerite, anthophyllite, and actinolite-tremolite.

(d) "Asbestos-containing material" (ACM) means asbestos or any asbestos containing material, which contains more than 1 percent asbestos as determined using Polarized Light Microscopy according to the method specified in Appendix A, Subpart F, 40 CFR, Part 763, Section 1, Polarized Light Microscopy, as contained in the 7-1-91 Edition of the CFR.

(e) "Asbestos-containing waste materials" means mill tailings or any waste that contains commercial asbestos and is generated by a source subject to the provisions of this rule. This term includes filters from control devices, friable asbestos waste material, and bags or other similar packaging contaminated with commercial asbestos. As applied to demolition and renovation operations, this term also includes regulated asbestos-containing material waste and materials contaminated with asbestos including disposable equipment and clothing.

(f) "Asbestos mill" means any facility engaged in converting, or in any intermediate step in converting, asbestos ore into commercial asbestos. Outside storage of asbestos material is not considered a part of the asbestos mill.

(g) "Asbestos tailings" means any solid waste that contains asbestos and is a product of asbestos mining or milling operations.

(h) "Asbestos waste from control devices" means any waste material that contains asbestos and is collected by a pollution control device.

(i) "Category I nonfriable ACM" means asbestos-containing packings, gaskets, resilient floor covering, and asphalt roofing products, containing more than 1 percent asbestos as determined using polarized light microscopy according to the method specified in Appendix A, Subpart F, 40 CFR Part 763, section 1, Polarized Light Microscopy, as contained in the 7-1-91 Edition of the CFR.

(j) "Category II nonfriable ACM" means any material, excluding Category I nonfriable ACM, containing more than 1 percent asbestos, as determined using polarized light microscopy according to the methods specified in Appendix A, Subpart F, 40 CFR Part 763, section 1, Polarized Light Microscopy, as contained in the 7-1-91 Edition of the CFR, that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure

(k) "Commercial asbestos" means any material containing asbestos that is extracted from ore and has value because of its asbestos content.

(l) "Cutting" means to penetrate with a sharp-edged instrument and includes sawing but does not include shearing, slicing, or punching.

(m) "Demolition" means the wrecking or taking out of any load-supporting structural member of a facility together with any related handling operations or the intentional burning of any facility.

(n) "Emergency renovation operation" means a renovation operation that was not planned but results from a sudden, unexpected event that, if not immediately attended to, presents a safety or public health hazard, is necessary to protect equipment from damage, or is necessary to avoid imposing an unreasonable financial burden. This term includes operations necessitated by nonroutine failures of equipment.

(o) "Fabricating" means any processing (e.g., cutting, sawing, drilling) of a manufactured product that contains commercial asbestos, with the exception of processing at temporary sites (field fabricating) for the construction or restoration of facilities. In the case of friction products, fabricating includes bonding, debonding, grinding, sawing, drilling, or other similar operations performed as part of fabricating.

(p) "Facility" means any institutional, commercial, public, industrial, or residential structure, installation, or building (including any structure, installation, or building containing condominiums or individual dwelling units operated as a residential cooperative, but excluding residential buildings having four or fewer dwelling units); any ship; and any active or inactive waste disposal site. For purposes of this definition, any building, structure, or installation that contains a loft used as a dwelling is not considered a residential structure, installation, or building. Any structure, installation or building that was previously subject to this rule is not excluded, regardless of its current use or function.

(q) "Facility component" means any part of a facility including equipment.

(r) "Friable asbestos material" means any material containing more than 1 percent asbestos as determined using the method specified in Appendix A, Subpart F, 40 CFR Part 763, section 1, Polarized Light Microscopy, as contained in the 7-1-91 Edition of the CFR, that, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure. If the asbestos content is less than 10 percent as determined by a method other than point counting by polarized light microscopy (PLM), verify the asbestos content by point counting using PLM.

(s) "Fugitive source" means any source of emissions not controlled by an air pollution control device.

