INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
We Protect Hoosiers and Our Environment.
100 N. Senate Avenue • Indianapolis, IN 46204
(800) 451-6027 • (317) 232-8603 • www.idem.IN.gov

Michael R. Pence
Governor

Thomas W. Easterly
Commissioner

To:	Interested Parties
Date:	September 4, 2014
From:	Matthew Stuckey, Chief Permits Branch Office of Air Quality
Source Name:	Republic Services LP d/b/a National Serv-All Landfill
Permit Level:	Significant Permit Modification
Permit Number:	003-34554-00257
Source Location:	6231 MacBeth Road, Fort Wayne, Indiana
Type of Action Taken:	Modification at an existing source Revisions to permit requirements

Notice of Decision: Approval - Effective Immediately

Please be advised that on behalf of the Commissioner of the Department of Environmental Management, I have issued a decision regarding the matter referenced above.

The final decision is available on the IDEM website at: http://www.in.gov/apps/idem/caats/
To view the document, select Search option 3, then enter permit 34554.

If you would like to request a paper copy of the permit document, please contact IDEM's central file room:

Indiana Government Center North, Room 1201
100 North Senate Avenue, MC 50-07
Indianapolis, IN 46204
Phone: 1-800-451-6027 (ext. 4-0965)
Fax (317) 232-8659

Pursuant to IC 13-17-3-4 and 326 IAC 2, this permit modification is effective immediately, unless a petition for stay of effectiveness is filed and granted, and may be revoked or modified in accordance with the provisions of IC 13-15-7-1.

(continues on next page)

If you wish to challenge this decision, IC 4-21.5-3-7 and IC 13-15-7-3 require that you file a petition for administrative review. This petition may include a request for stay of effectiveness and must be submitted to the Office Environmental Adjudication, 100 North Senate Avenue, Government Center North, Suite N 501E, Indianapolis, IN 46204, **within eighteen (18) days of the mailing of this notice**. The filing of a petition for administrative review is complete on the earliest of the following dates that apply to the filing:

(1) the date the document is delivered to the Office of Environmental Adjudication (OEA);
(2) the date of the postmark on the envelope containing the document, if the document is mailed to OEA by U.S. mail; or
(3) The date on which the document is deposited with a private carrier, as shown by receipt issued by the carrier, if the document is sent to the OEA by private carrier.

The petition must include facts demonstrating that you are either the applicant, a person aggrieved or adversely affected by the decision or otherwise entitled to review by law. Please identify the permit, decision, or other order for which you seek review by permit number, name of the applicant, location, date of this notice and all of the following:

(1) the name and address of the person making the request;
(2) the interest of the person making the request;
(3) identification of any persons represented by the person making the request;
(4) the reasons, with particularity, for the request;
(5) the issues, with particularity, proposed for considerations at any hearing; and
(6) identification of the terms and conditions which, in the judgment of the person making the request, would be appropriate in the case in question to satisfy the requirements of the law governing documents of the type issued by the Commissioner.

Pursuant to 326 IAC 2-7-18(d), any person may petition the U.S. EPA to object to the issuance of a Title V operating permit or modification within sixty (60) days of the end of the forty-five (45) day EPA review period. Such an objection must be based only on issues that were raised with reasonable specificity during the public comment period, unless the petitioner demonstrates that it was impractible to raise such issues, or if the grounds for such objection arose after the comment period.

To petition the U.S. EPA to object to the issuance of a Title V operating permit, contact:

U.S. Environmental Protection Agency
401 M Street
Washington, D.C. 20406

If you have technical questions regarding the enclosed documents, please contact the Office of Air Quality, Permits Branch at (317) 233-0178. Callers from within Indiana may call toll-free at 1-800-451-6027, ext. 3-0178.

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September 4, 2014

Mr. Tom Brown, Landfill Manager
Republic Services, LP d/b/a National Serv-All Landfill
6231 MacBeth Road
Ft. Wayne, Indiana 46809

Re: 003-34554-00257
Significant Permit Modification to
Part 70 Renewal No.: T003-30376-00257

Dear Mr. Brown:

Republic Services, LP d/b/a National Serv-All Landfill was issued Part 70 Operating Permit Renewal No. T003-30376-00257 on December 9, 2011 for a stationary municipal solid waste landfill located at 6231 MacBeth Road, Ft. Wayne, Indiana 46809. An application requesting changes to this permit was received on March 17, 2014. Pursuant to the provisions of 326 IAC 2-7-12, a Significant Permit Modification to this permit is hereby approved as described in the attached Technical Support Document.

Please find attached the entire Part 70 Operating Permit as modified. The permit references the below listed attachments. Since these attachments have been provided in previously issued approvals for this source, IDEM OAQ has not included a copy of these attachments with this modification:

Attachment A: 40 CFR 60, Subpart WWW, Standards of Performance for Municipal Solid Waste Landfills
Attachment B: 40 CFR 63, Subpart AAAA, National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills
Attachment C: 40 CFR 61, Subpart M, National Emission Standards for Asbestos

Previously issued approvals for this source containing these attachments are available on the Internet at: http://www.in.gov/ai/appfiles/idem-caats/.

Federal rules under Title 40 of United States Code of Federal Regulations may also be found on the U.S. Government Printing Office's Electronic Code of Federal Regulations (eCFR) website, located on the Internet at: http://www.ecfr.gov/cgi-bin/text-idx?tpl=/ecfrbrowse/Title40/40tab_02.tpl.

A copy of the permit is available on the Internet at: http://www.in.gov/ai/appfiles/idem-caats/. For additional information about air permits and how the public and interested parties can participate, refer to the IDEM Permit Guide on the Internet at: http://www.in.gov/idem/5881.htm; and the Citizens' Guide to IDEM on the Internet at: http://www.in.gov/idem/6900.htm.

This decision is subject to the Indiana Administrative Orders and Procedures Act - IC 4-21.5-3-5.

If you have any questions on this matter, please contact David Matousek of my staff, OAQ, 100 North Senate Avenue, MC 61-53 IGCN 1003, Indianapolis, Indiana, 46204-2251, or call at (800) 451-6027, and ask for David Matousek or extension 2-8253 or dial (317) 232-8253.

Sincerely,

Nathan C. Bell, Section Chief
Permits Branch
Office of Air Quality

Attachments: Significant Source Modification and Technical Support Document

cc: File - Allen County
Allen County Health Department
U.S. EPA, Region V
Compliance and Enforcement Branch

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Michael R. Pence
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Commissioner

Part 70 Operating Permit Renewal

OFFICE OF AIR QUALITY

Republic Services of Indiana, LP
d/b/a
National Serv-All Landfill

6231 MacBeth Road
Fort Wayne, Indiana 46809

(herein known as the Permittee) is hereby authorized to construct subject to the conditions contained herein, the source described in Section A (Source Summary) of this permit.

The Permittee must comply with all conditions of this permit. Noncompliance with any provisions of this permit is grounds for enforcement action; permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. Noncompliance with any provision of this permit, except any provision specifically designated as not federally enforceable, constitutes a violation of the Clean Air Act. It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. An emergency does constitute an affirmative defense in an enforcement action provided the Permittee complies with the applicable requirements set forth in Section B, Emergency Provisions. This permit is issued in accordance with 326 IAC 2 and 40 CFR Part 70 Appendix A and contains the conditions and provisions specified in 326 IAC 2-7 as required by 42 U.S.C. 7401, et. seq. (Clean Air Act as amended by the 1990 Clean Air Act Amendments), 40 CFR Part 70.6, IC 13-15 and IC 13-17.

Operation Permit No.: T003-30376-00257	
Issued by: Original Signed by: Tripurari P. Sinha, Ph. D., Section Chief Permits Branch Office of Air Quality	Issuance Date: December 9, 2011 Expiration Date: December 9, 2016

First Administrative Amendment No. 003-31525-00257, issued March 6, 2012;
Second Administrative Amendment No. 003-32168-00257, issued August 7, 2012;
Third Administrative Amendment No. 003-32505-00257, issued November 19, 2012;
Fourth Administrative Amendment No. 003-33852-00257, issued January 13, 2012; and
Fifth Administrative Amendment No. 003-34139-00257, issued February 28, 2014.

First Significant Permit Modification No. 003-34554-00257	
Issued by: Nathan C. Bell Section Chief Permits Branch Office of Air Quality	Issuance Date: September 4, 2014 Expiration Date: December 9, 2016

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Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

New Source Performance Standards

SECTION A SOURCE SUMMARY

This permit is based on information requested by the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ). The information describing the source contained in conditions A.1, A.3 and A.4 is descriptive information and does not constitute enforceable conditions. However, the Permittee should be aware that a physical change or a change in the method of operation that may render this descriptive information obsolete or inaccurate may trigger requirements for the Permittee to obtain additional permits or seek modification of this permit pursuant to 326 IAC 2, or change other applicable requirements presented in the permit application.

A.1 General Information [326 IAC 2-7-4(c)][326 IAC 2-7-5(14)][326 IAC 2-7-1(22)]

The Permittee owns and operates a stationary municipal solid waste landfill.

Source Address:	6231 MacBeth Road, Fort Wayne, Indiana 46809
General Source Phone Number:	(260) 478-0300
SIC Code:	4953 (Solid Waste Landfill)
County Location:	Allen
Source Location Status:	Attainment for all criteria pollutants
Source Status:	Part 70 Operating Permit Program Major Source, under PSD Rules Minor Source, Section 112 of the Clean Air Act Not 1 of 28 Source Categories Greenhouse Gas (GHG) potential to emit (PTE) is greater than one hundred thousand (100,000) tons of CO_2 equivalent (CO_2e) emissions per year.

A.2 Part 70 Source Definition [326 IAC 2-7-1(22)]

This landfill company consists of two (2) plants:

(a) National Serv-All Landfill (Plant Id 003-00257) is located at 6231 MacBeth Road, Fort Wayne, Indiana 46809; and

(b) United Refuse Landfill (Plant Id 003-00291) is located at 5000 Smith Road, Fort Wayne, Indiana 46804.

Since the two (2) plants are located on contiguous or adjacent properties belong to the same industrial grouping, and under common control of the same entity, they will be considered one (1) source.

Separate Part 70 permits will be issued to National Serv-All Landfill and United Refuse Landfill for administrative purposes and to separately address the applicability of NSPS Subpart WWW.

A.3 Emission Units and Pollution Control Equipment Summary [326 IAC 2-7-4(c)(3)][326 IAC 2-7-5(14)]

This stationary source consists of the following emission units and pollution control devices:

(a) One (1) stationary municipal solid waste landfill with a design capacity of 30,996,952 mega grams, constructed in 1966. [40 CFR 60, Subpart WWW][40 CFR 61, Subpart M] [40 CFR 63, Subpart AAAA]

(b) One (1) 148.5 MMBtu/hr open flare with a maximum capacity of 5,000 scfm of landfill gas usage, identified as EU-3, constructed in 2004. [40 CFR 60, Subpart WWW] [40 CFR 63, Subpart AAAA]

(c) One (1) open landfill gas flare, approved in 2014 for construction, identified as EU-4, with a maximum capacity of 3,000 SCFM and 91.26 MMBtu/hr. [40 CFR 60, Subpart WWW] [40 CFR 63, Subpart AAAA]

A.4 Specifically Regulated Insignificant Activities
[326 IAC 2-7-1(21)][326 IAC 2-7-4(c)][326 IAC 2-7-5(14)]

This stationary source also includes the following insignificant activities which are specifically regulated, as defined in 326 IAC 2-7-1(21):

(a) Three (3) crystal clean parts washers with a solvent consumption of 240 gallons per year, constructed after 1990; [326 IAC 8-3-2] [326 IAC 8-3-8]

A.5 Part 70 Permit Applicability [326 IAC 2-7-2]

This stationary source is required to have a Part 70 permit by 326 IAC 2-7-2 (Applicability) because:

(a) It is a major source, as defined in 326 IAC 2-7-1(22);

(b) It is a source in a source category designated by the United States Environmental Protection Agency (U.S. EPA) under 40 CFR 70.3 (Part 70 - Applicability).

SECTION B GENERAL CONDITIONS

B.1 Definitions [326 IAC 2-7-1]

Terms in this permit shall have the definition assigned to such terms in the referenced regulation. In the absence of definitions in the referenced regulation, the applicable definitions found in the statutes or regulations (IC 13-11, 326 IAC 1-2 and 326 IAC 2-7) shall prevail.

B.2 Permit Term [326 IAC 2-7-5(2)][326 IAC 2-1.1-9.5][326 IAC 2-7-4(a)(1)(D)][IC 13-15-3-6(a)]

(a) This permit, T003-30376-00257, is issued for a fixed term of five (5) years from the issuance date of this permit, as determined in accordance with IC 4-21.5-3-5(f) and IC 13-15-5-3. Subsequent revisions, modifications, or amendments of this permit do not affect the expiration date of this permit.

(b) If IDEM, OAQ, upon receiving a timely and complete renewal permit application, fails to issue or deny the permit renewal prior to the expiration date of this permit, this existing permit shall not expire and all terms and conditions shall continue in effect, including any permit shield provided in 326 IAC 2-7-15, until the renewal permit has been issued or denied.

B.3 Term of Conditions [326 IAC 2-1.1-9.5]

Notwithstanding the permit term of a permit to construct, a permit to operate, or a permit modification, any condition established in a permit issued pursuant to a permitting program approved in the state implementation plan shall remain in effect until:

(a) the condition is modified in a subsequent permit action pursuant to Title I of the Clean Air Act; or

(b) the emission unit to which the condition pertains permanently ceases operation.

B.4 Enforceability [326 IAC 2-7-7] [IC 13-17-12]

Unless otherwise stated, all terms and conditions in this permit, including any provisions designed to limit the source's potential to emit, are enforceable by IDEM, the United States Environmental Protection Agency (U.S. EPA) and by citizens in accordance with the Clean Air Act.

B.5 Severability [326 IAC 2-7-5(5)]

The provisions of this permit are severable; a determination that any portion of this permit is invalid shall not affect the validity of the remainder of the permit.

B.6 Property Rights or Exclusive Privilege [326 IAC 2-7-5(6)(D)]

This permit does not convey any property rights of any sort or any exclusive privilege.

B.7 Duty to Provide Information [326 IAC 2-7-5(6)(E)]

(a) The Permittee shall furnish to IDEM, OAQ, within a reasonable time, any information that IDEM, OAQ may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. Upon request, the Permittee shall also furnish to IDEM, OAQ copies of records required to be kept by this permit.

(b) For information furnished by the Permittee to IDEM, OAQ, the Permittee may include a claim of confidentiality in accordance with 326 IAC 17.1. When furnishing copies of requested records directly to U. S. EPA, the Permittee may assert a claim of confidentiality in accordance with 40 CFR 2, Subpart B.

B.8 Certification [326 IAC 2-7-4(f)][326 IAC 2-7-6(1)][326 IAC 2-7-5(3)(C)]

(a) A certification required by this permit meets the requirements of 326 IAC 2-7-6(1) if:

(1) it contains a certification by a "responsible official" as defined by 326 IAC 2-7-1(35), and

(2) the certification states that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

(b) The Permittee may use the attached Certification Form, or its equivalent with each submittal requiring certification. One (1) certification may cover multiple forms in one (1) submittal.

(c) A "responsible official" is defined at 326 IAC 2-7-1(35).

B.9 Annual Compliance Certification [326 IAC 2-7-6(5)]

(a) The Permittee shall annually submit a compliance certification report which addresses the status of the source's compliance with the terms and conditions contained in this permit, including emission limitations, standards, or work practices. All certifications shall cover the time period from January 1 to December 31 of the previous year, and shall be submitted no later than July 1 of each year to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

and

United States Environmental Protection Agency, Region V
Air and Radiation Division, Air Enforcement Branch - Indiana (AE-17J)
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

(b) The annual compliance certification report required by this permit shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ on or before the date it is due.

(c) The annual compliance certification report shall include the following:

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

(2) The compliance status;

(3) Whether compliance was continuous or intermittent;

(4) The methods used for determining the compliance status of the source, currently and over the reporting period consistent with 326 IAC 2-7-5(3); and

(5) Such other facts, as specified in Sections D of this permit, as IDEM, OAQ may require to determine the compliance status of the source.

The submittal by the Permittee does require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

B.10 Preventive Maintenance Plan [326 IAC 2-7-5(12)][326 IAC 1-6-3]

(a) A Preventive Maintenance Plan meets the requirements of 326 IAC 1-6-3 if it includes, at a minimum:

(1) Identification of the individual(s) responsible for inspecting, maintaining, and repairing emission control devices;

(2) A description of the items or conditions that will be inspected and the inspection schedule for said items or conditions; and

(3) Identification and quantification of the replacement parts that will be maintained in inventory for quick replacement.

The Permittee shall implement the PMPs.

(b) If required by specific condition(s) in Section D of this permit where no PMP was previously required, the Permittee shall prepare and maintain Preventive Maintenance Plans (PMPs) no later than ninety (90) days after issuance of this permit or ninety (90) days after initial start-up, whichever is later, including the following information on each facility:

(1) Identification of the individual(s) responsible for inspecting, maintaining, and repairing emission control devices;

(2) A description of the items or conditions that will be inspected and the inspection schedule for said items or conditions; and

(3) Identification and quantification of the replacement parts that will be maintained in inventory for quick replacement.

If, due to circumstances beyond the Permittee’s control, the PMPs cannot be prepared and maintained within the above time frame, the Permittee may extend the date an additional ninety (90) days provided the Permittee notifies:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

The PMP extension notification does not require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

The Permittee shall implement the PMPs.

(c) A copy of the PMPs shall be submitted to IDEM, OAQ upon request and within a reasonable time, and shall be subject to review and approval by IDEM, OAQ. IDEM, OAQ may require the Permittee to revise its PMPs whenever lack of proper maintenance causes or is the primary contributor to an exceedance of any limitation on emissions. The PMPs and their submittal do not require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

(d) To the extent the Permittee is required by 40 CFR Part 60/63 to have an Operation Maintenance, and Monitoring (OMM) Plan for a unit, such Plan is deemed to satisfy the PMP requirements of 326 IAC 1-6-3 for that unit.

B.11 Emergency Provisions [326 IAC 2-7-16]

(a) An emergency, as defined in 326 IAC 2-7-1(12), is not an affirmative defense for an action brought for noncompliance with a federal or state health-based emission limitation.

(b) An emergency, as defined in 326 IAC 2-7-1(12), constitutes an affirmative defense to an action brought for noncompliance with a technology-based emission limitation if the affirmative defense of an emergency is demonstrated through properly signed, contemporaneous operating logs or other relevant evidence that describe the following:

(1) An emergency occurred and the Permittee can, to the extent possible, identify the causes of the emergency;

(2) The permitted facility was at the time being properly operated;

(3) During the period of an emergency, the Permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards or other requirements in this permit;

(4) For each emergency lasting one (1) hour or more, the Permittee notified IDEM, OAQ, within four (4) daytime business hours after the beginning of the emergency, or after the emergency was discovered or reasonably should have been discovered;

Telephone Number: 1-800-451-6027 (ask for Office of Air Quality, Compliance and Enforcement Branch), or
Telephone Number: 317-233-0178 (ask for Office of Air Quality, Compliance and Enforcement Branch)
Facsimile Number: 317-233-6865

(5) For each emergency lasting one (1) hour or more, the Permittee submitted the attached Emergency Occurrence Report Form or its equivalent, either by mail or facsimile to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

within two (2) working days of the time when emission limitations were exceeded due to the emergency.

The notice fulfills the requirement of 326 IAC 2-7-5(3)(C)(ii) and must contain the following:

(A) A description of the emergency;

(B) Any steps taken to mitigate the emissions; and

(C) Corrective actions taken.