(t) "Glove bag" means a sealed compartment with attached inner gloves used for the handling of asbestos-containing materials. Properly installed and used, glove bags provide a small work area enclosure typically used for small-scale asbestos stripping operations. Information on glove-bag installation, equipment and supplies, and work practices is contained in the Occupational Safety and Health Administration's (OSHA's) final rule on occupational exposure to asbestos (Appendix G to 29 CFR 1926.58, as contained in the 7-1-91 Edition of the CFR).

(u) "Grinding" means to reduce to powder or small fragments and includes mechanical chipping or drilling.

(v) "Inactive waste disposal site" means any disposal site or portion of it where additional asbestos-containing waste material has not been deposited within the past year.

(w) "In poor condition" means the binding of the material is losing its integrity as indicated by peeling, cracking, or crumbling of the material.

(x) "Installation" means any building or structure or any group of buildings or structures at a single demolition or renovation site that are under the control of the same owner or operator (or owner or operator under common control).

(y) "Leak-tight" means that solids or liquids cannot escape or spill out. It also means dusttight.

(z) "Malfunction" means any sudden and unavoidable failure of air pollution control equipment or process equipment or of a process to operate in a normal or usual manner so that emissions of asbestos are increased. Failures of equipment shall not be

considered malfunctions if they are caused in any way by poor maintenance, careless operation, or any other preventable upset conditions, equipment breakdown, or process failure.

(aa) "Manufacturing" means the combining of commercial asbestos--or, in the case of woven friction products, the combining of textiles containing commercial asbestos--with any other material(s), including commercial asbestos, and the processing of this combination into a product. Chlorine production is considered a part of manufacturing.

(bb) "Natural barrier" means a natural object that effectively precludes or deters access. Natural barriers include physical obstacles such as cliffs, lakes or other large bodies of water, deep and wide ravines, and mountains. Remoteness by itself is not a natural barrier.

(cc) "Nonfriable asbestos material" means any material containing more than 1 percent asbestos by area as determined by the method specified in Appendix A, Subpart F, 40 CFR Part 763 section 1, Polarized Light Microscopy, as contained in the 7-1-91 Edition of the CFR, that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.

(dd) "Nonscheduled renovation operation" means a renovation operation necessitated by the routine failure of equipment, which is expected to occur within a given period based on past operating experience, but for which an exact date cannot be predicted.

(ee) "Owner or operator of a demolition or renovation activity" means any person who owns, leases, operates, controls, or supervises the facility being demolished or renovated or any person who owns, leases, operates, controls, or supervises the demolition or renovation operation, or both.

(ff) "Outside air" means the air outside buildings and structures, including, but not limited to, the air under a bridge or in an open air ferry dock.

(gg) "Particulate asbestos material" means finely divided particles of asbestos or material containing asbestos.

(hh) "Planned renovation operations" means a renovation operation, or a number of such operations, in which some RACM will be removed or stripped within a given period of time and that can be predicted. Individual nonscheduled operations are included if a number of such operations can be predicted to occur during a given period of time based on operating experience.

(ii) "Regulated asbestos containing material (RACM)" means

1. Friable asbestos material,

2. Category I nonfriable ACM that has become friable,

3. Category I nonfriable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading, or

4. Category II nonfriable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of the demolition or renovation operations regulated by this rule.

(jj) "Remove" means to take out RACM or facility components that contain or are covered with RACM from any facility.

(kk) "Renovation" means altering a facility or one or more facility components in any way, including the stripping or removal of RACM from a facility component. Operations in which load-supporting structural members are wrecked or taken out are demolitions.

(ll) "Resilient floor covering" means asbestos-containing floor tile, including asphalt and vinyl floor tile, and sheet vinyl floor covering containing more than 1 percent asbestos as determined using polarized light microscopy according to the method

specified in Appendix A, Subpart F, 40 CFR Part 763, section 1, Polarized Light Microscopy, as contained in the 7-1-91 Edition of the CFR.

(mm) "Roadways" means surfaces on which vehicles travel. This term includes public and private highways, roads, streets, parking areas, and driveways.

(nn) "Strip" means to take off RACM from any part of a facility or facility components.

(oo) "Structural member" means any load supporting member of a facility, such as beams and load supporting walls; or any nonload supporting member, such as ceilings and nonload-supporting walls.