The notification which shall be submitted by the Permittee does not require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

(6) The Permittee immediately took all reasonable steps to correct the emergency.

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

(d) This emergency provision supersedes 326 IAC 1-6 (Malfunctions). This permit condition is in addition to any emergency or upset provision contained in any applicable requirement.

(e) The Permittee seeking to establish the occurrence of an emergency shall make records available upon request to ensure that failure to implement a PMP did not cause or contribute to an exceedance of any limitations on emissions. However, IDEM, OAQ may require that the Preventive Maintenance Plans required under 326 IAC 2-7-4(c)(8) be revised in response to an emergency.

(f) Failure to notify IDEM, OAQ by telephone or facsimile of an emergency lasting more than one (1) hour in accordance with (b)(4) and (5) of this condition shall constitute a violation of 326 IAC 2-7 and any other applicable rules.

(g) If the emergency situation causes a deviation from a technology-based limit, the Permittee may continue to operate the affected emitting facilities during the emergency provided the Permittee immediately takes all reasonable steps to correct the emergency and minimize emissions.

B.12 Permit Shield [326 IAC 2-7-15][326 IAC 2-7-20][326 IAC 2-7-12]

(a) Pursuant to 326 IAC 2-7-15, the Permittee has been granted a permit shield. The permit shield provides that compliance with the conditions of this permit shall be deemed compliance with any applicable requirements as of the date of permit issuance, provided that either the applicable requirements are included and specifically identified in this permit or the permit contains an explicit determination or concise summary of a determination that other specifically identified requirements are not applicable. The Indiana statutes from IC 13 and rules from 326 IAC, referenced in conditions in this permit, are those applicable at the time the permit was issued. The issuance or possession of this permit shall not alone constitute a defense against an alleged violation of any law, regulation or standard, except for the requirement to obtain a Part 70 permit under 326 IAC 2-7 or for applicable requirements for which a permit shield has been granted.

This permit shield does not extend to applicable requirements which are promulgated after the date of issuance of this permit unless this permit has been modified to reflect such new requirements.

(b) If, after issuance of this permit, it is determined that the permit is in nonconformance with an applicable requirement that applied to the source on the date of permit issuance, IDEM, OAQ shall immediately take steps to reopen and revise this permit and issue a compliance order to the Permittee to ensure expeditious compliance with the applicable requirement until the permit is reissued. The permit shield shall continue in effect so long as the Permittee is in compliance with the compliance order.

(c) No permit shield shall apply to any permit term or condition that is determined after issuance of this permit to have been based on erroneous information supplied in the permit application. Erroneous information means information that the Permittee knew to be false, or in the exercise of reasonable care should have been known to be false, at the time the information was submitted.

(d) Nothing in 326 IAC 2-7-15 or in this permit shall alter or affect the following:

(1) The provisions of Section 303 of the Clean Air Act (emergency orders), including the authority of the U.S. EPA under Section 303 of the Clean Air Act;

(2) The liability of the Permittee for any violation of applicable requirements prior to or at the time of this permit's issuance;

(3) The applicable requirements of the acid rain program, consistent with Section 408(a) of the Clean Air Act; and

(4) The ability of U.S. EPA to obtain information from the Permittee under Section 114 of the Clean Air Act.

(e) This permit shield is not applicable to any change made under 326 IAC 2-7-20(b)(2) (Sections 502(b)(10) of the Clean Air Act changes) and 326 IAC 2-7-20(c)(2) (trading based on State Implementation Plan (SIP) provisions).

(f) This permit shield is not applicable to modifications eligible for group processing until after IDEM, OAQ, has issued the modifications. [326 IAC 2-7-12(c)(7)]

(g) This permit shield is not applicable to minor Part 70 permit modifications until after IDEM, OAQ, has issued the modification. [326 IAC 2-7-12(b)(8)]

B.13 Prior Permits Superseded [326 IAC 2-1.1-9.5][326 IAC 2-7-10.5]

(a) All terms and conditions of permits established prior to T003-30376-00257 and issued pursuant to permitting programs approved into the state implementation plan have been either:

(1) incorporated as originally stated,

(2) revised under 326 IAC 2-7-10.5, or

(3) deleted under 326 IAC 2-7-10.5.

(b) Provided that all terms and conditions are accurately reflected in this permit, all previous registrations and permits are superseded by this Part 70 operating permit.

B.14 Termination of Right to Operate [326 IAC 2-7-10][326 IAC 2-7-4(a)]

The Permittee's right to operate this source terminates with the expiration of this permit unless a timely and complete renewal application is submitted at least nine (9) months prior to the date of expiration of the source’s existing permit, consistent with 326 IAC 2-7-3 and 326 IAC 2-7-4(a).

B.15 Permit Modification, Reopening, Revocation and Reissuance, or Termination [326 IAC 2-7-5(6)(C)][326 IAC 2-7-8(a)][326 IAC 2-7-9]

(a) This permit may be modified, reopened, revoked and reissued, or terminated for cause. The filing of a request by the Permittee for a Part 70 Operating Permit modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance does not stay any condition of this permit. [326 IAC 2-7-5(6)(C)] The notification by the Permittee does require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

(b) This permit shall be reopened and revised under any of the circumstances listed in IC 13-15-7-2 or if IDEM, OAQ determines any of the following:

(1) That this permit contains a material mistake.

(2) That inaccurate statements were made in establishing the emissions standards or other terms or conditions.

(3) That this permit must be revised or revoked to assure compliance with an applicable requirement. [326 IAC 2-7-9(a)(3)]

(c) Proceedings by IDEM, OAQ to reopen and revise this permit shall follow the same procedures as apply to initial permit issuance and shall affect only those parts of this permit for which cause to reopen exists. Such reopening and revision shall be made as expeditiously as practicable. [326 IAC 2-7-9(b)]

(d) The reopening and revision of this permit, under 326 IAC 2-7-9(a), shall not be initiated before notice of such intent is provided to the Permittee by IDEM, OAQ at least thirty (30) days in advance of the date this permit is to be reopened, except that IDEM, OAQ may provide a shorter time period in the case of an emergency. [326 IAC 2-7-9(c)]

B.16 Permit Renewal [326 IAC 2-7-3][326 IAC 2-7-4][326 IAC 2-7-8(e)]

(a) The application for renewal shall be submitted using the application form or forms prescribed by IDEM, OAQ and shall include the information specified in 326 IAC 2-7-4. Such information shall be included in the application for each emission unit at this source, except those emission units included on the trivial or insignificant activities list contained in 326 IAC 2-7-1(21) and 326 IAC 2-7-1(42). The renewal application does require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

Request for renewal shall be submitted to:

Indiana Department of Environmental Management
Permit Administration and Support Section, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

(b) A timely renewal application is one that is:

(1) Submitted at least nine (9) months prior to the date of the expiration of this permit; and

(2) If the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ on or before the date it is due.

(c) If the Permittee submits a timely and complete application for renewal of this permit, the source's failure to have a permit is not a violation of 326 IAC 2-7 until IDEM, OAQ takes final action on the renewal application, except that this protection shall cease to apply if, subsequent to the completeness determination, the Permittee fails to submit by the deadline specified, pursuant to 326 IAC 2-7-4(a)(2)(D), in writing by IDEM, OAQ any additional information identified as being needed to process the application.

B.17 Permit Amendment or Modification [326 IAC 2-7-11][326 IAC 2-7-12]

(a) Permit amendments and modifications are governed by the requirements of 326 IAC 2-7-11 or 326 IAC 2-7-12 whenever the Permittee seeks to amend or modify this permit.

(b) Any application requesting an amendment or modification of this permit shall be submitted to:

Indiana Department of Environmental Management
Permit Administration and Support Section, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

Any such application does require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

(c) The Permittee may implement administrative amendment changes addressed in the request for an administrative amendment immediately upon submittal of the request. [326 IAC 2-7-11(c)(3)]

B.18 Permit Revision Under Economic Incentives and Other Programs [326 IAC 2-7-5(8)][326 IAC 2-7-12(b)(2)]

(a) No Part 70 permit revision or notice shall be required under any approved economic incentives, marketable Part 70 permits, emissions trading, and other similar programs or processes for changes that are provided for in a Part 70 permit.

(b) Notwithstanding 326 IAC 2-7-12(b)(1) and 326 IAC 2-7-12(c)(1), minor Part 70 permit modification procedures may be used for Part 70 modifications involving the use of economic incentives, marketable Part 70 permits, emissions trading, and other similar approaches to the extent that such minor Part 70 permit modification procedures are explicitly provided for in the applicable State Implementation Plan (SIP) or in applicable requirements promulgated or approved by the U.S. EPA.

B.19 Operational Flexibility [326 IAC 2-7-20][326 IAC 2-7-10.5]

(a) The Permittee may make any change or changes at the source that are described in 326 IAC 2-7-20(b) or (c) without a prior permit revision, if each of the following conditions is met:

(1) The changes are not modifications under any provision of Title I of the Clean Air Act;

(2) Any preconstruction approval required by 326 IAC 2-7-10.5 has been obtained;

(3) The changes do not result in emissions which exceed the limitations provided in this permit (whether expressed herein as a rate of emissions or in terms of total emissions);

(4) The Permittee notifies the:

Indiana Department of Environmental Management
Permit Administration and Support Section, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

and

United States Environmental Protection Agency, Region V
Air and Radiation Division, Regulation Development Branch - Indiana (AR-18J)
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

in advance of the change by written notification at least ten (10) days in advance of the proposed change. The Permittee shall attach every such notice to the Permittee's copy of this permit; and

(5) The Permittee maintains records on-site, on a rolling five (5) year basis, which document all such changes and emission trades that are subject to 326 IAC 2-7-20(b)(1) and (c)(1). The Permittee shall make such records available, upon reasonable request, for public review.

Such records shall consist of all information required to be submitted to IDEM, OAQ in the notices specified in 326 IAC 2-7-20(b)(1) and (c)(1).

(b) The Permittee may make Section 502(b)(10) of the Clean Air Act changes (this term is defined at 326 IAC 2-7-1(37)) without a permit revision, subject to the constraint of 326 IAC 2-7-20(a). For each such Section 502(b)(10) of the Clean Air Act change, the required written notification shall include the following:

(1) A brief description of the change within the source;

(2) The date on which the change will occur;

(3) Any change in emissions; and

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

The notification which shall be submitted is not considered an application form, report or compliance certification. Therefore, the notification by the Permittee does not require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

(c) Emission Trades [326 IAC 2-7-20(c)]
The Permittee may trade emissions increases and decreases at the source, where the applicable SIP provides for such emission trades without requiring a permit revision, subject to the constraints of Section (a) of this condition and those in 326 IAC 2-7-20(c).

(d) Alternative Operating Scenarios [326 IAC 2-7-20(d)]
The Permittee may make changes at the source within the range of alternative operating scenarios that are described in the terms and conditions of this permit in accordance with 326 IAC 2-7-5(9). No prior notification of IDEM, OAQ, or U.S. EPA is required.

(e) Backup fuel switches specifically addressed in, and limited under, Section D of this permit shall not be considered alternative operating scenarios. Therefore, the notification requirements of part (a) of this condition do not apply.

B.20 Source Modification Requirement [326 IAC 2-7-10.5]

A modification, construction, or reconstruction is governed by the requirements of 326 IAC 2.

B.21 Inspection and Entry [326 IAC 2-7-6][IC 13-14-2-2][IC 13-30-3-1][IC 13-17-3-2]

Upon presentation of proper identification cards, credentials, and other documents as may be required by law, and subject to the Permittee's right under all applicable laws and regulations to assert that the information collected by the agency is confidential and entitled to be treated as such, the Permittee shall allow IDEM, OAQ, U.S. EPA, or an authorized representative to perform the following:

(a) Enter upon the Permittee's premises where a Part 70 source is located, or emissions related activity is conducted, or where records must be kept under the conditions of this permit;

(b) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, have access to and copy any records that must be kept under the conditions of this permit;

(c) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, inspect any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit;

(d) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, sample or monitor substances or parameters for the purpose of assuring compliance with this permit or applicable requirements; and

(e) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, utilize any photographic, recording, testing, monitoring, or other equipment for the purpose of assuring compliance with this permit or applicable requirements.

B.22 Transfer of Ownership or Operational Control [326 IAC 2-7-11]

(a) The Permittee must comply with the requirements of 326 IAC 2-7-11 whenever the Permittee seeks to change the ownership or operational control of the source and no other change in the permit is necessary.

(b) Any application requesting a change in the ownership or operational control of the source shall contain a written agreement containing a specific date for transfer of permit responsibility, coverage and liability between the current and new Permittee. The application shall be submitted to:

Indiana Department of Environmental Management
Permit Administration and Support Section, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

Any such application does require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

(c) The Permittee may implement administrative amendment changes addressed in the request for an administrative amendment immediately upon submittal of the request. [326 IAC 2-7-11(c)(3)]

B.23 Annual Fee Payment [326 IAC 2-7-19] [326 IAC 2-7-5(7)][326 IAC 2-1.1-7]

(a) The Permittee shall pay annual fees to IDEM, OAQ within thirty (30) calendar days of receipt of a billing. Pursuant to 326 IAC 2-7-19(b), if the Permittee does not receive a bill from IDEM, OAQ the applicable fee is due April 1 of each year.

(b) Except as provided in 326 IAC 2-7-19(e), failure to pay may result in administrative enforcement action or revocation of this permit.

(c) The Permittee may call the following telephone numbers: 1-800-451-6027 or 317-233-4230 (ask for OAQ, Billing, Licensing, and Training Section), to determine the appropriate permit fee.

B.24 Credible Evidence [326 IAC 2-7-5(3)][326 IAC 2-7-6][62 FR 8314] [326 IAC 1-1-6]

For the purpose of submitting compliance certifications or establishing whether or not the Permittee has violated or is in violation of any condition of this permit, nothing in this permit shall preclude the use, including the exclusive use, of any credible evidence or information relevant to whether the Permittee would have been in compliance with the condition of this permit if the appropriate performance or compliance test or procedure had been performed.

SECTION C SOURCE OPERATION CONDITIONS

Entire Source

Emission Limitations and Standards [326 IAC 2-7-5(1)]

C.1 Particulate Emission Limitations For Processes with Process Weight Rates Less Than One Hundred (100) Pounds per Hour [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3-2(e)(2), particulate emissions from any process not exempt under 326 IAC 6-3-1(b) or (c) which has a maximum process weight rate less than 100 pounds per hour and the methods in 326 IAC 6-3-2(b) through (d) do not apply shall not exceed 0.551 pounds per hour.

C.2 Opacity [326 IAC 5-1]

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-1 (Applicability) and 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following, unless otherwise stated in this permit:

(a) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

(b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

C.3 Open Burning [326 IAC 4-1] [IC 13-17-9]

The Permittee shall not open burn any material except as provided in 326 IAC 4-1-3, 326 IAC 4-1-4 or 326 IAC 4-1-6. The previous sentence notwithstanding, the Permittee may open burn in accordance with an open burning approval issued by the Commissioner under 326 IAC 4-1-4.1.

C.4 Incineration [326 IAC 4-2] [326 IAC 9-1-2]

The Permittee shall not operate an incinerator except as provided in 326 IAC 4-2 or in this permit. The Permittee shall not operate a refuse incinerator or refuse burning equipment except as provided in 326 IAC 9-1-2 or in this permit.

C.5 Fugitive Dust Emissions [326 IAC 6-4]

The Permittee shall not allow fugitive dust to escape beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located, in a manner that would violate 326 IAC 6-4 (Fugitive Dust Emissions). 326 IAC 6-4-2(4) is not federally enforceable.

C.6 Asbestos Abatement Projects [326 IAC 14-10] [326 IAC 18] [40 CFR 61, Subpart M]

(a) Notification requirements apply to each owner or operator. If the combined amount of regulated asbestos containing material (RACM) to be stripped, removed or disturbed is at least 260 linear feet on pipes or 160 square feet on other facility components, or at least thirty-five (35) cubic feet on all facility components, then the notification requirements of 326 IAC 14-10-3 are mandatory. All demolition projects require notification whether or not asbestos is present.

(b) The Permittee shall ensure that a written notification is sent on a form provided by the Commissioner at least ten (10) working days before asbestos stripping or removal work or before demolition begins, per 326 IAC 14-10-3, and shall update such notice as necessary, including, but not limited to the following:

(1) When the amount of affected asbestos containing material increases or decreases by at least twenty percent (20%); or

(2) If there is a change in the following:

(A) Asbestos removal or demolition start date;

(B) Removal or demolition contractor; or

(C) Waste disposal site.

(c) The Permittee shall ensure that the notice is postmarked or delivered according to the guidelines set forth in 326 IAC 14-10-3(2).

(d) The notice to be submitted shall include the information enumerated in 326 IAC 14-10-3(3).

All required notifications shall be submitted to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

The notice shall include a signed certification from the owner or operator that the information provided in this notification is correct and that only Indiana licensed workers and project supervisors will be used to implement the asbestos removal project. The notifications do not require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

(e) Procedures for Asbestos Emission Control
The Permittee shall comply with the applicable emission control procedures in 326 IAC 14-10-4 and 40 CFR 61.145(c). Per 326 IAC 14-10-1, emission control requirements are applicable for any removal or disturbance of RACM greater than three (3) linear feet on pipes or three (3) square feet on any other facility components or a total of at least 0.75 cubic feet on all facility components.

(f) Demolition and Renovation
The Permittee shall thoroughly inspect the affected facility or part of the facility where the demolition or renovation will occur for the presence of asbestos pursuant to 40 CFR 61.145(a).

(g) Indiana Licensed Asbestos Inspector
The Permittee shall comply with 326 IAC 14-10-1(a) that requires the owner or operator, prior to a renovation/demolition, to use an Indiana Licensed Asbestos Inspector to thoroughly inspect the affected portion of the facility for the presence of asbestos. The requirement to use an Indiana Licensed Asbestos inspector is not federally enforceable.

Testing Requirements [326 IAC 2-7-6(1)]

C.7 Performance Testing [326 IAC 3-6]

(a) For performance testing required by this permit, a test protocol, except as provided elsewhere in this permit, shall be submitted to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

no later than thirty-five (35) days prior to the intended test date. The protocol submitted by the Permittee does not require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

(b) The Permittee shall notify IDEM, OAQ of the actual test date at least fourteen (14) days prior to the actual test date. The notification submitted by the Permittee does not require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

(c) Pursuant to 326 IAC 3-6-4(b), all test reports must be received by IDEM, OAQ not later than forty-five (45) days after the completion of the testing. An extension may be granted by IDEM, OAQ if the Permittee submits to IDEM, OAQ a reasonable written explanation not later than five (5) days prior to the end of the initial forty-five (45) day period.

Compliance Requirements [326 IAC 2-1.1-11]

C.8 Compliance Requirements [326 IAC 2-1.1-11]

The commissioner may require stack testing, monitoring, or reporting at any time to assure compliance with all applicable requirements by issuing an order under 326 IAC 2-1.1-11. Any monitoring or testing shall be performed in accordance with 326 IAC 3 or other methods approved by the commissioner or the U. S. EPA.

Compliance Monitoring Requirements [326 IAC 2-7-5(1)][326 IAC 2-7-6(1)]

C.9 Compliance Monitoring [326 IAC 2-7-5(3)][326 IAC 2-7-6(1)]

(a) For new units:

Unless otherwise specified in the approval for the new emission unit(s), compliance monitoring for new emission units shall be implemented on and after the date of initial start-up.