(pp) "Visible emissions" means any emissions, which are visually detectable without the aid of instruments, coming from RACM or asbestos-containing waste material, or from any asbestos milling, manufacturing, or fabricating operation. This does not include condensed, uncombined water vapor.

(qq) "Waste generator" means any owner or operator of a source covered by this rule whose act or process produces asbestos-containing waste material.

(rr) "Waste shipment record" means the shipping document, required to be originated and signed by the waste generator, used to track and substantiate the disposition of asbestos-containing waste material.

(ss) "Working day" means Monday through Friday and includes holidays that fall on any of the days Monday through Friday.

The following applies upon receipt of asbestos waste at the landfill:

1200-03-11-.02(5) Standard for active waste disposal sites.

Each owner or operator of an active waste disposal site that receives asbestos-containing waste material from a source covered under 1200-03-11-.02(2)(k), 1200-03-11-.02(2)(j), or 1200-03-11-.02(6) shall meet the requirements of this paragraph:

(a) Either there must be no visible emissions to the outside air from any active waste disposal site where asbestos-containing waste material has been deposited, or the requirements of subparagraph (c) or (d) of this paragraph must be met.

(b) Unless a natural barrier adequately deters access by the general public, either warning signs and fencing must be installed and maintained as follows, or the requirements of subparagraph (c), part 1 of this paragraph must be met.

1. Warning signs must be displayed at all entrances and at intervals of 100 m (328 feet) or less along the property line of the site or along the perimeter of the sections of the site where asbestos-containing waste material is deposited. The warning signs must:

(i) Be posted in such a manner and location that a person can easily read the legend; and

(ii) Conform to the requirements for 51 cm x 36 cm (20" x 14") upright format signs specified in 29 CFR 1910 .145(d) (as published in (7-1-91 Edition)) and this subparagraph; and

(iii) Display the following legend in the lower panel with letter sizes and styles of a visibility at least equal to those specified in this subparagraph.

Legend	Notation
Asbestos Waste Disposal Site	2.5 cm (1 inch) Sans Serif, Gothic or Block.
Do Not Create Dust	1.9 cm (3/4 inch) Sans Serif, Gothic or Block.
Breathing Asbestos is Hazardous to Your Health	14 Point Gothic.

Spacing between any two lines must be at least equal to the height of the upper of the two lines.

2. The perimeter of the disposal site must be fenced in a manner adequate to deter access by the general public.

3. Upon request and supply of appropriate information, the Technical Secretary will determine whether a fence or natural barrier adequately deters access by the general public.

(c) Rather than meet the no visible emission requirement of subparagraph (a) of this paragraph, at the end of each operating day, or at least once every 24-hour period while the site is in continuous operation, the asbestos-containing waste material that has been deposited at the site during the operating day or previous 24-hour period shall:

1. Be covered with at least 15 centimeters (6 inches) of compacted nonasbestos containing material, or

2. Be covered with a resinous or petroleum-based dust suppression agent that effectively binds dust and controls wind erosion. Such an agent shall be used in the manner and frequency recommended for the particular dust by the dust suppression agent manufacturer to achieve and maintain dust control. Other equally effective dust suppression agents may be used upon prior approval by the Technical Secretary. For purposes of this paragraph, any used, spent, or other waste oil is not considered a dust

(d) Rather than meet the no visible emission requirement of subparagraph (a) of this paragraph, use an alternative emissions control method that has received prior written approval by the Administrator of the EPA and the Technical Secretary according to the procedures described in 1200-03-11-.02(2)(k)3(ii).

(e) For all asbestos-containing waste material received, the owner or operator of the active waste disposal site shall:

1. Maintain waste shipment records, using the form shown in Figure 4, and include the following information:

(i) The name, address, and telephone number of the waste generator.

(ii) The name, address, and telephone number of the transporter(s).

(iii) The quantity of the asbestos-containing waste material in cubic meters (cubic yards).

(iv) The presence of improperly enclosed or uncovered waste, or any asbestos-containing waste material not sealed in leak-tight containers. Report in writing to the Technical Secretary by the following working day, the presence of a significant amount of improperly enclosed or uncovered waste. Submit a copy of the waste shipment record along with the report.

(v) The date of receipt.