(b) For existing units:

Unless otherwise specified in this permit, for all monitoring requirements not already legally required, the Permittee shall be allowed up to ninety (90) days from the date of permit issuance to begin such monitoring. If due to circumstances beyond the Permittee's control, any monitoring equipment required by this permit cannot be installed and operated no later than ninety (90) days after permit issuance the Permittee may extend the compliance schedule related to the equipment for an additional ninety (90) days provided the Permittee notifies:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

in writing, prior to the end of the initial ninety (90) day compliance schedule, with full justification of the reasons for the inability to meet this date.

The notification which shall be submitted by the Permittee does require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

C.10 Instrument Specifications [326 IAC 2-1.1-11] [326 IAC 2-7-5(3)] [326 IAC 2-7-6(1)]

(a) When required by any condition of this permit, an analog instrument used to measure a parameter related to the operation of an air pollution control device shall have a scale such that the expected maximum reading for the normal range shall be no less than twenty percent (20%) of full scale. The analog instrument shall be capable of measuring values outside of the normal range.

(b) The Permittee may request that the IDEM, OAQ approve the use of an instrument that does not meet the above specifications provided the Permittee can demonstrate that an alternative instrument specification will adequately ensure compliance with permit conditions requiring the measurement of the parameters.

Corrective Actions and Response Steps [326 IAC 2-7-5][326 IAC 2-7-6]

C.11 Emergency Reduction Plans [326 IAC 1-5-2] [326 IAC 1-5-3]

Pursuant to 326 IAC 1-5-2 (Emergency Reduction Plans; Submission):

(a) The Permittee shall maintain the most recently submitted written emergency reduction plans (ERPs) consistent with safe operating procedures.

(b) Upon direct notification by IDEM, OAQ that a specific air pollution episode level is in effect, the Permittee shall immediately put into effect the actions stipulated in the approved ERP for the appropriate episode level. [326 IAC 1-5-3]

C.12 Risk Management Plan [326 IAC 2-7-5(12)] [40 CFR 68]

If a regulated substance, as defined in 40 CFR 68, is present at a source in more than a threshold quantity, the Permittee must comply with the applicable requirements of 40 CFR 68.

C.13 Response to Excursions or Exceedances [326 IAC 2-7-5] [326 IAC 2-7-6]

Upon detecting an excursion where a response step is required by the D Section or an exceedance of a limitation in this permit:

(a) The Permittee shall take reasonable response steps to restore operation of the emissions unit (including any control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing excess emissions.

(b) The response shall include minimizing the period of any startup, shutdown or malfunction. The response may include, but is not limited to, the following:

(1) initial inspection and evaluation;

(2) recording that operations returned or are returning to normal without operator action (such as through response by a computerized distribution control system); or

(3) any necessary follow-up actions to return operation to normal or usual manner of operation.

(c) A determination of whether the Permittee has used acceptable procedures in response to an excursion or exceedance will be based on information available, which may include, but is not limited to, the following:

(1) monitoring results;

(2) review of operation and maintenance procedures and records; and/or

(3) inspection of the control device, associated capture system, and the process.

(d) Failure to take reasonable response steps shall be considered a deviation from the permit.

(e) The Permittee shall record the reasonable response steps taken.

C.14 Actions Related to Noncompliance Demonstrated by a Stack Test [326 IAC 2-7-5][326 IAC 2-7-6]

(a) When the results of a stack test performed in conformance with Section C - Performance Testing, of this permit exceed the level specified in any condition of this permit, the Permittee shall submit a description of its response actions to IDEM, OAQ, no later than seventy-five (75) days after the date of the test.

(b) A retest to demonstrate compliance shall be performed no later than one hundred eighty (180) days after the date of the test. Should the Permittee demonstrate to IDEM, OAQ that retesting in one hundred eighty (180) days is not practicable, IDEM, OAQ may extend the retesting deadline

(c) IDEM, OAQ reserves the authority to take any actions allowed under law in response to noncompliant stack tests.

The response action documents submitted pursuant to this condition do require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

C.15 Emission Statement [326 IAC 2-7-5(3)(C)(iii)][326 IAC 2-7-5(7)][326 IAC 2-7-19(c)][326 IAC 2-6]

In accordance with the compliance schedule specified in 326 IAC 2-6-3(b)(1), starting in 2004 and every three (3) years thereafter, the Permittee shall submit by July 1 an emission statement covering the previous calendar year. The emission statement shall contain, at a minimum, the information specified in 326 IAC 2-6-4(c) and shall meet the following requirements:

(1) Indicate estimated actual emissions of all pollutants listed in 326 IAC 2-6-4(a);

(2) Indicate estimated actual emissions of regulated pollutants as defined by 326 IAC 2-7-1(33) (“Regulated pollutant, which is used only for purposes of Section 19 of this rule”) from the source, for purpose of fee assessment.

The statement must be submitted to:

Indiana Department of Environmental Management
Technical Support and Modeling Section, Office of Air Quality
100 North Senate Avenue
MC 61-50 IGCN 1003
Indianapolis, Indiana 46204-2251

The emission statement does require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

C.16 General Record Keeping Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-6] [326 IAC 2-2] [326 IAC 2-3]

(a) Records of all required monitoring data, reports and support information required by this permit shall be retained for a period of at least five (5) years from the date of monitoring sample, measurement, report, or application. Support information includes the following, where applicable:

(AA) All calibration and maintenance records.
(BB) All original strip chart recordings for continuous monitoring instrumentation.
(CC) Copies of all reports required by the Part 70 permit.

Records of required monitoring information include the following, where applicable:

(AA) The date, place, as defined in this permit, and time of sampling or measurements.
(BB) The dates analyses were performed.
(CC) The company or entity that performed the analyses.
(DD) The analytical techniques or methods used.
(EE) The results of such analyses.
(FF) The operating conditions as existing at the time of sampling or measurement.

These records shall be physically present or electronically accessible at the source location for a minimum of three (3) years. The records may be stored elsewhere for the remaining two (2) years as long as they are available upon request. If the Commissioner makes a request for records to the Permittee, the Permittee shall furnish the records to the Commissioner within a reasonable time.

(b) Unless otherwise specified in this permit, for all record keeping requirements not already legally required, the Permittee shall be allowed up to ninety (90) days from the date of permit issuance or the date of initial start-up, whichever is later, to begin such record keeping.

(c) If there is a reasonable possibility (as defined in 326 IAC 2-2-8 (b)(6)(A), 326 IAC 2-2-8 (b)(6)(B), 326 IAC 2-3-2 (l)(6)(A), and/or 326 IAC 2-3-2 (l)(6)(B)) that a “project” (as defined in 326 IAC 2-2-1(oo) and/or 326 IAC 2-3-1(jj)) at an existing emissions unit, other than projects at a source with a Plantwide Applicability Limitation (PAL), which is not part of a “major modification” (as defined in 326 IAC 2-2-1(dd) and/or 326 IAC 2-3-1(y)) may result in significant emissions increase and the Permittee elects to utilize the “projected actual emissions” (as defined in 326 IAC 2-2-1(pp) and/or 326 IAC 2-3-1(kk)), the Permittee shall comply with following:

(1) Before beginning actual construction of the “project” (as defined in 326 IAC 2-2-1(oo) and/or 326 IAC 2-3-1(jj)) at an existing emissions unit, document and maintain the following records:

(A) A description of the project.

(B) Identification of any emissions unit whose emissions of a regulated new source review pollutant could be affected by the project.

(C) A description of the applicability test used to determine that the project is not a major modification for any regulated NSR pollutant, including:

(i) Baseline actual emissions;

(ii) Projected actual emissions;

(iii) Amount of emissions excluded under section 326 IAC 2-2-1(pp)(2)(A)(iii) and/or 326 IAC 2-3-1 (kk)(2)(A)(iii); and

(iv) An explanation for why the amount was excluded, and any netting calculations, if applicable.

(d) If there is a reasonable possibility (as defined in 326 IAC 2-2-8 (b)(6)(A) and/or 326 IAC 2-3-2 (l)(6)(A)) that a "project" (as defined in 326 IAC 2-2-1(oo) and/or 326 IAC 2-3-1(jj)) at an existing emissions unit, other than projects at a source with a Plantwide Applicability Limitation (PAL), which is not part of a "major modification" (as defined in 326 IAC 2-2-1(dd) and/or 326 IAC 2-3-1(y)) may result in significant emissions increase and the Permittee elects to utilize the "projected actual emissions" (as defined in 326 IAC 2-2-1(pp) and/or 326 IAC 2-3-1(kk)), the Permittee shall comply with following:

(1) Monitor the emissions of any regulated NSR pollutant that could increase as a result of the project and that is emitted by any existing emissions unit identified in (1)(B) above; and

(2) Calculate and maintain a record of the annual emissions, in tons per year on a calendar year basis, for a period of five (5) years following resumption of regular operations after the change, or for a period of ten (10) years following resumption of regular operations after the change if the project increases the design capacity of or the potential to emit that regulated NSR pollutant at the emissions unit.

C.17 General Reporting Requirements [326 IAC 2-7-5(3)(C)] [326 IAC 2-1.1-11]

(a) The Permittee shall submit the attached Quarterly Deviation and Compliance Monitoring Report or its equivalent. Proper notice submittal under Section B –Emergency Provisions satisfies the reporting requirements of this paragraph. Any deviation from permit requirements, the date(s) of each deviation, the cause of the deviation, and the response steps taken must be reported except that a deviation required to be reported pursuant to an applicable requirement that exists independent of this permit, shall be reported according to the schedule stated in the applicable requirement and does not need to be included in this report. This report shall be submitted not later than thirty (30) days after the end of the reporting period. The Quarterly Deviation and Compliance Monitoring Report shall include a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35). A deviation is an exceedance of a permit limitation or a failure to comply with a requirement of the permit.

(b) The address for report submittal is:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

(c) Unless otherwise specified in this permit, any notice, report, or other submission required by this permit shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ on or before the date it is due.

(d) Reporting periods are based on calendar years, unless otherwise specified in this permit. For the purpose of this permit "calendar year" means the twelve (12) month period from January 1 to December 31 inclusive.

(e) If the Permittee is required to comply with the recordkeeping provisions of (d) in Section C - General Record Keeping Requirements for any "project" (as defined in 326 IAC 2-2-1 (oo) and/or 326 IAC 2-3-1 (jj)) at an existing emissions unit, and the project meets the following criteria, then the Permittee shall submit a report to IDEM, OAQ:

(1) The annual emissions, in tons per year, from the project identified in (c)(1) in Section C- General Record Keeping Requirements exceed the baseline actual emissions, as documented and maintained under Section C- General Record Keeping Requirements (c)(1)(C)(i), by a significant amount, as defined in 326 IAC 2-2-1 (ww) and/or 326 IAC 2-3-1 (pp), for that regulated NSR pollutant, and

(2) The emissions differ from the preconstruction projection as documented and maintained under Section C - General Record Keeping Requirements (c)(1)(C)(ii).

(f) The report for project at an existing emissions unit shall be submitted no later than sixty (60) days after the end of the year and contain the following:

(1) The name, address, and telephone number of the major stationary source.

(2) The annual emissions calculated in accordance with (d)(1) and (2) in Section C - General Record Keeping Requirements.

(3) The emissions calculated under the actual-to-projected actual test stated in 326 IAC 2-2-2(d)(3) and/or 326 IAC 2-3-2(c)(3).

(4) Any other information that the Permittee wishes to include in this report such as an explanation as to why the emissions differ from the preconstruction projection.

Reports required in this part shall be submitted to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

(g) The Permittee shall make the information required to be documented and maintained in accordance with (c) in Section C- General Record Keeping Requirements available for review upon a request for inspection by IDEM, OAQ. The general public may request this information from the IDEM, OAQ under 326 IAC 17.1.

Stratospheric Ozone Protection

C.18 Compliance with 40 CFR 82 and 326 IAC 22-1

Pursuant to 40 CFR 82 (Protection of Stratospheric Ozone), Subpart F, except as provided for motor vehicle air conditioners in Subpart B, the Permittee shall comply with applicable standards for recycling and emissions reduction.

SECTION D.1 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

(c) One (1) open landfill gas flare, approved in 2014 for construction, identified as EU-4, with a maximum capacity of 3,000 SCFM and 91.26 MMBtu/hr. [40 CFR 60, Subpart WWW] [40 CFR 63, Subpart AAAA]

Insignificant Activities:

(a) Three (3) crystal clean parts washers with a solvent consumption of 240 gallons per year, constructed after 1990. [326 IAC 8-3-2][326 IAC 8-3-8]

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.1.1 Volatile Organic Compound (VOC) [326 IAC 8-3-2]

Pursuant to 326 IAC 8-3-2 (Cold cleaner degreaser control equipment and operating requirements), for cold cleaning operations constructed after January 1, 1980, the Permittee shall comply with the following:

(a) The owner or operator of the cold cleaner degreaser shall ensure the following control equipment and operating requirements are met:

(1) equip the degreaser with a cover;

(2) equip the degreaser with a device for draining cleaned parts;

(3) close the degreaser cover whenever parts are not being handled in the degreaser;

(4) drain cleaned parts for at least fifteen (15) seconds or until dripping ceases;

(5) provide a permanent, conspicuous label that lists the operation requirements in subdivisions (3), (4), (6), and (7);

(6) Prohibit the disposal or transfer of waste solvent in such a manner that could allow greater than twenty percent (20%) of the waste solvent (by weight) to evaporate into the atmosphere.

(b) The owner or operator of a cold cleaner degreaser subject to this subsection shall ensure the following additional control equipment and operating requirements are met:

(1) Equip the degreaser with one (1) of the following control devices if the solvent is heated to a temperature of greater than forty-eight and nine-tenths (48.9) degrees Celsius (one hundred twenty (120 degrees Fahrenheit):

(A) A freeboard that attains a freeboard ratio of seventy-five hundredths (0.75) or greater.

(B) A water cover when solvent used is insoluble in, and heavier than, water.

(C) A refrigerated chiller.

(D) Carbon absorption.

(E) An alternative system of demonstrated equivalent or better control as those outlined in clauses (A) through (D) that is approved by the department. An alternative system shall be submitted to the U.S. EPA as a SIP revision.

(2) Ensure the degreaser cover is designed so that it can be easily operated with one (1) hand if the solvent is agitated or heated.

(3) If used, solvent spray:

(A) must be a solid, fluid stream, and

(B) shall be applied at a pressure that does not cause excessive splashing.

D.1.2 Material Requirements for Cold Cleaner Degreasers [326 IAC 8-3-8]

Pursuant to 326 IAC 8-3-8 (Material Requirements for Cold Cleaner Degreasers), on and after January 1, 2015, the Permittee shall not operate a cold cleaning degreaser with a solvent vapor pressure that exceeds one (1) millimeter of mercury (nineteen-thousandths (0.019) pound per square inch) measured at twenty (20) degrees Celsius (sixty-eight (68) degrees Fahrenheit).

D.1.3 Prevention of Significant Deterioration (PSD) Minor Limit [326 IAC 2-2]

The Permittee shall comply with the following for open flare EU-4 at National Serv-All Landfill:

(a) Carbon monoxide (CO) emissions from the open flare, identified as EU-4, shall not exceed 0.37 lb/MMBtu;

(b) Volatile Organic Compound (VOC) emissions from the open flare, identified as EU-4, shall not exceed 0.14 lb/MMBtu; and

(c) Landfill gas combusted in the open flare, identified as EU-4, shall not exceed 732,095 MMBtu per twelve (12) consecutive month period with compliance determined at the end of each month.

Compliance with these emission limits along with CO and VOC emission limitations on open flare EU-2 at the United Refuse Landfill will ensure that the net emissions increase of CO from Significant Source Modification No. 003-34309-00257 is less than one hundred (100) tons per year and the net emissions increase of VOC is less than forty (40) tons per year and shall render the requirements of 326 IAC 2-2 not applicable to Significant Source Modification No. 003-34309-00257.

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.1.4 Record Keeping Requirements

(a) To document the compliance status with Condition D.1.2, on and after January 1, 2015, the Permittee shall maintain the following records for each purchase of solvent used in the cold cleaner degreasing operations. These records shall be retained on-site or accessible electronically for the most recent three (3) year period and shall be reasonable accessible for an additional two (2) year period.

(1) The name and address of the solvent suppliers.

(2) The date of purchase.

(3) The type of solvent purchased.

(4) The total volume of the solvent purchased.

(5) The true vapor pressure of the solvent measured in millimeters of mercury at twenty (20) degrees Celsius (sixty-eight (68) degrees Fahrenheit).

(b) To document the compliance status with Condition D.1.3(c), the Permittee shall maintain monthly records of the heat input of landfill gas in landfill gas flare EU-4. The Permittee shall include in its monthly record when a landfill gas heat input reading is not recorded and the reason for a lack of a landfill gas heat input reading (e.g., the landfill gas flare did not operate that month).

(c) Section C - General Record Keeping Requirements of this permit contains the Permittee's obligations with regard to the records required by this condition.

D.1.5 Reporting Requirements

A quarterly summary of the information to document the compliance status with Condition D.1.3(c) shall be submitted using the reporting form located at the end of this permit, or its equivalent, not later than thirty (30) days after the end of the quarter being reported. Section C – General Reporting Requirements contains the Permittee's obligation with regard to the reporting required by this condition. The report submitted by the Permittee does require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined in 326 IAC 2-7-1(35).

SECTION E.1 FACILITY OPERATION CONDITIONS

Emissions Unit Description:

(a) One (1) stationary municipal solid waste landfill with a design capacity of 30,996,952 mega grams, constructed in 1966. [40 CFR 60, Subpart WWW][40 CFR 61, Subpart M] [40 CFR 63, Subpart AAAA]

(b) One (1) 148.5 MMBtu/hr open flare with a maximum capacity of 5,000 scfm of landfill gas usage, identified as EU-3, constructed in 2004. [40 CFR 60, Subpart WWW] [40 CFR 63, Subpart AAAA]

(c) One (1) open landfill gas flare, approved in 2014 for construction, identified as EU-4, with a maximum capacity of 3,000 SCFM and 91.26 MMBtu/hr. [40 CFR 60, Subpart WWW] [40 CFR 63, Subpart AAAA]

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

New Source Performance Standards

E.1.1 General Provisions Relating to NSPS WWW [326 IAC 12][40 CFR Part 60, Subpart A]

The provisions of 40 CFR Part 60, Subpart A – General Provisions, which are incorporated by reference in 326 IAC 12-1, apply to the municipal solid waste landfill and flare described in this section except when otherwise specified in 40 CFR Part 60, Subpart WWW.

E.1.2 Standards of Performance for Municipal Solid Waste Landfills [326 IAC 12][326 IAC 8.1] [40 CFR Part 60, Subpart WWW]

The Permittee who operates a municipal solid waste landfill that commenced construction, reconstruction or modification on or after May 30, 1991 shall comply with the following provisions of 40 CFR Part 60, Subpart WWW (included as Attachment A of this permit), which are incorporated by reference in 326 IAC 12, except for approved variances incorporated into the Collection and Control Design Plan in accordance with 40 CFR 60, Subpart WWW. The source is subject to the following portions of Subpart WWW:

(1) 40 CFR 60.750;
(2) 40 CFR 60.751;
(3) 40 CFR 60.752(b);
(4) 40 CFR 60.753;
(5) 40 CFR 60.754;
(6) 40 CFR 60.755;
(7) 40 CFR 60.756(a), (c), and (f);
(8) 40 CFR 60.757(a), (b)(3), (c), (d), (e), (f), and (g);
(9) 40 CFR 60.758(a), (b)(4), (c)(4), (d), and (e); and
(10) 40 CFR 60.759.