2. As soon as possible and no longer than 30 days after receipt of the waste, send a copy of the signed waste shipment record to the waste generator.

3. Upon discovering a discrepancy between the quantity of waste designated on the waste shipment records and the quantity actually received, attempt to reconcile the discrepancy with the waste generator. If the discrepancy is not resolved within 15 days after receiving the waste, immediately report it in writing to the Technical Secretary.

Describe the discrepancy and attempts to reconcile it, and submit a copy of the waste shipment record along with the report.

4. Retain a copy of all records and reports required by this subparagraph for at least 2 years.

(f) Maintain, until closure, records of the location, depth and area, and quantity in cubic meters (cubic yards) of asbestos-containing waste material within the disposal site on a map or diagram of the disposal area.

(g) Upon closure, comply with all the provisions of 1200-03-11-.02(2)(l).

(h) Submit to the Technical Secretary, upon closure of the facility, a copy of records of asbestos waste disposal locations and quantities.

(i) Furnish upon request, and make available during normal business hours for inspection by the Technical Secretary, all records required under this paragraph.

(j) Notify the Technical Secretary in writing at least 45 days prior to excavating or otherwise disturbing any asbestos-containing waste material that has been deposited at a waste disposal site and is covered. If the excavation will begin on a date other than the one contained in the original notice, notice of the new start date must be provided to the Technical Secretary at least 10 working days before excavation begins and in no event shall excavation begin earlier than the date specified in the original notification. Include the following information in the notice:

1. Scheduled starting and completion dates.

2. Reason for disturbing the waste.

3. Procedures to be used to control emissions during the excavation, storage, transport, and ultimate disposal of the excavated asbestos-containing waste material. If deemed necessary, the Technical Secretary may require changes in the emission control procedure to be used.

4. Location of any temporary storage site and the final disposal site.

Upon closure of an active waste disposal site for asbestos, the permittee shall comply with 1200-03-11-.02(2) (l). For the purposes of closure of an active waste disposal site, the following will be utilized.

The definition of closure is not contained in 40 CFR 61 Subpart M; however, the following is provided and referenced regarding the closure of a landfill. 40 CFR 60 Subpart WWW defines closure of a landfill. Using that definition, closure for an active waste disposal site for asbestos will be defined as follows:

Closed asbestos-containing waste material disposal site means an asbestos-containing waste material disposal site or portion of it in which asbestos-containing waste material is no longer being placed, and in which no additional asbestos-containing waste materials will be placed without first obtaining a permit as prescribed under 1200-03-11-.01(2)(a). Once a permit has been issued, and additional asbestos-containing waste material is placed in the asbestos-containing waste material disposal site, the asbestos-containing waste material disposal site is no longer closed.

Closure means that point in time when an asbestos-containing waste material disposal site becomes a closed asbestos-containing waste material disposal site.

1200-03-11-.02(2) (l) Standard for inactive waste disposal sites for asbestos mills and manufacturing and fabricating operations.

Each owner or operator of any inactive waste disposal site that was operated by sources covered under 1200-03-11-.02(2)(a), 1200-03-11-.02(2)(c), or 1200-03-11-.02(2)(h) and received deposits of asbestos-containing waste material generated by the sources, shall:

1. Comply with one of the following:

(i) Either discharge no visible emissions to the outside air from an inactive waste disposal site subject to this subparagraph; or

(ii) Cover the asbestos-containing waste material with at least 15 centimeters (6 inches) of compacted nonasbestos-containing material, and grow and maintain a cover of vegetation on the area adequate to prevent exposure of the asbestos-containing waste material. In desert areas where vegetation would be difficult to maintain, at least 8 additional centimeters (3 inches) of well-graded, nonasbestos crushed rock may be placed on top of the final cover instead of vegetation and maintained to prevent emissions; or

(iii) Cover the asbestos containing waste material with at least 60 centimeters (2 feet) of compacted nonasbestos-containing material, and maintain it to prevent exposure of the asbestos-containing waste; or

(iv) For inactive waste disposal sites for asbestos tailings, a resinous or petroleum-based dust suppression agent that effectively binds dust to control surface air emissions may be used instead of the methods in subparts 1(i), (ii), and (iii) of this subparagraph. Use the agent in the manner and frequency recommended (for the particular asbestos tailings) by the manufacturer of the dust suppression agent to achieve and maintain dust control. Obtain prior written approval of the Technical Secretary to use other equally effective dust suppression agents. For purposes of this subparagraph, any used, spent, or other waste oil is not considered a dust suppression agent.