E.1.3 Operational Standards for Collection and Control Systems [40 CFR 60.753] [326 IAC 12][326 IAC 8.1]

(a) Operate each interior wellhead in the collection system with a landfill gas temperature less than 55 ^{o}C and with either a nitrogen level less than 20 percent or an oxygen level less than 5 percent, except as indicated in (3) below (except for the landfill gas well, LFGASB16, which can have an oxygen level less than 16.9 percent). The Permittee may establish a higher operating temperature, nitrogen, or oxygen value at a particular well. A higher operating value demonstration shall show supporting data that the elevated

parameter does not cause fires or significantly inhibit anaerobic decomposition by killing methanogens.

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

(2) Unless an alternative test method is established as allowed by 40 CFR 60.752 (b)(2)(i), the oxygen shall be determined by an oxygen meter using Method 3A except that; the span shall be set so that the regulatory limit is between 20 and 50 percent of the span; a data recorder is not required; only two calibration gases are required, a zero and span, and ambient air may be used as the span; a calibration error check is not required; the allowable sample bias, zero drift, and calibration drift are $\pm$ 10 percent.

(3) Pursuant to Administrative Amendment 003-27018-00257, the Permittee has established a higher operating temperature at wells C25R, C30, C40R, C52, C56, and C57. This higher operating temperature value demonstration up to 65.6°C (150°F) shows supporting data that the elevated parameter does not cause fires or significantly inhibit anaerobic decomposition by killing methanogens.

(4) Pursuant to Administrative Amendment 003-27719-00257, the Permittee has established a higher operating temperature at well C24R. This higher operating temperature value demonstration up to 65.6°C (150°F) shows supporting data that the elevated parameter does not cause fires or significantly inhibit anaerobic decomposition by killing methanogens.

(5) Pursuant to Administrative Amendment 003-31525-00257, the Permittee has established a higher operating temperature at wells D66, D67, D68, D69 and D100. This higher operating temperature value demonstration up to 65.6°C (150°F) shows supporting data that the elevated parameter does not cause fires or significantly inhibit anaerobic decomposition by killing methanogens.

(6) Pursuant to Administrative Amendment 003-32168-00257, the Permittee has established a higher operating temperature at wells C42R2, C44R2, C47R2, C48R2, C49R2 and C59R. This higher operating temperature value demonstration up to 65.6°C (150°F) shows supporting data that the elevated parameter does not cause fires or significantly inhibit anaerobic decomposition by killing methanogens.

(7) Pursuant to Administrative Amendment 003-32168-00257, the Permittee has established a higher operating temperature at wells C39R2, C41R2 and C53R. This higher operating temperature value demonstration up to 71.1°C (160°F) shows supporting data that the elevated parameter does not cause fires or significantly inhibit anaerobic decomposition by killing methanogens.

(8) Pursuant to Administrative Amendment 003-32505-00257, the Permittee has established a higher operating temperature at wells C18R, C38R and C46R2. This higher operating temperature value demonstration up to 65.6°C (150°F) shows supporting data that the elevated parameter does not cause fires or significantly inhibit anaerobic decomposition by killing methanogens.

(9) Pursuant to Administrative Amendment 003-33852-00257, the Permittee has established a higher oxygen concentration level of 21.9% for the leachate collection system sump SLS2.

(10) Pursuant to Administrative Amendment 003-34139-00257, the Permittee has established a higher operating temperature at well D63. This higher operating temperature value demonstration up to 65.6°C (150°F) shows supporting data that the elevated parameter does not cause fires or significantly inhibit anaerobic decomposition by killing methanogens.

SECTION E.2 FACILITY OPERATION CONDITIONS

Emissions Unit Description:

(a) One (1) stationary municipal solid waste landfill with a design capacity of 30,996,952 mega grams, constructed in 1966. [40 CFR 60, Subpart WWW][40 CFR 61, Subpart M] [40 CFR 63, Subpart AAAA]

(b) One (1) 148.5 MMBtu/hr open flare with a maximum capacity of 5,000 scfm of landfill gas usage, identified as EU-3, constructed in 2004. [40 CFR 60, Subpart WWW] [40 CFR 63, Subpart AAAA]

(c) One (1) open landfill gas flare, approved in 2014 for construction, identified as EU-4, with a maximum capacity of 3,000 SCFM and 91.26 MMBtu/hr. [40 CFR 60, Subpart WWW] [40 CFR 63, Subpart AAAA]

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

National Emission Standards for Hazardous Air Pollutants

E.2.1 General Provisions Relating to NESHAP AAAA [326 IAC 20-67][40 CFR Part 63, Subpart AAAA]

The provisions of 40 CFR Part 63, Subpart A – General Provisions, which are incorporated by reference in 326 IAC 20-1, apply to the municipal solid waste landfill and flare described in this section except when otherwise specified in 40 CFR Part 63, Subpart AAAA.

E.2.2 National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills [326 IAC 20-67][40 CFR Part 63, Subpart AAAA]

The Permittee who operates a stationary municipal solid waste landfill that has accepted waste since November 8, 1987 and has a design capacity equal to or greater than 2.5 million megagrams shall comply with the following provisions of 40 CFR Part 63, Subpart AAAA (included as Attachment B of this permit), which are incorporated by reference in 326 IAC 20-67. The source is subject to the following portions of Subpart AAAA:

(1) 40 CFR 63.1930;
(2) 40 CFR 63.1935(a)(3);
(3) 40 CFR 63.1940;
(4) 40 CFR 63.1945(b);
(5) 40 CFR 63.1950;
(6) 40 CFR 63.1955(a)(1), and (b);
(7) 40 CFR 63.1960 to 40 CFR 63.1985;
(8) 40 CFR 63.1990; and
(9) Table 1

SECTION E.3 FACILITY OPERATION CONDITIONS

Emissions Unit Description:

(a) One (1) stationary municipal solid waste landfill with a design capacity of 30,996,952 mega grams, constructed in 1966. [40 CFR 60, Subpart WWW][40 CFR 61, Subpart M] [40 CFR 63, Subpart AAAA]

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

National Emission Standards for Asbestos

E.3.1 General Provisions Relating to National Emission Standards for Asbestos [326 IAC 14-1][40 CFR Part 61, Subpart M]

The provisions of 40 CFR Part 61, Subpart A – General Provisions, which are incorporated by reference in 326 IAC 14-1, apply to the municipal solid waste landfill described in this section except when otherwise specified in 40 CFR Part 61, Subpart M.

E.3.2 National Emission Standards for Asbestos [326 IAC 14-2][40 CFR Part 61, Subpart M]

The Permittee who operates a municipal solid waste landfill that receives asbestos-containing waste material from a source listed in 40 CFR 61.149, 40 CFR 61.150 or 40 CFR 61.155 shall comply with the following provisions of 40 CFR Part 61, Subpart M, included as Attachment C of this permit. The source is subject to the following portions of Subpart M:

(1) 40 CFR 61.140;
(2) 40 CFR 61.141;
(3) 40 CFR 61.154;
(4) 40 CFR 61.156; and
(5) 40 CFR 61.157.

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE AND ENFORCEMENT BRANCH
PART 70 OPERATING PERMIT
CERTIFICATION

Source Name: Republic Services of Indiana, LP d/b/a National Serv-all Landfill
Source Address: 6231 MacBeth Road, Fort Wayne, Indiana 46809
Part 70 Permit No.: T003-30376-00257

This certification shall be included when submitting monitoring, testing reports/results or other documents as required by this permit.

Please check what document is being certified:

□ Annual Compliance Certification Letter

□ Test Result (specify) _____.

□ Report (specify) _____.

□ Notification (specify) _____.

□ Affidavit (specify) _____.

□ Other (specify) _____.

I certify that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

Signature:
Printed Name:
Title/Position:
Phone:
Date:

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

OFFICE OF AIR QUALITY
COMPLIANCE AND ENFORCEMENT BRANCH
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251
Phone: (317) 233-0178
Fax: (317) 233-6865

PART 70 OPERATING PERMIT
EMERGENCY OCCURRENCE REPORT

Source Name: Republic Services of Indiana, LP d/b/a National Serv-all Landfill
Source Address: 6231 MacBeth Road, Fort Wayne, Indiana 46809
Part 70 Permit No.: T003-30376-00257

This form consists of 2 pages **Page 1 of 2**

□ This is an emergency as defined in 326 IAC 2-7-1(12)

- The Permittee must notify the Office of Air Quality (OAQ), within four (**4**) business hours (1-800-451-6027 or 317-233-0178, ask for Compliance Section); and
- The Permittee must submit notice in writing or by facsimile within two (**2**) working days (Facsimile Number: 317-233-6865), and follow the other requirements of 326 IAC 2-7-16.

If any of the following are not applicable, mark N/A

Facility/Equipment/Operation:
Control Equipment:
Permit Condition or Operation Limitation in Permit:
Description of the Emergency:
Describe the cause of the Emergency:

If any of the following are not applicable, mark N/A **Page 2 of 2**

Date/Time Emergency started:
Date/Time Emergency was corrected:
Was the facility being properly operated at the time of the emergency? Y N
Type of Pollutants Emitted: TSP, PM-10, SO_2, VOC, NO_X, CO, Pb, other:
Estimated amount of pollutant(s) emitted during emergency:
Describe the steps taken to mitigate the problem:
Describe the corrective actions/response steps taken:
Describe the measures taken to minimize emissions:
If applicable, describe the reasons why continued operation of the facilities are necessary to prevent imminent injury to persons, severe damage to equipment, substantial loss of capital investment, or loss of product or raw materials of substantial economic value:

Form Completed by:_____

Title / Position: _____

Date:_____

Phone: _____

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE AND ENFORCEMENT BRANCH

Part 70 Quarterly Report

Source Name: Republic Services of Indiana, LP d/b/a National Serv-all Landfill
Source Address: 6231 MacBeth Road, Fort Wayne, Indiana 46809
Part 70 Permit No.: T003-30376-00257
Facility: Flare EU-4
Parameter: Landfill Gas Heat Input to Open Flare EU-4
Limit: Landfill gas combusted in the open flare, identified as EU-4, shall not exceed 732,095 MMBtu per twelve (12) consecutive month period with compliance determined at the end of each month.

QUARTER : _____ YEAR: _____

Month	Column 1	Column 2	Column 1 + Column 2
	This Month	Previous 11 Months	12 Month Total
Month 1			
Month 2			
Month 3			

□ No deviation occurred in this quarter.

□ Deviation/s occurred in this quarter.
Deviation has been reported on: _____.

Submitted by: _____
Title / Position: _____
Signature: _____
Date: _____
Phone: _____

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE AND ENFORCEMENT BRANCH
PART 70 OPERATING PERMIT
QUARTERLY DEVIATION AND COMPLIANCE MONITORING REPORT

Source Name: Republic Services of Indiana, LP d/b/a National Serv-all Landfill
Source Address: 6231 MacBeth Road, Fort Wayne, Indiana 46809
Part 70 Permit No.: T003-30376-00257

Months: _____ to _____ Year: _____

Page 1 of 2

This report shall be submitted quarterly based on a calendar year. Proper notice submittal under Section B –Emergency Provisions satisfies the reporting requirements of paragraph (a) of Section C-General Reporting. Any deviation from the requirements of this permit, the date(s) of each deviation, the probable cause of the deviation, and the response steps taken must be reported. A deviation required to be reported pursuant to an applicable requirement that exists independent of the permit, shall be reported according to the schedule stated in the applicable requirement and does not need to be included in this report. Additional pages may be attached if necessary. If no deviations occurred, please specify in the box marked "No deviations occurred this reporting period".

□ NO DEVIATIONS OCCURRED THIS REPORTING PERIOD.

□ THE FOLLOWING DEVIATIONS OCCURRED THIS REPORTING PERIOD

Permit Requirement (specify permit condition #)	
Date of Deviation:	**Duration of Deviation:**
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	

Permit Requirement (specify permit condition #)	
Date of Deviation:	**Duration of Deviation:**
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	

Permit Requirement (specify permit condition #)	
Date of Deviation:	**Duration of Deviation:**
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	
Permit Requirement (specify permit condition #)	
Date of Deviation:	**Duration of Deviation:**
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	
Permit Requirement (specify permit condition #)	
Date of Deviation:	**Duration of Deviation:**
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	

Form Completed by:_____

Title / Position: _____

Date:_____

Phone: _____

Indiana Department of Environmental Management
Office of Air Quality

Technical Support Document (TSD) for a Part 70 Significant Source and Significant Permit Modification

Source Description and Location

Source Name:	Republic Services, LP d/b/a National Serv-All Landfill
Source Location:	6231 MacBeth Road, Ft. Wayne, IN 46809
County:	Allen County
SIC Code:	4953 (Refuse Systems)
Operation Permit No.:	T003-30376-00257
Operation Permit Issuance Date:	December 9, 2011
Significant Source Modification No.:	003-34309-00257
Significant Permit Modification No.:	003-34554-00257
Permit Reviewer:	David Matousek

Source Definition

This municipal solid waste landfill consists of two (2) plants:

(a) Republic Services, LP d/b/a National Serv-All Landfill (Plant ID 003-00257) is located at 6231 MacBeth Road, Ft. Wayne, IN 46809; and

(b) Republic Services, LP d/b/a United Refuse Landfill (Plant ID 003-00291) is located at 5000 Smith Road, Ft. Wayne, IN 46804.

Since the plants are located on contiguous or adjacent properties, have the same SIC codes, and are under common control, they are considered one (1) source, as defined by 326 IAC 2-7-1(22). This conclusion was initially determined under Part 70 Significant Permit Modification No. 003-19626-00291 issued on May 24, 2005.

Separate Part 70 Operating permits will be issued to Republic Services, LP d/b/a National Serv-All Landfill and Republic Services, LP d/b/a United Refuse Landfill solely for administrative purposes.

Existing Approvals

The source was issued Part 70 Operating Permit No. T 003-30376-00257 on December 9, 2011. The source has since received the following approvals:

(a) Administrative Amendment No. 003-31525-00257, issued on March 6, 2012;

(b) Administrative Amendment No. 003-32168-00257, issued on August 7, 2012;

(c) Administrative Amendment No. 003-32505-00257, issued on November 19, 2012;

(d) Administrative Amendment No. 003-33852-00257, issued on January 13, 2014; and

(e) Administrative Amendment No. 003-34139-00257, issued on February 28, 2014.

County Attainment Status

The source is located in Allen County.

Pollutant	Designation
SO_2	Better than national standards.
CO	Unclassifiable or attainment effective November 15, 1990.
O_3	Unclassifiable or attainment effective July 20, 2012, for the 2008 8-hour ozone standard.[1]
$PM_{2.5}$	Unclassifiable or attainment effective April 5, 2005, for the annual $PM_{2.5}$ standard.
$PM_{2.5}$	Unclassifiable or attainment effective December 13, 2009, for the 24-hour $PM_{2.5}$ standard.
PM_{10}	Unclassifiable effective November 15, 1990.
NO_2	Cannot be classified or better than national standards.
Pb	Unclassifiable or attainment effective December 31, 2011.
[1]Unclassifiable or attainment effective October 18, 2000, for the 1-hour ozone standard which was revoked effective June 15, 2005.	

(a) Ozone Standards
Volatile organic compounds (VOC) and Nitrogen Oxides (NO_x) are regulated under the Clean Air Act (CAA) for the purposes of attaining and maintaining the National Ambient Air Quality Standards (NAAQS) for ozone. Therefore, VOC and NO_x emissions are considered when evaluating the rule applicability relating to ozone. Allen County has been designated as attainment or unclassifiable for ozone. Therefore, VOC and NO_x emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

(b) $PM_{2.5}$
Allen County has been classified as attainment for $PM_{2.5}$. Therefore, direct $PM_{2.5}$, SO_2, and NOx emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

(c) Other Criteria Pollutants
Allen County has been classified as attainment or unclassifiable in Indiana for SO_2, CO, PM_{10}, NO_2 and lead. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

Fugitive Emissions

Since this type of operation is not one of the twenty-eight (28) listed source categories under 326 IAC 2-2, 326 IAC 2-3, or 326 IAC 2-7, and there is no applicable New Source Performance Standard that was in effect on August 7, 1980, fugitive emissions are not counted toward the determination of PSD, Emission Offset, and Part 70 Permit applicability.

Note: The landfill is subject to 40 CFR 61, Subpart M; however, landfills were not subject to this NSPS until after August 7, 1980.

Source Status - Existing Source

The table below summarizes the potential to emit of the entire source, prior to the proposed modification, after consideration of all enforceable limits established in the effective permits:

Pollutant	**Emissions** (ton/yr)*
PM	11.8
PM_{10}	11.8
Direct $PM_{2.5}$	11.8
SO_2	11.9
NO_X	51.5
VOC	3.4
CO	295.6
GHGs as CO_2e	86,549.0
Single HAP - HCL	6.0
Total HAP	15.3

*These emissions are after flare control as specified in the technical support document (TSD) for the Administrative Part 70 Operating Permit Renewal for Republic Services, LP d/b/a United Refuse Landfill (T003-31121-00291). GHG emissions include both biogenic CO2 and all other GHG emissions. Fugitive emissions are not included in table above.

(a) This existing source is a major stationary source, under PSD (326 IAC 2-2), because a PSD regulated pollutant, excluding GHGs, is emitted at a rate of 250 tons per year or more, and it is not one of the twenty-eight (28) listed source categories, as specified in 326 IAC 2-2-1(ff)(1).

(b) The source wide GHG emissions are less than one hundred thousand (<100,000) tons of CO_2 equivalent (CO_2e) emissions per year. GHG emissions do not affect the source PSD status.

(c) This existing source is not a major source of HAPs, as defined in 40 CFR 63.2, because HAPs emissions are less than ten (10) tons per year for any single HAP and less than twenty-five (25) tons per year of a combination of HAPs. Therefore, this source is an area source under Section 112 of the Clean Air Act (CAA).

Description of Proposed Modification

The Office of Air Quality (OAQ) has reviewed a modification application, submitted by Republic Services, LP d/b/a National Serv-All Landfill on March 17, 2014, relating to the addition of a new 3,000 SCFM landfill gas flare.

The following is a description of the proposed emission unit and pollution control device:

(a) One (1) open landfill gas flare, approved in 2014 for construction, identified as EU-4, with a maximum capacity of 3,000 SCFM and 91.26 MMBtu/hr. [40 CFR 60, Subpart WWW] [40 CFR 63, Subpart AAAA]

Enforcement Issues

There are no pending enforcement actions related to this modification.

Emission Calculations

See Appendix A of this Technical Support Document for detailed emission calculations.

The US EPA Landfill Gas Emissions Model (LandGEM) version 3.02 was used to model the National Serv-All Landfill and the United Refuse Landfill. The LandGEM output files are attached to this TSD.

Permit Level Determination – Part 70 Modification to an Existing Source

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as "the maximum capacity of a stationary source or emission unit to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U. S. EPA, IDEM, or the appropriate local air pollution control agency."

The following table is used to determine the appropriate permit level under 326 IAC 2-7-10.5. This table reflects the PTE before controls. Control equipment is not considered federally enforceable until it has been required in a federally enforceable permit. If the control equipment has been determined to be integral, the table reflects the PTE after consideration of the integral control device.

Increase in PTE Before Controls of the Modification	
Pollutant	**Potential To Emit** (ton/yr)
PM	6.17
PM_{10}	6.17
$PM_{2.5}$	6.17
SO_2	6.05
VOC	55.96
CO	147.9
NO_X	27.18
Single HAPs	< 10
Total HAPs	< 25

Appendix A of this TSD reflects the unrestricted potential emissions of the modification.