2. Unless a natural barrier adequately deters access by the general public, install and maintain warning signs and fencing as follows, or comply with subparts 1(ii) or 1 (iii) of this subparagraph.

(i) Display warning signs at all entrances and at intervals of 100 m (328 feet) or less along the property line of the site or along the perimeter of the sections of the site where asbestos-containing waste material was deposited. The warning signs must:

(I) Be posted in such a manner and location that a person can easily read the legend; and

(II) Conform to the requirements for 51 cm x 36 cm (20" x 14") upright format signs specified in 29 CFR 1910.145(d) (as published in (7-1-91 Edition)) and this subparagraph; and

(III) Display the following legend in the lower panel with letter sizes and styles of a visibility at least equal to those specified in this subparagraph.

Legend	Notation
Asbestos Waste Disposal Site	2.5 cm (1 inch) Sans Serif, Gothic or Block.
Do Not Create Dust	1.9 cm (3/4 inch) Sans Serif, Gothic or Block.
Breathing Asbestos is Hazardous to Your Health	14 Point Gothic.

Spacing between any two lines must be at least equal to the height of the upper of the two lines.

(ii) Fence the perimeter of the site in a manner adequate to deter access by the general public.

(iii) When requesting a determination on whether a natural barrier adequately deters public access, supply information enabling the Technical Secretary to determine whether a fence or a natural barrier adequately deters access by the general public.

3. The owner or operator may use an alternative control method that has received prior approval of the Administrator of the EPA and the Technical Secretary rather than comply with the requirements of parts 1 or 2 of this subparagraph.

4. Notify the Technical Secretary in writing at least 45 days prior to excavating or otherwise disturbing any asbestos-containing waste material that has been deposited at a waste disposal site under this subparagraph, and follow the procedures specified in the notification. If the excavation will begin on a date other than the one contained in the original notice, notice of the new start date must be provided to the Technical Secretary at least 10 working days before the excavation begins and in no event shall excavation begin earlier than the date specified in the original notification. Include the following information in the notice:

(i) Scheduled starting and completion dates.

(ii) Reason for disturbing the waste.

(iii) Procedures to be used to control emissions during the excavation, storage, transport, and ultimate disposal of the excavated asbestos-containing waste material. If deemed necessary, the Technical Secretary may require changes in the emission control procedures to be used.

(iv) Location of any temporary storage site and the final disposal site.

5. Within 60 days of a site becoming inactive and after the effective date of this rule, record, in accordance with State law, a notation on the deed to the facility property and on any other instrument that would normally be examined during a title search; this notation will in perpetuity notify any potential purchaser of the property that:

(i) The land has been used for the disposal of asbestos-containing waste material;

(ii) The survey plot and record of the location and quantity of asbestos containing waste disposed of within the disposal site required in 1200-03-11-.02(5)(f) have been filed with the Technical Secretary; and

(iii) The site is subject to 40 CFR 61 Subpart M, as contained in the 7-1-91 Edition of the CFR.

Figure 4

State of Tennessee
Department of Environment and Conservation
Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 15th Floor
Nashville, TN 37243-1531
615-532-0554

Asbestos Waste Shipment Record

(See Completion Instructions on Reverse)

GENERATOR

1. Work site name and mailing address	Owner's name	Owner's telephone no.
2. Operator's name and address **Authorized agent:**_____		Operator's telephone no.
3. Waste disposal site (WDS) name, mailing address, physical site location:	WDS phone no. Permit No.	
4. Name and address of responsible agency: Tennessee Department of Environment & Conservation Division of Air Pollution Control William R. Snodgrass Tennessee Tower 312 Rosa L. Parks Avenue, 15th Floor Nashville, TN 37243-1531		
5. Description of waste:	**6.** Containers No._____ Type_____ (See instructions for type code)	**7.** Total quantity _____ yd^3 _____ gal
8. Special handling instructions and additional information:		

9. OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations. As specified in Tennessee Code Annotated Section 39-16-702(a)(4), this declaration is made under penalty of perjury.

Printed/typed name_____ Title_____ Date_____

TRANSPORTER

10. Transporter # 1 (Acknowledgement of receipt of waste)
Printed/typed name_____ Title_____ Date_____

Signature_____ Phone (_____)_____

Address_____

11. Transporter # 2 (Acknowledgement of receipt of waste)
Printed/typed name_____ Title_____ Date_____

Signature_____ Phone (_____)_____

Address_____

DISPOSAL SITE

12. Discrepancy indication space:

13. Waste disposal site owner or operator:
Certification of receipt of asbestos materials covered by this manifest except as noted in item 12.

Printed/typed name_____ Title_____ Date_____

Signature_____ Phone (_____)_____

CN-1054 (Rev. 07-13) Continued RDA 1298

Instructions for Completing Tennessee Asbestos Waste Shipment Record (Form CN-1054)

Waste Generator Section (Items 1-9) **NOTE: The waste generator must retain a copy of this form.**

1. Enter the name and address of the facility at which asbestos waste is generated. In the appropriate spaces, also enter the name of the owner of the facility and the owner's phone number.

2. If a demolition or renovation, enter the name and address of the company and the **authorized agent** responsible for performing the asbestos removal. In the appropriate space, also enter the phone number of the operator.

3. Enter the name, address, and physical site location of the waste disposal site (WDS) that will be receiving the materials. In the appropriate spaces, also enter the phone number and permit number of the WDS. Enter "on-site" if the waste will be disposed of on the generator's property.

4. Provide the name and address of the local, state, or EPA regional office responsible for administering the asbestos NESHAP program.

5. Indicate the types of asbestos waste materials generated. If from a demolition or renovation, indicate the amount of asbestos that is
   - Friable asbestos material
   - Non-friable asbestos material

6. Enter the number of containers used to transport the asbestos materials listed in item 5. Also enter one of the following container codes used in transporting each type of asbestos material (specify any other type of container used if not listed below):
   DM - Metal drums, barrels
   DP - Plastic drums, barrels
   BA - Plastic bags or wrapping

7. Enter the quantity of each type of asbestos material removed in units of cubic yards (or gallons if drums or barrels are used).

8. Use this space to indicate special transportation, treatment, storage or disposal or Bill of Lading information. If an alternate waste disposal site is designated, note it here. Emergency response telephone numbers or similar information may be included here.

9. The **authorized agent** of the waste generator must read and then sign and date this certification. The date is the date of receipt by transporter.

Transporter Section (Items 10 & 11) **NOTE: The transporter must retain a copy of this form.**

10. Enter the name, address, and telephone number of transporter used. Print or type the full name and title of person accepting responsibility and acknowledging receipt of materials as listed on this waste shipment record for transport. Enter date of receipt and signature.

11. Enter same information as item 10 requires if more than one transporter is used.

Disposal Site Section (Items 12 & 13)

12. The authorized representative of the WDS must note in this space any discrepancy between waste described on this manifest and waste actually received as well as any improperly enclosed or contained waste. Any rejected materials should be listed and destination of those materials provided. A site that converts asbestos-containing waste material to non-asbestos material is considered a WDS.

13. The signature (by hand) of the authorized WDS agent indicates acceptance and agreement with statements on this manifest except as noted in item 12. The date is the date of signature and receipt of shipment.

NOTE: The WDS must retain a completed copy of this form for at least 2 years. The WDS must also send a completed copy to the operator listed in item 2.

Authority: *T.C.A. §§4-5-202 et. seq. and 68-201-105.* ***Administrative History:*** *Original rule filed January 10, 1977; effective February 9, 1977. Amendment filed April 17, 1978; effective June 16, 1978. Amendment filed August 21, 1981; effective October 5, 1981. Amendment filed March 5, 1993; effective April 19, 1993. Amendment filed March 10, 1995; effective May 24, 1995. Amendment filed January 31, 1997; effective April 16, 1997. Amendment filed December 22, 1997; March 7, 1998.*