This source modification is subject to 326 IAC 2-7-10.5(g)(7), because the modification has a potential to emit greater than or equal to one hundred (100) tons per year of carbon monoxide. Additionally, the modification will be incorporated into the Part 70 Operating Permit through a significant permit modification issued pursuant to 326 IAC 2-7-12(d)(1), because the modification includes the case-by-case determination of an emission limitation.

Permit Level Determination – PSD

The table below summarizes the potential to emit, reflecting all limits, of the emission units. Any control equipment is considered federally enforceable only after issuance of this Part 70 source and permit modification, and only to the extent that the effect of the control equipment is made practically enforceable in the permit.

	Potential to Emit (ton/yr)								
Process / Emission Unit	**PM**	**PM_{10}**	**$PM_{2.5}$***	**SO_2**	**VOC**	**CO**	**NO_X**	**GHGs**	**(Other) (Pb, Be, Hg, etc.)**
Open Flare EU-4 at National Serv-All Landfill	5.65	5.65	5.65	5.54	51.25	135.44	24.89	36,768	---
Total for Modification	5.65	5.65	5.65	5.54	51.25	135.44	24.89	36,768	---
Contemporaneous Increase	---	---	---	---	0.00	0.00	---	---	---
Contemporaneous Decrease at United Refuse Landfill	---	---	---	---	-14.03	-37.09	---	---	---
Total for Modification after Netting	5.65	5.65	5.65	5.54	37.21	98.35	24.89	36,768	---
PSD Major Source Thresholds	250	250	250	250	250	250	250	---	---
Significant Thresholds	25	15	10	40	40	100	40	75,000 CO_2e	---
Subject to Regulation	---	---	---	---	---	---	---	75,000 CO_2e	---

*$PM_{2.5}$ listed is direct $PM_{2.5}$.

This modification to an existing major PSD stationary source is not major because:

(a) The emissions increase of each PSD regulated pollutant, excluding GHGs, are less than the PSD significant thresholds; and

(b) The emissions increase of GHGs from this modification to an existing major PSD source are less than seventy-five thousand (75,000) tons of CO_2 equivalent (CO_2e) emissions per year

Therefore, pursuant to 326 IAC 2-2, the GHG emissions are not subject to regulation and the PSD requirements do not apply.

Since this source is considered a major PSD source and the unrestricted potential to emit of Significant Source Modification No. 003-34309-00257 is greater than one hundred (100) tons per year of carbon monoxide (CO) and greater than forty (40) tons per year of VOC, this source has elected to limit the potential to emit of EU-4 at National Serv-All Landfill as follows:

(a) Carbon monoxide (CO) emissions from the open flare, identified as EU-4, shall not exceed 0.37 lb/MMBtu;

(b) Volatile Organic Compound (VOC) emissions from the open flare, identified as EU-4, shall not exceed 0.14 lb/MMBtu; and

(c) Landfill gas combusted in the open flare, identified as EU-4, shall not exceed 732,095 MMBtu per twelve (12) consecutive month period with compliance determined at the end of each month.

Compliance with these emission limits along with CO and VOC emission limitations on open flare EU-2 at the United Refuse Landfill will ensure that the net emissions increase of CO from Significant Source Modification No. 003-34309-00257 is less than one hundred (100) tons per year and the net emissions increase of VOC is less than forty (40) tons per year and shall render the requirements of 326 IAC 2-2 not applicable to Significant Source Modification No. 003-34309-00257.

In addition to the carbon monoxide emission limitation on open flare EU-4 described above, the applicant provided a netting analysis to reduce the net emissions increase of CO under Significant Source Modification No. 003-34309-00257 to less than 100 tons per year and the net emissions increase of VOC to less than 40 tons per year. Pursuant to 326 IAC 2-2-1(e)(2), the baseline period for this modification consists of a ten year look back period from March 17, 2004 to March 17, 2014. The applicant intends to begin construction on or about August 15, 2014 and will complete construction prior to January 13, 2016. The contemporaneous period extends from August 15, 2009 to January 13, 2016.

The following permits were issued to Republic Services, LP d/b/a National Serv-All Landfill during the contemporaneous period:

T 003-30376-00257 Title V Renewal, issued on December 9, 2011
The Part 70 Operating Permit Renewal did not include additional emission units. The source did add insignificant activities and exempt units. Most of the units were storage tanks for diesel, motor oil, hydraulic fluid, transmission fluid, a pressure washer and two air compressors. IDEM, OAQ does not anticipate any changes in VOC or CO emissions from the source as a result of the addition of these exempt units and insignificant activities.

003-31525-00257 Title V Administrative Amendment, issued on March 6, 2012
This administrative amendment was issued to establish higher operating temperatures at wells D66, D67, D68, D69, and D100. Sourcewide VOC and CO emissions were not revised as a result of this permitting action.

003-32168-00257 Title V Administrative Amendment, issued on August 7, 2012
This administrative amendment was issued to establish higher operating temperatures at wells C42R2, C44R2, C47R2, C48R2, C49R2, C59R, C39R2, C41R2, and C53R. Sourcewide VOC and CO emissions were not revised as a result of this permitting action.

003-32505-00257 Title V Administrative Amendment, issued on November 19, 2012
This administrative amendment was issued to establish higher operating temperatures at wells C18R, C38R and C46R2. IDEM, OAQ updated standard condition language. Sourcewide VOC and CO emissions were not revised as a result of this permitting action.

003-33852-00257 Title V Administrative Amendment, issued on January 13, 2014
This administrative amendment was issued to establish a higher oxygen concentration level of 21.9% for the leachate collection system sump SLS2. IDEM, OAQ updated standard condition language. Sourcewide VOC and CO emissions were not revised as a result of this permitting action.

003-34139-00257 Title V Administrative Amendment, issued on February 28, 2014
This administrative amendment was issued to establish a higher operating temperature at well D63 and IDEM, OAQ updated standard condition language. Sourcewide VOC and CO emissions were not revised as a result of this permitting action.

There were no contemporaneous increases or decreases for National Serv-All Landfill during the contemporaneous period prior to submitting the current application.

The following permits were issued to Republic Services, LP d/b/a United Refuse Landfill during the contemporaneous period:

T003-31121-00291 Title V Renewal Administrative Permit, issued on November 1, 2012
On March 3, 2011, United Refuse Landfill reported the addition of the following combustion units to the source:

(1) Two (2) 0.096 MMBtu/hr (0.192 MMBtu/hr, total) propane fired central building heaters. Pursuant to 326 IAC 2-7-1(42)(C), these units qualify as trivial activities and are not required to be included in the Part 70 Operating Permit.

On March 3, 2011, United Refuse Landfill reported the removal of the following combustion unit from the source:

(1) One (1) 0.069 MMBtu/hr natural gas fired furnace. Pursuant to 326 IAC 2-7-1(42)(C), this unit qualifies as a trivial activity and is not required to be included in the Part 70 Operating Permit.

There were no contemporaneous increases or decreases for the United Refuse Landfill prior to submitting the current application.

In addition to the landfill gas combustion limit on the proposed open flare at National Serv-All Landfill (EU-4), the Permittee proposes to use an enforceable limit on the amount of landfill gas combusted in landfill gas flare EU-2 located at the United Refuse Landfill to net out of PSD review. Part 70 Administrative Operating Permit Renewal T003-31121-00291 provides the following emission unit description for flare EU-2:

(a) One (1) open flare, identified as EU-2, installed in 2005, with a heat input capacity of 39.6 million British thermal units per hour, and a flow rate of 1,200 standard cubic feet per minute of landfill gas.

The potential to emit CO of landfill gas flare EU-2 was established as 64.18 tons per year under T003-31121-00291. This emission rate was based on a heat input capacity of 39.6 MMBtu/hr, and used a CO emission factor of 0.37 lb/MMBtu. The Permittee wishes to include a limit to reduce CO emissions from landfill gas flare EU-2 from 64.18 tons per year to 27.09 tons per year.

IDEM, OAQ estimates the current potential to emit VOC of landfill gas flare EU-2 as 24.28 tons per year based on a heat input rate of 39.6 MMBtu/hr and a VOC emission factor of 0.14 lb/MMBtu. The Permittee wishes to include a limit to reduce VOC emissions from landfill gas flare EU-2 from 24.28 tons per year to 10.25 tons per year.

Normally, a contemporaneous increase or decrease is determined by a change from the emission unit's baseline actual emissions to a future allowable emission rate. Pursuant to 326 IAC 2-2-1(b)(2), the department may presume that source-specific allowable emissions for an emission unit are equivalent to the actual emissions of the unit. IDEM, OAQ has determined the baseline emission rate of CO for landfill gas flare EU-2 is 64.18 TPY and the future allowable emission rate will be 27.09 for a net emission reduction of 37.09 tons per year. IDEM, OAQ has determined the baseline emission rate of VOC for landfill gas flare EU-2 is 24.28 TPY and the future allowable emission rate will be 10.25 for a net emission reduction of 14.03 tons per year. The table below summarizes the contemporaneous decrease used in the netting analysis:

Contemporaneous Decrease for Landfill Gas Flare EU-2 – CO	
Baseline Actual Emissions	64.18 TPY CO
Future Allowable Emissions	27.09 TPY CO
Net Change	-37.09 TPY CO

Contemporaneous Decrease for Landfill Gas Flare EU-2 – VOC	
Baseline Actual Emissions	24.28 TPY VOC
Future Allowable Emissions	10.25 TPY VOC
Net Change	-14.03 TPY VOC

Since this source is considered a major PSD source and the unrestricted potential to emit of Significant Source Modification No. 003-34309-00257 at National Serv-All Landfill is greater than one hundred (100) tons per year for carbon monoxide (CO) and the unrestricted potential to emit of VOC is greater than forty (40) tons per year for volatile organic compounds (VOCs), this source has elected to limit the potential to emit of EU-2 at United Refuse Landfill as follows:

(a) Carbon monoxide emissions from the open flare, identified as EU-2, shall not exceed 0.37 lb/MMBtu;

(b) Volatile Organic Compound (VOC) emissions from the open flare, identified as EU-2, shall not exceed 0.14 lb/MMBtu; and

(c) Landfill gas combusted in the open flare, identified as EU-2, shall not exceed 146,419 MMBtu per twelve (12) consecutive month period with compliance determined at the end of each month.

Compliance with these emission limits along with CO and VOC emission limitations on open flare EU-4 at the National Serv-All Landfill will ensure that the net emissions increase of CO from Significant Source Modification No. 003-34309-00257 is less than one hundred (100) tons per year, and the net emissions increase of VOC is less than forty (40) tons per year and shall render the requirements of 326 IAC 2-2 not applicable to Significant Source Modification No. 003-34309-00257.

Federal Rule Applicability Determination

The following federal rules are applicable to the source due to this modification:

NSPS:

(a) This source is subject to the New Source Performance Standards for Municipal Solid Waste Landfills (40 CFR 60.750, Subpart WWW), which is incorporated by reference as 326 IAC 12 and 326 IAC 8-8.1. This source which operates a municipal solid waste landfill that commenced construction, reconstruction, or modification on or after May 30, 1991 shall comply with the provisions of 40 CFR Part 60, Subpart WWW, included as Attachment A of the permit, except for approved variances incorporated into the Collection and Control Design Plan, in accordance with 40 CFR 60, Subpart WWW. The emission units subject to Subpart WWW include the following:

(1) One (1) stationary municipal solid waste landfill with a design capacity of 30,996,952 mega grams, constructed in 1966. [40 CFR 60, Subpart WWW] [40 CFR 61, Subpart M] [40 CFR 63, Subpart AAAA]

(2) One (1) 148.5 MMBtu/hr open flare with a maximum capacity of 5,000 scfm of landfill gas usage, identified as EU-3, constructed in 2004. [40 CFR 60, Subpart WWW] [40 CFR 63, Subpart AAAA]

(3) One (1) open landfill gas flare, approved in 2014 for construction, identified as EU-4, with a maximum capacity of 3,000 SCFM and 91.26 MMBtu/hr. [40 CFR 60, Subpart WWW] [40 CFR 63, Subpart AAAA]

The source is subject to the following portions of Subpart WWW:

(1) 40 CFR 60.750;
(2) 40 CFR 60.751;
(3) 40 CFR 60.752(b);
(4) 40 CFR 60.753;

(5) 40 CFR 60.754;
(6) 40 CFR 60.755;
(7) 40 CFR 60.756(a), (c), and (f);
(8) 40 CFR 60.757(a), (b)(3), (c), (d), (e), (f), and (g);
(9) 40 CFR 60.758(a), (b)(4), (c)(4), (d), and (e); and
(10) 40 CFR 60.759.

Operational Standards for Collection and Control Systems [40 CFR 60.753] [326 IAC 12] [326 IAC 8.1]

Operate each interior wellhead in the collection system with a landfill gas temperature less than 55 ^{o}C and with either a nitrogen level less than 20 percent or an oxygen level less than 5 percent, except as indicated in (3) below (except for the landfill gas well, LFGASB16, which can have an oxygen level less than 16.9 percent). The Permittee may establish a higher operating temperature, nitrogen, or oxygen value at a particular well. A higher operating value demonstration shall show supporting data that the elevated parameter does not cause fires or significantly inhibit anaerobic decomposition by killing methanogens.

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

(2) Unless an alternative test method is established as allowed by 40 CFR 60.752 (b)(2)(i), the oxygen shall be determined by an oxygen meter using Method 3A except that; the span shall be set so that the regulatory limit is between 20 and 50 percent of the span; a data recorder is not required; only two calibration gases are required, a zero and span, and ambient air may be used as the span; a calibration error check is not required; the allowable sample bias, zero drift, and calibration drift are $\pm$ 10 percent.

(3) Pursuant to Administrative Amendment 003-27018-00257, the Permittee has established a higher operating temperature at wells C25R, C30, C40R, C52, C56, and C57. This higher operating temperature value demonstration up to 65.6°C (150°F) shows supporting data that the elevated parameter does not cause fires or significantly inhibit anaerobic decomposition by killing methanogens.

(4) Pursuant to Administrative Amendment 003-27719-00257, the Permittee has established a higher operating temperature at well C24R. This higher operating temperature value demonstration up to 65.6°C (150°F) shows supporting data that the elevated parameter does not cause fires or significantly inhibit anaerobic decomposition by killing methanogens.

(5) Pursuant to Administrative Amendment 003-31525-00257, the Permittee has established a higher operating temperature at wells D66, D67, D68, D69 and D100. This higher operating temperature value demonstration up to 65.6°C (150°F) shows supporting data that the elevated parameter does not cause fires or significantly inhibit anaerobic decomposition by killing methanogens.

(6) Pursuant to Administrative Amendment 003-32168-00257, the Permittee has established a higher operating temperature at wells C42R2, C44R2, C47R2, C48R2, C49R2 and C59R. This higher operating temperature value demonstration up to 65.6°C (150°F) shows supporting data that the elevated parameter does not cause fires or significantly inhibit anaerobic decomposition by killing methanogens.

(7) Pursuant to Administrative Amendment 003-32168-00257, the Permittee has established a higher operating temperature at wells C39R2, C41R2 and C53R. This higher operating temperature value demonstration up to 71.1°C (160°F) shows supporting data that the elevated parameter does not cause fires or significantly inhibit anaerobic decomposition by killing methanogens.

(8) Pursuant to Administrative Amendment 003-32505-00257, the Permittee has established a higher operating temperature at wells C18R, C38R and C46R2. This higher operating temperature value demonstration up to 65.6°C (150°F) shows supporting data that the elevated parameter does not cause fires or significantly inhibit anaerobic decomposition by killing methanogens.

(9) Pursuant to Administrative Amendment 003-33852-00257, the Permittee has established a higher oxygen concentration level of 21.9% for the leachate collection system sump SLS2.

(10) Pursuant to Administrative Amendment 003-34139-00257, the Permittee has established a higher operating temperature at well D63. This higher operating temperature value demonstration up to 65.6°C (150°F) shows supporting data that the elevated parameter does not cause fires or significantly inhibit anaerobic decomposition by killing methanogens.

The provisions of 40 CFR 60, Subpart A – General Provisions, which are incorporated by reference in 326 IAC 12-1, apply to the facilities described in this section except when otherwise specified in 40 CFR 60, Subpart WWW.

NESHAP:

(b) This landfill is subject to the National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills (40 CFR 63.1935, Subpart AAAA), which is incorporated by reference as 326 IAC 20-67. The compliance date for this source is January 16, 2004. The Permittee who operates a stationary municipal solid waste landfill that has accepted waste since November 8, 1987 and has a design capacity equal to or greater than 2.5 million megagrams shall comply with 40 CFR Part 63, Subpart AAAA, included as attachment B of the permit. The units subject to 40 CFR 63, Subpart AAAA include the following:

(1) One (1) stationary municipal solid waste landfill with a design capacity of 30,996,952 mega grams, constructed in 1966. [40 CFR 60, Subpart WWW] [40 CFR 61, Subpart M] [40 CFR 63, Subpart AAAA]

(2) One (1) 148.5 MMBtu/hr open flare with a maximum capacity of 5,000 scfm of landfill gas usage, identified as EU-3, constructed in 2004. [40 CFR 60, Subpart WWW] [40 CFR 63, Subpart AAAA]

(3) One (1) open landfill gas flare, approved in 2014 for construction, identified as EU-4, with a maximum capacity of 3,000 SCFM and 91.26 MMBtu/hr. [40 CFR 60, Subpart WWW] [40 CFR 63, Subpart AAAA]

The source is subject to the following portions of Subpart AAAA:

(1) 40 CFR 63.1930;
(2) 40 CFR 63.1935(a)(3);
(3) 40 CFR 63.1940;
(4) 40 CFR 63.1945(b);
(5) 40 CFR 63.1950;
(6) 40 CFR 63.1955(a)(1), and (b);
(7) 40 CFR 63.1960 to 40 CFR 63.1985;

(8) 40 CFR 63.1990; and
(9) Table 1

The provisions of 40 CFR 63, Subpart A – General Provisions, which are incorporated by reference as 326 IAC 20-1, apply to the facilities described in this section except when otherwise specified in 40 CFR 63, Subpart AAAA.

(c) The landfill is subject to the National Emissions Standards for Asbestos (40 CFR 61.140, Subpart M), which is incorporated by reference as 326 IAC 14-2 (included as attachment C of the permit). The source is subject to 40 CFR 61, Subpart M because it is an active waste disposal site that receives asbestos containing waste material from a source covered under 40 CFR 61.150 (Standard for Waste Disposal for Manufacturing, Fabricating, Demolition, Renovation, and Spraying). The emission units subject to this subpart are:

(1) One (1) stationary municipal solid waste landfill with a design capacity of 30,996,952 mega grams, constructed in 1966. [40 CFR 60, Subpart WWW] [40 CFR 61, Subpart M] [40 CFR 63, Subpart AAAA]

The source is subject to the following portions of Subpart M:

(1) 40 CFR 61.140;
(2) 40 CFR 61.141;
(3) 40 CFR 61.154;
(4) 40 CFR 61.156; and
(5) 40 CFR 61.157.

The provisions of 40 CFR 61, Subpart A – General Provisions, which are incorporated as 326 IAC 14-1, apply to the facility described in this section except when otherwise specified in 40 CFR 61, Subpart M.

CAM:

(d) Pursuant to 40 CFR 64.2, Compliance Assurance Monitoring (CAM) is applicable to new or modified emission units that involve a pollutant-specific emission unit and meet the following criteria:

(1) has a potential to emit before controls equal to or greater than the Part 70 major source threshold for the pollutant involved;

(2) is subject to an emission limitation or standard for that pollutant; and

(3) uses a control device, as defined in 40 CFR 64.1, to comply with that emission limitation or standard.

The following table is used to identify the applicability of each of the criteria, under 40 CFR 64.1, to each new or modified emission unit involved:

CAM Applicability Analysis for CO							
Emission Unit	**Control Device Used**	**Emission Limitation** (Y/N)	**Uncontrolled PTE** (ton/yr)	**Controlled PTE** (ton/yr)	**Part 70 Major Source Threshold** (ton/yr)	**CAM Applicable** (Y/N)	**Large Unit** (Y/N)
Flare EU-4	No	Yes	147.90	147.90	100	N	N

Only the flare has the potential to emit before controls equal to or greater than the Part 70 major source threshold for any pollutant, CO. However, a control device is not used. Based on this evaluation, the requirements of 40 CFR Part 64, CAM are not applicable to any of the new units as part of this modification.

State Rule Applicability Determination

The following state rules are applicable to the source due to the modification:

326 IAC 2-2 and 2-3 (PSD and Emission Offset)
PSD and Emission Offset applicability is discussed under the Permit Level Determination – PSD and Emission Offset section.

326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP))
The operation of open flare EU-4 will emit less than ten (10) tons per year for a single HAP and less than twenty-five (25) tons per year for a combination of HAPs. Therefore, 326 IAC 2-4.1 does not apply.

326 IAC 2-6 (Emission Reporting)
Since this source is required to have an operating permit under 326 IAC 2-7, Part 70 Permit Program, this source is subject to 326 IAC 2-6 (Emission Reporting). In accordance with the compliance schedule in 326 IAC 2-6-3, an emission statement must be submitted triennially. The first report is due no later than July 1, 2015, and subsequent reports are due every three (3) years thereafter. The emission statement shall contain, at a minimum, the information specified in 326 IAC 2-6-4.

326 IAC 5-1 (Opacity Limitations)
This source is subject to the opacity limitations specified in 326 IAC 5-1-2(1).

326 IAC 6-4 (Fugitive Dust Emissions)
Pursuant to 326 IAC 6-4, the source shall not generate fugitive dust to the extent that some portion of the material escapes beyond the property line or boundaries of the property right-of-way or easement on which the source is located. The source currently controls fugitive dust emissions from the roads by applying water on an as-needed basis.

326 IAC 6-5 (Fugitive Particulate Matter Emission Limitations)
This rule applies to any source of fugitive particulate matter emissions located in nonattainment areas for particulate matter as designated by the Air Pollution Control Board that has potential fugitive particulate matter emissions of twenty-five tons per year or more. This rule also applies to any new source of fugitive particulate matter emissions located anywhere in the state, requiring a permit in accordance with 326 IAC 2 which did not receive all necessary preconstruction approvals before December 13, 1985. The United Refuse Landfill was expanded in 1991; however, additional fugitive particulate matter (PM) emissions from the expansion were less than 25 tons per year of particulate matter. This source is located in an attainment county for particulate matter and received all necessary preconstruction approvals before December 13, 1985; therefore, 326 IAC 6-5 does not apply.

326 IAC 6.5 (PM Limitations Except Lake County)
This source is not subject to 326 IAC 6.5 because it is not located in one of the following counties: Clark, Dearborn, Dubois, Howard, Marion, St. Joseph, Vanderburgh, Vigo or Wayne County.

326 IAC 7-1.1 (Sulfur Dioxide Emission Limitations)
Each combustion unit located at this source does not have a potential to emit twenty-five (25) tons per year or ten (10) pounds per hour of sulfur dioxide; therefore, the requirements of 326 IAC 7-1.1 do not apply.

Compliance Determination and Monitoring Requirements

Permits issued under 326 IAC 2-7 are required to ensure that sources can demonstrate compliance with all applicable state and federal rules on a continuous basis. All state and federal rules contain compliance provisions; however, these provisions do not always fulfill the requirement for a continuous demonstration. When this occurs, IDEM, OAQ, in conjunction with the source, must develop specific conditions to satisfy 326 IAC 2-7-5. As a result, Compliance Determination Requirements are included in the permit. The Compliance Determination Requirements in Section D of the permit are those conditions that are found directly within state and federal rules and the violation of which serves as grounds for enforcement action.

If the Compliance Determination Requirements are not sufficient to demonstrate continuous compliance, they will be supplemented with Compliance Monitoring Requirements, also in Section D of the permit. Unlike Compliance Determination Requirements, failure to meet Compliance Monitoring conditions would serve as a trigger for corrective actions and not grounds for enforcement action. However, a violation in relation to a compliance monitoring condition will arise through a source's failure to take the appropriate corrective actions within a specific time period.

The Compliance Determination Requirements applicable to this new source construction are as follows:

Compliance Determination Requirements – EU-4 at National Serv-All Landfill		
Emission Unit	**Parameter**	**Frequency**
Open Flare EU-4	Record Keeping of Landfill Gas Input to Flare EU-4	Monthly

There are no additional Compliance Monitoring Requirements in addition to those required by NSPS Subpart WWW and NESHAP AAAA.

Proposed Changes

The changes listed below have been made to Part 70 Operating Permit Renewal No. T003-30376-00257. Deleted language appears as ~~strikethroughs~~ and new language appears in **bold**:

Modification No. 1:

Source Address

IDEM, OAQ is updating Section A.1 to correct the source address and to include a statement on the source status in regards to greenhouse gas emissions (GHG). PSD status was clarified. The section enforceability statement was updated. Revisions to original Section A.1 are shown below:

SECTION A SOURCE SUMMARY

This permit is based on information requested by the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ). The information describing the source contained in conditions A.1**, A3 and A4**~~through A.3~~ is descriptive information and does not constitute enforceable conditions. However, the Permittee should be aware that a physical change or a change in the method of operation that may render this descriptive information obsolete or inaccurate may trigger requirements for the Permittee to obtain additional permits or seek modification of this permit pursuant to 326 IAC 2, or change other applicable requirements presented in the permit application.

A.1 General Information [326 IAC 2-7-4(c)][326 IAC 2-7-5(14)][326 IAC 2-7-1(22)]

The Permittee owns and operates a stationary municipal solid waste landfill.

Source Address:	6231 M**a**cBeth Road, Fort Wayne, Indiana 46809
General Source Phone Number:	(260) 478-0300
SIC Code:	4953 (Solid Waste Landfill)
County Location:	Allen
Source Location Status:	Attainment for all criteria pollutants
Source Status:	Part 70 Operating Permit Program Major Source, under PSD **Rules** Minor Source, Section 112 of the Clean Air Act Not 1 of 28 Source Categories **Greenhouse Gas (GHG) potential to emit (PTE) is greater than one hundred thousand (100,000) tons of CO_2 equivalent (CO_2e) emissions per year.**

Modification No. 2:

Source Definition – Section A

IDEM, OAQ is adding a new Section A.2 to include the Part 70 Source Definition. The proposed section is shown below:

A.2 Part 70 Source Definition [326 IAC 2-7-1(22)]

This landfill company consists of two (2) plants:

(a) National Serv-All Landfill (Plant Id 003-00257) is located at 6231 MacBeth Road, Fort Wayne, Indiana 46809; and

(b) United Refuse Landfill (Plant Id 003-00291) is located at 5000 Smith Road, Fort Wayne, Indiana 46804.

Since the two (2) plants are located on contiguous or adjacent properties belong to the same industrial grouping, and under common control of the same entity, they will be considered one (1) source.

Separate Part 70 permits will be issued to National Serv-All Landfill and United Refuse Landfill for administrative purposes and to separately address the applicability of NSPS Subpart WWW.

Modification No. 3:

Emission Unit Descriptions – Section A

IDEM, OAQ is updating Section A.2 to include the proposed flare EU-4. The section was renumbered because of the addition of the source definition as new Section A.2. Revisions to original Section A.2 are shown below:

A.~~2~~**3** Emission Units and Pollution Control Equipment Summary
[326 IAC 2-7-4(c)(3)][326 IAC 2-7-5(14)]

This stationary source consists of the following emission units and pollution control devices:

(a) **************

(c) One (1) open landfill gas flare, approved in 2014 for construction, identified as EU-4, with a maximum capacity of 3,000 SCFM and 91.26 MMBtu/hr.
[40 CFR 60, Subpart WWW] [40 CFR 63, Subpart AAAA]

Modification No. 4:

Part 70 Permit Applicability – Section A

IDEM, OAQ is updating original Section A.3 and Section A.4 because of the addition of the source definition as new Section A.2. Revisions to the original sections are shown below:

A.~~3~~**4** Specifically Regulated Insignificant Activities
[326 IAC 2-7-1(21)][326 IAC 2-7-4(c)][326 IAC 2-7-5(14)]

****

A.~~4~~**5** Part 70 Permit Applicability [326 IAC 2-7-2]

****

Modification No. 5:

Part 70 Rule Citations

On October 27, 2010, the Indiana Air Pollution Control Board issued revisions to 326 IAC 2. These revisions resulted in changes to rule citations listed in the permit. These changes are not changes to the underlying provisions. The change is only to the citations listed in original Conditions B.16 – Permit Renewal, B.19 – Operational Flexibility, C.12 – Risk Management Plan, and C.15 – Emission Statement. Revisions to each of the original Conditions are shown below:

B.16 Permit Renewal [326 IAC 2-7-3][326 IAC 2-7-4][326 IAC 2-7-8(e)]

(a) The application for renewal shall be submitted using the application form or forms prescribed by IDEM, OAQ and shall include the information specified in 326 IAC 2-7-4. Such information shall be included in the application for each emission unit at this source, except those emission units included on the trivial or insignificant activities list contained in 326 IAC 2-7-1(21) and 326 IAC 2-7-1(~~40~~**42**). The renewal application does require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

****

B.19 Operational Flexibility [326 IAC 2-7-20][326 IAC 2-7-10.5]

(a) The Permittee may make any change or changes at the source that are described in 326 IAC 2-7-20(b) or (c) without a prior permit revision, if each of the following conditions is met:

(1) **********

(5) The Permittee maintains records on-site, on a rolling five (5) year basis, which document all such changes and emission trades that are subject to 326 IAC 2-7-20~~(b) or (c)~~**(b)(1) and (c)(1)**. The Permittee shall make such records available, upon reasonable request, for public review.

Such records shall consist of all information required to be submitted to IDEM, OAQ in the notices specified in 326 IAC 2-7-20(b)(1) and (c)(1).

(b) The Permittee may make Section 502(b)(10) of the Clean Air Act changes (this term is defined at 326 IAC 2-7-1(~~36~~**37**)) without a permit revision, subject to the constraint of 326 IAC 2-7-20(a). For each such Section 502(b)(10) of the Clean Air Act change, the required written notification shall include the following:

****

C.12 Risk Management Plan [326 IAC 2-7-5(~~11~~**12**)] [40 CFR 68]

If a regulated substance, as defined in 40 CFR 68, is present at a source in more than a threshold quantity, the Permittee must comply with the applicable requirements of 40 CFR 68.

C.15 Emission Statement [326 IAC 2-7-5(3)(C)(iii)][326 IAC 2-7-5(7)][326 IAC 2-7-19(c)][326 IAC 2-6]

In accordance with the compliance schedule specified in 326 IAC 2-6-3(b)(1), starting in 2004 and every three (3) years thereafter, the Permittee shall submit by July 1 an emission statement covering the previous calendar year. The emission statement shall contain, at a minimum, the information specified in 326 IAC 2-6-4(c) and shall meet the following requirements:

(1) Indicate estimated actual emissions of all pollutants listed in 326 IAC 2-6-4(a);

(2) Indicate estimated actual emissions of regulated pollutants as defined by 326 IAC 2-7-1(~~32~~**33**) ("Regulated pollutant, which is used only for purposes of Section 19 of this rule") from the source, for purpose of fee assessment. **************

Modification No. 6:

General Record Keeping Requirements

IDEM, OAQ is adding rule citations for Prevention of Significant Deterioration (PSD) and Emission Offset (EO) to original Condition C.16 to clarify the authorization of the condition. IDEM, OAQ is clarifying the requirements for major modifications at major sources of PSD and EO. The clean unit provisions and pollution control project provisions of the U.S. EPA's New Source Review Rules were vacated on June 24, 2005 by a U.S. Court of Appeals for the District of Columbia Circuit decision. This decision also remanded the "reasonable possibility" standard back to U.S. EPA. On January 22, 2008, U.S. EPA promulgated a rule to address the remand by the U.S. Court of Appeals for the District of Columbia on June 25, 2005 of the reasonable possibility provisions of the December 31, 2002 major NSR reform rule. IDEM, OAQ agreed with U.S. EPA to interpret "reasonable possibility" in 326 IAC 2-2 and 326 IAC 2-3 consistent with the January 22, 2008 U.S. EPA rule. To implement these changes, C.16 - General Record Keeping and C-17 - General Reporting Requirements were revised as shown below:

C.16 General Record Keeping Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-6] **[326 IAC 2-2] [326 IAC 2-3]**

(a) **************

(c) If there is a reasonable possibility (as defined in 326 IAC 2-2-8 (b)(6)(A), 326 IAC 2-2-8 (b)(6)(B), 326 IAC 2-3-2 (l)(6)(A), and/or 326 IAC 2-3-2 (l)(6)(B)) that a "project" (as defined in 326 IAC 2-2-1(oo) and/or 326 IAC 2-3-1(jj)) at an existing emissions unit, other than projects at a source with a Plantwide Applicability Limitation (PAL), which is not part of a "major modification" (as defined in 326 IAC 2-2-1(dd) and/or 326 IAC 2-3-1(y)) may result in significant emissions increase and the Permittee elects to utilize the "projected actual emissions" (as defined in 326 IAC 2-2-1(pp) and/or 326 IAC 2-3-1(kk)), the Permittee shall comply with following:

(1) Before beginning actual construction of the "project" (as defined in 326 IAC 2-2-1(oo) and/or 326 IAC 2-3-1(jj)) at an existing emissions unit, document and maintain the following records:

(A) A description of the project.

(B) Identification of any emissions unit whose emissions of a regulated new source review pollutant could be affected by the project.

(C) A description of the applicability test used to determine that the project is not a major modification for any regulated NSR pollutant, including:

(i) Baseline actual emissions;

(ii) Projected actual emissions;

(iii) Amount of emissions excluded under section 326 IAC 2-2-1(pp)(2)(A)(iii) and/or 326 IAC 2-3-1 (kk)(2)(A)(iii); and

(iv) An explanation for why the amount was excluded, and any netting calculations, if applicable.

(d) If there is a reasonable possibility (as defined in 326 IAC 2-2-8 (b)(6)(A) and/or 326 IAC 2-3-2 (l)(6)(A)) that a "project" (as defined in 326 IAC 2-2-1(oo) and/or 326 IAC 2-3-1(jj)) at an existing emissions unit, other than projects at a source with a Plantwide Applicability Limitation (PAL), which is not part of a "major modification" (as defined in 326 IAC 2-2-1(dd) and/or 326 IAC 2-3-1(y)) may result in significant emissions increase and the Permittee elects to utilize the "projected actual emissions" (as defined in 326 IAC 2-2-1(pp) and/or 326 IAC 2-3-1(kk)), the Permittee shall comply with following:

(1) Monitor the emissions of any regulated NSR pollutant that could increase as a result of the project and that is emitted by any existing emissions unit identified in (1)(B) above; and

(2) Calculate and maintain a record of the annual emissions, in tons per year on a calendar year basis, for a period of five (5) years following resumption of regular operations after the change, or for a period of ten (10) years following resumption of regular operations after the change if the project increases the design capacity of or the potential to emit that regulated NSR pollutant at the emissions unit.

C.17 General Reporting Requirements [326 IAC 2-7-5(3)(C)] [326 IAC 2-1.1-11]

(a) **********

(e) If the Permittee is required to comply with the recordkeeping provisions of (d) in Section C - General Record Keeping Requirements for any "project" (as defined in 326 IAC 2-2-1 (oo) and/or 326 IAC 2-3-1 (jj)) at an existing emissions unit, and the project meets the following criteria, then the Permittee shall submit a report to IDEM, OAQ:

(1) The annual emissions, in tons per year, from the project identified in (c)(1) in Section C- General Record Keeping Requirements exceed the baseline actual emissions, as documented and maintained under Section C- General Record Keeping Requirements (c)(1)(C)(i), by a significant amount, as defined in 326 IAC 2-2-1 (ww) and/or 326 IAC 2-3-1 (pp), for that regulated NSR pollutant, and

(2) The emissions differ from the preconstruction projection as documented and maintained under Section C - General Record Keeping Requirements (c)(1)(C)(ii).

(f) The report for project at an existing emissions unit shall be submitted no later than sixty (60) days after the end of the year and contain the following:

(1) The name, address, and telephone number of the major stationary source.

(2) The annual emissions calculated in accordance with (d)(1) and (2) in Section C - General Record Keeping Requirements.

(3) The emissions calculated under the actual-to-projected actual test stated in 326 IAC 2-2-2(d)(3) and/or 326 IAC 2-3-2(c)(3).

(4) Any other information that the Permittee wishes to include in this report such as an explanation as to why the emissions differ from the preconstruction projection.

Reports required in this part shall be submitted to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

(g) The Permittee shall make the information required to be documented and maintained in accordance with (c) in Section C- General Record Keeping Requirements available for review upon a request for inspection by IDEM, OAQ. The general public may request this information from the IDEM, OAQ under 326 IAC 17.1.

Modification No. 7:

Emission Unit Description – Section D.1

IDEM, OAQ is adding the proposed flare EU-4 to the emission unit description box in Section D.1. The revision is shown below:

SECTION D.1 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

(c) One (1) open landfill gas flare, approved in 2014 for construction, identified as EU-4, with a maximum capacity of 3,000 SCFM and 91.26 MMBtu/hr. [40 CFR 60, Subpart WWW] [40 CFR 63, Subpart AAAA]

Insignificant Activities:

(a) Three (3) crystal clean parts washers with a solvent consumption of 240 gallons per year, constructed after 1990. [326 IAC 8-3-2][326 IAC 8-3-8]

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Modification No. 8:

PSD Minor Limit – New Condition D.1.3

IDEM, OAQ is adding limits on the operation of flare EU-4 to ensure Significant Source Modification 003-34309-00257 remains minor for Prevention of Significant Deterioration (PSD). The proposed condition is shown below:

D.1.3 Prevention of Significant Deterioration (PSD) Minor Limit [326 IAC 2-2]

The Permittee shall comply with the following for open flare EU-4 at National Serv-All Landfill:

(a) Carbon monoxide (CO) emissions from the open flare, identified as EU-4, shall not exceed 0.37 lb/MMBtu;

(b) Volatile Organic Compound (VOC) emissions from the open flare, identified as EU-4, shall not exceed 0.14 lb/MMBtu; and

(c) Landfill gas combusted in the open flare, identified as EU-4, shall not exceed 732,095 MMBtu per twelve (12) consecutive month period with compliance determined at the end of each month.

Compliance with these emission limits along with CO and VOC emission limitations on open flare EU-2 at the United Refuse Landfill will ensure that the net emissions increase of CO from Significant Source Modification No. 003-34309-00257 is less than one hundred (100) tons per year and the net emissions increase of VOC is less than forty (40) tons per year and shall render the requirements of 326 IAC 2-2 not applicable to Significant Source Modification No. 003-34309-00257.

Modification No. 9:

Record Keeping Requirements – Flare EU-4

IDEM, OAQ is adding a requirement to maintain a monthly record of the amount of landfill gas combusted in flare EU-4 each month. These records are required to ensure compliance with the PSD minor limit and to ensure the requirements of 326 IAC 2-2 do not apply to Significant Source Modification No. 003-34309-00257. Original Condition D.1.3 was renumbered. Revisions are shown below:

D.1.~~3~~**4** Record Keeping Requirements

(a) **************

(b) **To document the compliance status with Condition D.1.3(c), the Permittee shall maintain monthly records of the heat input of landfill gas in landfill gas flare EU-4. The Permittee shall include in its monthly record when a landfill gas heat input reading is not recorded and the reason for a lack of a landfill gas heat input reading (e.g., the landfill gas flare did not operate that month).**

(c) Section C - General Record Keeping Requirements of this permit contains the Permittee's obligations with regard to the records required by this condition.

Modification No. 10:

Reporting Requirements – Flare EU-4

IDEM, OAQ is adding a quarterly landfill gas usage reporting requirement as Condition D.1.5. The combustion of landfill gas must be restricted to ensure the requirements of 326 IAC 2-2 do not apply to Significant Source Modification No. 003-34309-00257. This condition allows the Permittee to document the compliance status with Condition D.1.3(c).

D.1.5 Reporting Requirements

A quarterly summary of the information to document the compliance status with Condition D.1.3(c) shall be submitted using the reporting form located at the end of this permit, or its equivalent, not later than thirty (30) days after the end of the quarter being reported. Section C – General Reporting Requirements contains the Permittee's obligation with regard to the reporting required by this condition. The report submitted by the Permittee does require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined in 326 IAC 2-7-1(35).

Modification No. 11:

NSPS Subpart WWW – Flare EU-4

IDEM, OAQ is adding flare EU-4 to the facility description box in original Section E.1. All compliance monitoring and compliance determination requirements for landfill gas flares are already included in Condition E.1.1 and Condition E.1.2. No other revisions to original Section E.1 are required. The revised facility description box is shown below:

SECTION E.1 FACILITY OPERATION CONDITIONS

Emissions Unit Description:

(a) **************

(b) **************

(c) One (1) open landfill gas flare, approved in 2014 for construction, identified as EU-4, with a maximum capacity of 3,000 SCFM and 91.26 MMBtu/hr. [40 CFR 60, Subpart WWW] [40 CFR 63, Subpart AAAA]

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Modification No. 12:

NESHAP Subpart AAAA – Flare EU-4

IDEM, OAQ is adding flare EU-4 to the facility description box in original Section E.2. All compliance monitoring and compliance determination requirements for landfill gas flares are already included in Condition E.2.1 and Condition E.2.2. No other revisions to original Section E.2 are required. The revised facility description box is shown below:

SECTION E.2 FACILITY OPERATION CONDITIONS

Emissions Unit Description:

(a) **************

(b) **************

(c) One (1) open landfill gas flare, approved in 2014 for construction, identified as EU-4, with a maximum capacity of 3,000 SCFM and 91.26 MMBtu/hr. [40 CFR 60, Subpart WWW] [40 CFR 63, Subpart AAAA]

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Modification No. 13:

NSPS and NESHAP Requirements

IDEM, OAQ is updating the applicable requirements for NSA landfill shown in Section E.1, E.2 and E.3. A more detailed analysis is provided. Revisions are shown below:

E.1.2 Standards of Performance for Municipal Solid Waste Landfills [326 IAC 12][326 IAC 8.1] [40 CFR Part 60, Subpart WWW]

The Permittee who operates a municipal solid waste landfill that commenced construction, reconstruction or modification on or after May 30, 1991 shall comply with the following provisions of 40 CFR Part 60, Subpart WWW~~,~~ **(**included as Attachment A of this permit**)**, **which are incorporated by reference in 326 IAC 12,** except for approved variances incorporated into the Collection and Control Design Plan in accordance with 40 CFR 60, Subpart WWW. The source is subject to the following portions of Subpart WWW:

~~(1) 40 CFR 60.752(b)~~
~~(2) 40 CFR 60.753~~
~~(3) 40 CFR 60.754~~
~~(4) 40 CFR 60.755~~
~~(5) 40 CFR 60.756~~
~~(6) 40 CFR 60.757~~
~~(7) 40 CFR 60.758~~
~~(8) 40 CFR 60.759~~
(1) 40 CFR 60.750;
(2) 40 CFR 60.751;
(3) 40 CFR 60.752(b);
(4) 40 CFR 60.753;
(5) 40 CFR 60.754;
(6) 40 CFR 60.755;
(7) 40 CFR 60.756(a), (c), and (f);
(8) 40 CFR 60.757(a), (b)(3), (c), (d), (e), (f), and (g);
(9) 40 CFR 60.758(a), (b)(4), (c)(4), (d), and (e); and
(10) 40 CFR 60.759.

E.2.2 National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills [326 IAC 20-67][40 CFR Part 63, Subpart AAAA]

The Permittee who operates a stationary municipal solid waste landfill that has accepted waste since November 8, 1987 and has a design capacity equal to or greater than 2.5 million megagrams shall comply with the following provisions of 40 CFR Part 63, Subpart AAAA~~,~~ **(**included as Attachment B of this permit**), which are incorporated by reference in 326 IAC 20-67**. The source is subject to the following portions of Subpart AAAA:

~~1) 40 CFR 63.1955~~
~~2) 40 CFR 63.1960 to 40 CFR 63.1985~~
(1) 40 CFR 63.1930;
(2) 40 CFR 63.1935(a)(3);
(3) 40 CFR 63.1940;
(4) 40 CFR 63.1945(b);
(5) 40 CFR 63.1950;
(6) 40 CFR 63.1955(a)(1), and (b);
(7) 40 CFR 63.1960 to 40 CFR 63.1985;
(8) 40 CFR 63.1990; and
(9) Table 1

E.3.2 National Emission Standards for Asbestos [326 IAC 14-2][40 CFR Part 61, Subpart M]

The Permittee who operates a municipal solid waste landfill that receives asbestos-containing waste material from a source listed in 40 CFR 61.149, 40 CFR 61.150 or 40 CFR 61.155 shall comply with the following provisions of 40 CFR Part 61, Subpart M, included as Attachment C of this permit. The source is subject to the following portions of Subpart M:

~~1) 40 CFR 61.154~~
(1) 40 CFR 61.140;
(2) 40 CFR 61.141;
(3) 40 CFR 61.154;
(4) 40 CFR 61.156; and
(5) 40 CFR 61.157.

Modification No. 14:

Reporting Forms

IDEM, OAQ is correcting the source address on all of the reporting forms. IDEM, OAQ is adding a reporting form for landfill gas usage in flare EU-4 in order for the Permittee to document compliance with Condition D.1.4(b). Revisions to the forms section of the permit are shown below:

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE AND ENFORCEMENT BRANCH
PART 70 OPERATING PERMIT
CERTIFICATION

Source Name: Republic Services of Indiana, LP d/b/a National Serv-all Landfill
Source Address: 6231 M**a**cBeth Road, Fort Wayne, Indiana 46809
Part 70 Permit No.: T003-30376-00257
****

PART 70 OPERATING PERMIT
EMERGENCY OCCURRENCE REPORT

Source Name: Republic Services of Indiana, LP d/b/a National Serv-all Landfill
Source Address: 6231 M**a**cBeth Road, Fort Wayne, Indiana 46809
Part 70 Permit No.: T003-30376-00257
****

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE AND ENFORCEMENT BRANCH

Part 70 Quarterly Report

Source Name: Republic Services of Indiana, LP d/b/a National Serv-all Landfill
Source Address: 6231 MacBeth Road, Fort Wayne, Indiana 46809
Part 70 Permit No.: T003-30376-00257
Facility: Flare EU-4
Parameter: Landfill Gas Heat Input to Open Flare EU-4
Limit: Landfill gas combusted in the open flare, identified as EU-4, shall not exceed 732,095 MMBtu per twelve (12) consecutive month period with compliance determined at the end of each month.

QUARTER: _____ YEAR: _____

Month	Column 1	Column 2	Column 1 + Column 2
	This Month	**Previous 11 Months**	**12 Month Total**
Month 1			
Month 2			
Month 3			

☐ **No deviation occurred in this quarter.**

☐ **Deviation/s occurred in this quarter.**
Deviation has been reported on: _____.

Submitted by: _____
Title / Position: _____
Signature: _____
Date: _____
Phone: _____

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE AND ENFORCEMENT BRANCH
PART 70 OPERATING PERMIT
QUARTERLY DEVIATION AND COMPLIANCE MONITORING REPORT

Source Name: Republic Services of Indiana, LP d/b/a National Serv-all Landfill
Source Address: 6231 M**a**cBeth Road, Fort Wayne, Indiana 46809
Part 70 Permit No.: T003-30376-00257
****

Conclusion and Recommendation

The construction of this proposed modification shall be subject to the conditions of the attached proposed Part 70 Significant Source Modification No. 003-34309-00257 and Significant Permit Modification No. 003-34554-00257. The staff recommend to the Commissioner that this Part 70 Significant Source and Significant Permit Modification be approved.

IDEM Contact

(a) Questions regarding this proposed permit can be directed to David Matousek at the Indiana Department Environmental Management, Office of Air Quality, Permits Branch, 100 North Senate Avenue, MC 61-53 IGCN 1003, Indianapolis, Indiana 46204-2251 or by telephone at (317) 232-8253 or toll free at 1-800-451-6027 extension (2-8253).

(b) A copy of the findings is available on the Internet at: http://www.in.gov/ai/appfiles/idem-caats/

(c) For additional information about air permits and how the public and interested parties can participate, refer to the IDEM Permit Guide on the Internet at: http://www.in.gov/idem/5881.htm; and the Citizens' Guide to IDEM on the Internet at: http://www.in.gov/idem/6900.htm.

Appendix A to the Technical Support Document (TSD)
PSD Analysis

Company Name: National Serv-All Landfill (Primary Source)
Address: 6231 MacBeth Road, Ft. Wayne, IN 46809
National Serv-All Landfill SSM No.: 003-34309-00257
National Serv-All Landfill SPM No.: 003-34554-00257
United Refuse Landfill SPM No.: 003-34308-00291
Reviewer: David Matousek
Date: May 16, 2014

Uncontrolled PTE of New Flare - EU-4 (TPY)										
Emission Unit	**PM**	**PM_{10}**	**Direct $PM_{2.5}$**	**SO_2**	**VOC**	**CO**	**NO_x**	**GHG as CO_2e**	**Single HAP HCL**	**Total HAP**
EU-4	6.17	6.17	6.17	6.05	55.96	147.90	27.18	(a)	3.08	3.08

Step 1 - Determine if a significant emission increase occurs.

Limited and Controlled PTE of New Flare - EU-4 (TPY)										
Emission Unit	**PM**	**PM_{10}**	**Direct $PM_{2.5}$**	**SO_2**	**VOC**	**CO**	**NO_x**	**GHG as CO_2e**	**Single HAP HCL**	**Total HAP**
EU-4	5.65	5.65	5.65	5.54	51.25	135.44	24.89	36,768	2.82	2.82
PSD Significant Level	25	15	10	40	40	100	40	75,000	not applicable	not applicable
Significant	NO	NO	NO	NO	YES	YES	NO	NO	not applicable	not applicable

Anaysis for Carbon Monoxide

Step 2 - Determine Contemporaneous Increases and Decreases for CO

Contemporaneous Decreases in CO		
Baseline EU-2 (See Note 1)	64.18	TPY
Future Allowable EU-2	27.09	TPY
Decrease in Emissions	-37.09	TPY

Contemporaneous Increases in CO
None - No projects in contemporaneous period resulting in increased CO emissions.

Step 3 - Determine Net Change in Emissions for CO

Project Netting for CO		
Current Project	**135.44**	**TPY**
Contemporaneous Increases	**0**	**TPY**
Contemporaneous Decreases	**-37.09**	**TPY**
Net Change (Current Project + Contemporaneous Increases - Contemporaneous Decreases)	**98.35**	**TPY**

(Continued on Next Page)

Appendix A to the Technical Support Document (TSD)
PSD Analysis
(Continued from Previous Page)

Anaysis for Volatile Organic Compounds

Step 2 - Determine Contemporaneous Increases and Decreases for VOC

Contemporaneous Decreases in VOC		
Baseline EU-2 (See Note 1)	24.28	TPY
Future Allowable EU-2	10.25	TPY
Decrease in Emissions	-14.03	TPY

Contemporaneous Increases in VOC
None - No projects in contemporaneous period resulting in increased VOC emissions.

Step 3 - Determine Net Change in Emissions for VOC

Project Netting for VOC		
Current Project	**51.25**	**TPY**
Contemporaneous Increases	**0**	**TPY**
Contemporaneous Decreases	**-14.03**	**TPY**
Net Change (Current Project + Contemporaneous Increases - Contemporaneous Decreases)	**37.21**	**TPY**

Note 1: Pursuant to 326 IAC 2-2-1(b)(2), the department may presume that source-specific allowable emissions for a unit are equivalent to the actual emissions of the unit.

Note (a) The flare can be treated as an emission unit and a control device. In terms of PM, PM_{10}, $PM_{2.5}$, VOC, CO, NO_x and HAPs, IDEM, OAQ is treating the flare as an emission unit. Controlled emissions are based on the maximum heat input capacity to the flare. In terms of greenhouse gas (GHG) emissions, IDEM is treating the flare as a control device. For GHGs, the Uncontrolled Potential to Emit is based on the worst case scenario where the landfill gas is not controlled. The flare will not have significant GHG emissions in the uncontrolled case, because the only emissions would be those associated with natural gas combustion by the pilot in the flare. In the controlled case, the flare will have GHG

Appendix A to the Technical Support Document (TSD)
Emission Calculations - Existing Flare EU-2 - Future Allowable Emissions

Company Name: National Serv-All Landfill (Primary Source)
Address: 6231 MacBeth Road, Ft. Wayne, IN 46809
National Serv-All Landfill SSM Number: 003-34309-00257
National Serv-All Landfill SPM Number: 003-34554-00257
United Refuse Landfill SPM Number: 003-34308-00291
Reviewer: David Matousek
Date: May 15, 2014

Design Data and Physical Properties

Limited Landfill Gas Flow Rate	550.00	SCFM	Molecular Weight of (S)	32.07	lb/mole
Limited Annual LFG Usage	289.08	MMCF/yr	Molecular Weight of (SO_2)	64.06	lb/mole
Calculated Flare Heat Input	16.73	MMBtu/hr	Molecular Weight of (HCL)	36.458	lb/mole
Landfill Gas Average Heating Value	507.00	MMBtu/MMCF	Molecular Weight of (CH_4)	16.04	lb/mole
Inlet Gas Temperature (STP)	536.67	°R	Molecular Weight of (CO_2)	44.01	lb/mole
Inlet Gas Pressure (STP)	1.00	atm			
Volume % Water in Landfill Gas	8%	(Default is 8%)			
Volume % Methane	50.00%	(Default is 50%)			

Emission Calculation - Limited Potential to Emit

Limited Landfill Gas and Methane Flow Rates, Dry Basis

Limited Landfill Gas Flow (SCFM, Dry) = Limited Gas Flow (SCFM, wet) x (1 - Volume % Water)

= 550.00 x (1 - 8%) = 506.00 SCFM LFG, Dry Basis

Limited Methane Flow Rate (SCFM CH_4, Dry) = Limited Landfill Gas Flow Rate (SCFM, Dry) x % Methane

= 506.00 x 50% = 253.00 SCFM CH_4, Dry Basis

Limited PTE - All Pollutants

Pollutant	ppmv in LFG	Pollutant Flow (SCFM)	Maximum Throughput		Emission Factor		PTE (TPY)	Notes / Comments / References
PM			253.00	SCFM	17.00	lb/MMCF, CH_4, dry	1.13	AP-42, Ch. 2.4, Table 2.4-5, 11/1998
PM_{10}			253.00	SCFM	17.00	lb/MMCF, CH_4, dry	1.13	Assume the same as PM
Direct $PM_{2.5}$			253.00	SCFM	17.00	lb/MMCF, CH_4, dry	1.13	Assume the same as PM
S	46.9	0.0258					0.55	ppmv, AP-42, Ch. 2.4, page 2.4-8, 11/1998
SO_2							1.11	PTE (SO_2) = PTE (S) x M.W. (SO_2) / M.W. (S)
VOC			146,419	MMBtu/yr	0.140	lb/MMBtu	10.25	AP-42, Ch. 13.5, Table 13.5-1, 09/1991
CO			146,419	MMBtu/yr	0.370	lb/MMBtu	27.09	Performance Specification
NO_x			146,419	MMBtu/yr	0.068	lb/MMBtu	4.98	Performance Specification
HCL	42	0.0231					0.56	ppmv, AP-42, Ch. 2.4, page 2.4-9, 11/1998

(Continued on Next Page)

Appendix A to the Technical Support Document (TSD)
Emission Calculations - Existing Flare EU-2 - Future Allowable Emissions
(Continued from Previous Page)

Greenhouse Gas (GHG) Emission Calculation - Limited and Controlled Potential to Emit

Landfill Gas and Methane Flow Rates at Limited Gas Usage, Dry Basis, Controlled

Limited Landfill Gas Flow (MMCF/yr, Dry) = Limited Landfill Gas Usage (MMCF/yr, wet) x (1 - Volume % Water)

= 289.08 x (1 - 8%) = 265.95 MMCF/yr LFG, Dry Basis

Limited Methane Flow Rate (MMCF CH_4, Dry) = Landfill Gas Flow Rate (MMCF, Dry) x % Methane

= 265.95 x 50% = 132.98 MMCF/yr CH_4, Dry Basis

Greenhouse Gas Emissions Controlled and/or Limited Case

Methane and Carbon Dioxide Emissions

Methane Combusted in Flare 2,667.76 TPY

Methane Combusted in Flare 247.94 SCFM

Methane Sent to Flare
132.98 MMCF/yr
253.00 Avg. SCFM
2,722.20 TPY

98% of Methane is Combusted to CO_2 → CO_2 Created By Combustion 7,336.33 TPY

2% of Methane is Uncombusted - Emissions Assigned to Landfill → 54.44 TPY

N_2O Emissions

Methane Combusted in Flare =	247.94	SCFM
Methane Heating Value =	1,013	MMBtu/MMCF
Methane Heat Input =	132,011	MMBtu/yr
N_2O Emission Factor =	6.30E-04	kg/MMBtu
N_2O Emissions =	0.29	TPY

Controlled and/or Limited GHG Emissions Summary		
CO_2	7,336	TPY
N_2O	0.29	TPY
GHG Emissions	7,422	TPY CO_2e

Methodology:
1) Emission (TPY) = Throughput (SCFM) x Emission Factor (lb/MMCF) x 1 MMCF/1E06 CF x 1 ton/2,000lb x 60 min/hr x 8,760 hr/yr
2) Emission (TPY) = Throughput (MMBtu/hr) x Emission Factor (lb/MMBtu) x Operating Hours (hr/yr) x 1 ton/2,000 lb
3) Emission (TPY) = Throughput (MMBtu/hr) x Emission Factor (kg/MMBtu) x 2.2046 lb/kg x Operating Hours (hr/yr) x 1 ton/2,000 lb
4) Emission (TPY) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF) x 1 ton/2,000 lb
5) Emission (TPY) = 360 x Pollutant Flow (SCFM) x M.W. (lb/lb-mole) x 1 atm / T (°R), AP-42, Chapter 2.4, Eq. 4 in US Units
6) N_2O Emissions (TPY CO_2e) = Emission N_2O x Global Warming Potential (25)

Appendix A to the Technical Support Document (TSD)
Emission Calculations - Proposed NSA Landfill Flare (EU-04)

Company Name: National Serv-All Landfill (Primary Source)
Address: 6231 MacBeth Road, Ft. Wayne, IN 46809
National Serv-All Landfill SSM Number: 003-34309-00257
National Serv-All Landfill SPM Number: 003-34554-00257
United Refuse Landfill SPM Number: 003-34308-00291
Reviewer: David Matousek
Date: May 15, 2014

Design Data and Physical Properties

Maximum Landfill Gas Flow at PTE	3,000.00	SCFM	Molecular Weight of (S)	32.07	lb/mole
Limited Annual LFG Usage	1,445.40	MMCF/yr	Molecular Weight of (SO_2)	64.06	lb/mole
Flare Heat Input Capacity	91.26	MMBtu/hr	Molecular Weight of (HCL)	36.458	lb/mole
Landfill Gas Average Heating Value	507.00	MMBtu/MMCF	Molecular Weight of (CH_4)	16.04	lb/mole
Inlet Gas Temperature (STP)	536.67	°R	Molecular Weight of (CO_2)	44.01	lb/mole
Inlet Gas Pressure (STP)	1.00	atm			
Volume % Water in Landfill Gas	8%	(Default is 8%)			
Volume % Methane	50.00%	(Default is 50%)			

Emission Calculation - Uncontrolled Potential to Emit

Landfill Gas and Methane Flow Rates at PTE, Dry Basis

Landfill Gas Flow (SCFM, Dry) = Gas Flow at PTE (SCFM, wet) x (1 - Volume % Water)

= 3,000.00 x (1 - 8%) = 2,760.00 SCFM LFG, Dry Basis

Methane Flow Rate (SCFM CH_4, Dry) = Landfill Gas Flow Rate (SCFM, Dry) x % Methane

= 2,760.00 x 50% = 1,380.00 SCFM CH_4, Dry Basis

Uncontrolled PTE - All Pollutants

Pollutant	ppmv in LFG	Pollutant Flow (SCFM)	Maximum Throughput		Emission Factor		PTE (TPY)	Notes / Comments / References
PM			1,380.00	SCFM	17.00	lb/MMCF, CH_4, dry	6.17	AP-42, Ch. 2.4, Table 2.4-5, 11/1998
PM_{10}			1,380.00	SCFM	17.00	lb/MMCF, CH_4, dry	6.17	Assume the same as PM
Direct $PM_{2.5}$			1,380.00	SCFM	17.00	lb/MMCF, CH_4, dry	6.17	Assume the same as PM
S	46.9	0.1407					3.03	ppmv, AP-42, Ch. 2.4, page 2.4-8, 11/1998
SO_2							6.05	PTE (SO_2) = PTE (S) x M.W. (SO_2) / M.W. (S)
VOC			91.26	MMBtu/hr	0.140	lb/MMBtu	55.96	AP-42, Ch. 13.5, Table 13.5-1, 09/1991
CO			91.26	MMBtu/hr	0.370	lb/MMBtu	147.90	Performance Specification
NO_x			91.26	MMBtu/hr	0.068	lb/MMBtu	27.18	Performance Specification
HCL	42	0.126					3.08	ppmv, AP-42, Ch. 2.4, page 2.4-9, 11/1998
CO_2							negligible	For GHGs, the uncontrolled PTE is based on the worst case scenario where landfill gas is not controlled. The flare will have negligible GHG emissions due to combustion in the flare pilot.
CH_4							negligible	
N_2O							negligible	
CO_2e							negligible	

(Continued on Next Page)

Appendix A to the Technical Support Document (TSD)
Emission Calculations - Proposed NSA Landfill Flare (EU-04)
(Continued from Previous Page)

Emission Calculation - Controlled Potential to Emit

Landfill Gas and Methane Flow Rates at Limited Gas Usage, Dry Basis

Limited Landfill Gas Flow (MMCF/yr, Dry) = Limited Landfill Gas Usage (MMCF/yr, wet) x (1 - Volume % Water)

= 1,445.40 x (1 - 8%) = 1,329.77 MMCF/yr LFG, Dry Basis

Limited Methane Flow Rate (MMCF/yr CH_4, Dry) = Landfill Gas Flow Rate (MMCF/yr, Dry) x % Methane

= 1,329.77 x 50% = 664.88 MMCF/yr CH_4, Dry Basis

Limited and/or Controlled PTE - Non-Greenhouse Gas Emissions

Pollutant	ppmv in LFG	Avg. Pollutant Flow (SCFM)	Throughput at Limited Usage		Emission Factor		PTE (TPY)	Notes / Comments / References
PM			664.88	MMCF/yr	17.00	lb/MMCF, CH_4, dry	5.65	AP-42, Ch. 2.4, Table 2.4-5, 11/1998
PM_{10}			664.88	MMCF/yr	17.00	lb/MMCF, CH_4, dry	5.65	Assume the same as PM
Direct $PM_{2.5}$			664.88	MMCF/yr	17.00	lb/MMCF, CH_4, dry	5.65	Assume the same as PM
S	46.9	0.1290					2.77	ppmv, AP-42, Ch. 2.4, page 2.4-8, 11/1998
SO_2							5.54	PTE (SO_2) = PTE (S) x M.W. (SO_2) / M.W. (S)
VOC			732,095	MMBtu/yr	0.140	lb/MMBtu	51.25	AP-42, Ch. 13.5, Table 13.5-1, 09/1991
CO			732,095	MMBtu/yr	0.370	lb/MMBtu	135.44	Performance Specification
NO_x			732,095	MMBtu/yr	0.068	lb/MMBtu	24.89	Performance Specification
HCL	42	0.1155					2.82	ppmv, AP-42, Ch. 2.4, page 2.4-9, 11/1998

Greenhouse Gas Emissions Controlled and/or Limited Case

Methane and Carbon Dioxide Emissions

Methane Sent to Flare
664.88 MMCF/yr
1265.00 Avg. SCFM
13,611.00 TPY

98% of Methane is Combusted to CO_2

Methane Combusted in Flare 13,338.78 TPY
Methane Combusted in Flare 1,239.70 SCFM
CO_2 Created By Combustion 36,681.65 TPY

2% of Methane is Uncombusted - Emissions Assigned to Landfill 272.22 TPY

N_2O Emissions

Methane Combusted in Flare =	1,239.70	SCFM
Methane Heating Value =	1,013	MMBtu/MMCF
Methane Heat Input =	660,057	MMBtu/yr
N_2O Emission Factor =	6.30E-04	kg/MMBtu
N_2O Emissions =	0.29	TPY

Controlled and/or Limited GHG Emissions Summary		
CO_2	36,682	TPY
N_2O	0.29	TPY
GHG Emissions	36,768	TPY CO_2e

Methodology:
1) Emission (TPY) = Throughput (SCFM) x Emission Factor (lb/MMCF) x 1 MMCF/1E06 CF x 1 ton/2,000lb x 60 min/hr x 8,760 hr/yr
2) Emission (TPY) = Throughput (MMBtu/hr) x Emission Factor (lb/MMBtu) x Operating Hours (hr/yr) x 1 ton/2,000 lb
3) Emission (TPY) = Throughput (MMBtu/hr) x Emission Factor (kg/MMBtu) x 2.2046 lb/kg x Operating Hours (hr/yr) x 1 ton/2,000 lb
4) Emission (TPY) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF) x 1 ton/2,000 lb
5) Emission (TPY) = 360 x Pollutant Flow (SCFM) x M.W. (lb/lb-mole) x 1 atm / T (°R), AP-42, Chapter 2.4, Eq. 4 in US Units

Appendix A to the Technical Support Document (TSD)
Source Wide Potential to Emit After Issuance

Company Name: National Serv-All Landfill (Primary Source)
Address: 6231 MacBeth Road, Ft. Wayne, IN 46809
National Serv-All Landfill SSM Number: 003-34309-00257
National Serv-All Landfill SPM Number: 003-34554-00257
United Refuse Landfill SPM Number: 003-34308-00291
Reviewer: David Matousek
Date: May 22, 2014

Potential to Emit (TPY)										
Emission Unit	**PM**	**PM_{10}**	**Direct $PM_{2.5}$**	**SO_2**	**VOC**	**CO**	**NOx**	**GHG as CO_2e**	**Total HAP**	**Single HAP Toluene**
National Serv-All Landfill										
MSW Landfill	0.00	0.00	0.00	0.00	75.39	14.67	0.00	826,429	39.08	13.34
Open Flare EU-3	10.28	10.28	10.28	10.08	93.27	246.49	45.30	(a)	5.14	0.00
Open Flare EU-4	6.17	6.17	6.17	6.05	55.96	147.90	27.18	(a)	3.08	0.00
Three Parts Washers	0.00	0.00	0.00	0.00	negligible	0.00	0.00	0	negligible	negligible
NSA Subtotal	16.44	16.44	16.44	16.12	224.62	409.06	72.48	826,429	47.30	13.34
United Refuse Landfill										
MSW Landfill - EU-1	0.00	0.00	0.00	0.00	2.05	1.43	0.00	80,599	3.81	1.30
Open Flare EU-2	2.47	2.47	2.47	2.42	24.28	64.18	11.79	(a)	1.23	0.00
URL Subtotal	2.47	2.47	2.47	2.42	26.33	65.61	11.79	80,599	5.04	1.30
Source Wide PTE	18.91	18.91	18.91	18.54	250.96	474.66	84.28	907,028	52.35	14.65

Controlled and Limited Potential to Emit (TPY)										
Emission Unit	**PM**	**PM_{10}**	**Direct $PM_{2.5}$**	**SO_2**	**VOC**	**CO**	**NOx**	**GHG as CO_2e**	**Total HAP**	**Single HAP HCL**
National Serv-All Landfill										
MSW Landfill	0.00	0.00	0.00	0.00	1.51	0.29	0.00	82,327	0.78	0.00
Open Flare EU-3	10.28	10.28	10.28	10.08	93.27	246.49	45.30	66,780	5.14	5.14
Open Flare EU-4	5.65	5.65	5.65	5.54	51.25	135.44	24.89	36,768	2.82	2.82
Three Parts Washers	0.00	0.00	0.00	0.00	negligible	0.00	0.00	0	negligible	negligible
NSA Subtotal	15.93	15.93	15.93	15.62	146.02	382.22	70.19	185,875	8.74	7.96
United Refuse Landfill										
MSW Landfill - EU-1	0.00	0.00	0.00	0.00	0.04	0.03	0.00	8,029	0.08	0.00
Open Flare EU-2	1.13	1.13	1.13	1.11	10.25	27.09	4.98	7,422	0.56	0.56
URL Subtotal	1.13	1.13	1.13	1.11	10.29	27.12	4.98	15,451	0.64	0.56
Source Wide PTE	17.06	17.06	17.06	16.73	156.31	409.34	75.17	201,326	9.38	8.53

Note (a) The flare can be treated as an emission unit and a control device. In terms of PM, PM_{10}, $PM_{2.5}$, VOC, CO, NO_x and HAPs, IDEM, OAQ is treating the flare as an emission unit. Controlled emissions are based on the maximum heat input capacity to the flare. In terms of greenhouse gas (GHG) emissions, IDEM is treating the flare as a control device. For GHGs, the Uncontrolled Potential to Emit is based on the worst case scenario where the landfill gas is not controlled. The flare will not have significant GHG emissions in the uncontrolled case, because the only emissions would be those associated with natural gas combustion by the pilot in the flare. In the controlled case, the flare will have GHG

Appendix A to the Technical Support Document (TSD)
National Serv-All - LandGEM Output Summary

Company Name: National Serv-All Landfill (Primary Source)
Address: 6231 MacBeth Road, Ft. Wayne, IN 46809
National Serv-All Landfill SSM Number: 003-34309-00257
National Serv-All Landfill SPM Number: 003-34554-00257
United Refuse Landfill SPM Number: 003-34308-00291
Reviewer: David Matousek
Date: May 22, 2014

	NSA - Landfill Section A		NSA - Landfill Section B		Total NSA Landfill Emissions	
Year	NMOC (TPY)	LFG (Avg. SCFM)	NMOC (TPY)	LFG (Avg. SCFM)	NMOC (TPY)	LFG (Avg. SCFM)
1966	0.000	0.00			0.00	0.00
1967	0.451	12.91			0.45	12.91
1968	0.898	25.71			0.90	25.71
1969	1.341	38.40			1.34	38.40
1970	1.781	51.01			1.78	51.01
1971	2.218	63.53			2.22	63.53
1972	2.655	76.03			2.65	76.03
1973	3.088	88.43			3.09	88.43
1974	3.522	100.88			3.52	100.88
1975	3.956	113.29			3.96	113.29
1976	4.388	125.67			4.39	125.67
1977	4.822	138.09			4.82	138.09
1978	5.257	150.55			5.26	150.55
1979	5.695	163.11			5.70	163.11
1980	6.217	178.06			6.22	178.06
1981	6.865	196.61			6.86	196.61
1982	7.634	218.63			7.63	218.63
1983	8.89	254.57			8.89	254.57
1984	11.13	318.84			11.13	318.84
1985	14.85	425.16			14.85	425.16
1986	19.96	571.51			19.96	571.51
1987	26.44	757.30			26.44	757.30
1988	32.65	935			32.65	935.15
1989	38.64	1,107			38.64	1,106.68
1990	44.40	1,271			44.40	1,271.48
1991	49.90	1,429			49.90	1,429.17
1992	55.51	1,590			55.51	1,589.84
1993	61.18	1,752			61.18	1,752.07
1994	65.77	1,884			65.77	1,883.71
1995	69.62	1,994			69.62	1,993.82
1996	74.29	2,128			74.29	2,127.77
1997	78.97	2,262			78.97	2,261.65
1998	83.55	2,393			83.55	2,392.99
1999	90.99	2,606			90.99	2,606.06
2000	97.96	2,805			97.96	2,805.46
2001	106.10	3,039			106.10	3,038.82
2002	114.23	3,272			114.23	3,271.64
2003	121.64	3,484			121.64	3,483.78
2004	128.65	3,684			128.65	3,684.49
2005	136.90	3,921			136.90	3,920.93
2006	144.97	4,152			144.97	4,151.77
2007	157.11	4,500	0.00	0.00	157.11	4,499.69
2008	150.95	4,323	12.72	364.39	163.68	4,687.65
2009	145.03	4,154	24.79	710.12	169.83	4,863.86
2010	139.35	3,991	36.31	1,040	175.66	5,030.76
2011	133.88	3,834	47.04	1,347	180.92	5,181.64

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Appendix A to the Technical Support Document (TSD)
National Serv-All - LandGEM Output Summary
(Continued from Previous Page)

	NSA - Landfill Section A		NSA - Landfill Section B		Total NSA Landfill Emissions	
Year	NMOC (TPY)	LFG (Avg. SCFM)	NMOC (TPY)	LFG (Avg. SCFM)	NMOC (TPY)	LFG (Avg. SCFM)
2012	128.63	3,684	57.82	1,656	186.46	5,340.05
2013	123.59	3,540	68.32	1,957	191.91	5,496.14
2014	118.74	3,401	76.40	2,188	195.14	5,588.81
2015	114.09	3,267	84.16	2,410	198.25	5,677.84
2016	109.61	3,139	91.62	2,624	201.24	5,763.38
2017	105.32	3,016	98.79	2,829	204.11	5,845.57
2018	101.19	2,898	105.68	3,027	206.86	5,924.53
2019	97.22	2,784	112.29	3,216	209.51	6,000.40
2020	93.41	2,675	118.65	3,398	212.06	6,073.30
2021	89.74	2,570	124.76	3,573	214.50	6,143.33
2022	86.23	2,469	130.63	3,741	216.85	6,210.62
2023	82.84	2,373	136.27	3,903	219.11	6,275.27
2024	79.60	2,280	141.68	4,058	221.28	6,337.39
2025	76.48	2,190	146.89	4,207	223.36	6,397.07
2026	73.48	2,104	151.89	4,350	225.37	6,454.41
2027	70.60	2,022	156.69	4,488	227.29	6,509.50
2028	67.83	1,943	161.31	4,620	229.14	6,562.44
2029	65.17	1,866	165.74	4,747	230.91	6,613.29
2030	62.61	1,793	170.01	4,869	232.62	6,662.15
2031	60.16	1,723	174.10	4,986	234.26	6,709.10
2032	57.80	1,655	178.03	5,099	235.83	6,754.21
2033	55.53	1,590	181.81	5,207	237.35	6,797.54
2034	53.35	1,528	185.45	5,311	238.80	6,839.18
2035	51.26	1,468	188.93	5,411	240.20	6,879.19
2036	49.25	1,411	192.29	5,507	241.54	6,917.62
2037	47.32	1,355	195.51	5,599	242.83	6,954.55
2038	45.47	1,302	198.60	5,688	244.07	6,990.03
2039	43.68	1,251	201.57	5,773	245.26	7,024.12
2040	41.97	1,202.03	204.43	5,855	246.40	7,056.88
2041	40.32	1,154.89	207.18	5,933	247.50	7,088.35
2042	38.74	1,109.61	209.81	6,009	248.56	7,118.58
2043	37.22	1,066.10	212.35	6,082	249.57	7,147.63
2044	35.76	1,024.30	214.78	6,151	250.54	7,175.54
2045	34.36	984.14	217.12	6,218	251.48	7,202.36
2046	33.02	945.55	219.37	6,283	252.38	7,228.12
2047	31.72	908.47	221.52	6,344	253.24	7,252.88
2048	30.48	872.85	223.60	6,404	254.08	7,276.66
2049	29.28	838.63	225.59	6,461	254.87	7,299.51
2050	28.13	805.74	227.51	6,516	255.64	7,321.47
2051	27.03	774.15	229.35	6,568	256.38	7,342.56
2052	25.97	743.79	231.11	6,619	257.08	7,362.83
2053	**24.95**	**714.63**	**232.81**	**6,668**	**257.76**	**7,382.30**
2054	23.97	686.61	225.33	6,454	249.31	7,140.14
2055	23.03	659.69	216.50	6,200	239.53	6,860.17
2056	22.13	633.82	208.01	5,957	230.14	6,591.18
2057	21.26	608.97	199.85	5,724	221.12	6,332.74
2058	20.43	585.09	192.02	5,499	212.45	6,084.43
2059	19.63	562.15	184.49	5,284	204.12	5,845.85
2060	18.86	540.11	177.25	5,077	196.11	5,616.63
2061	18.12	518.93	170.30	4,877	188.42	5,396.40
2062	17.41	498.58	163.63	4,686	181.04	5,184.81
2063	16.73	479.03	157.21	4,502	173.94	4,981.51
2064	16.07	460.25	151.05	4,326	167.12	4,786.18

(Continued on Next Page)

Appendix A to the Technical Support Document (TSD)
National Serv-All - LandGEM Output Summary
(Continued from Previous Page)

	NSA - Landfill Section A		NSA - Landfill Section B		Total NSA Landfill Emissions	
Year	NMOC (TPY)	LFG (Avg. SCFM)	NMOC (TPY)	LFG (Avg. SCFM)	NMOC (TPY)	LFG (Avg. SCFM)
2065	15.440	442.20	145.12	4,156	160.56	4,598.51
2066	14.835	424.86	139.43	3,993	154.27	4,418.20
2067	14.253	408.20	133.97	3,837	148.22	4,244.96
2068	13.694	392.20	128.71	3,686	142.41	4,078.51
2069	13.157	376.82	123.67	3,542	136.82	3,918.59
2070	12.641	362.04	118.82	3,403	131.46	3,764.94
2071	12.146	347.85	114.16	3,269	126.30	3,617.32
2072	11.669	334.21	109.68	3,141	121.35	3,475.48
2073	11.212	321.10	105.38	3,018	116.59	3,339.20
2074	10.772	308.51	101.25	2,900	112.02	3,208.27
2075	10.350	296.42	97.28	2,786	107.63	3,082.47
2076	9.944	284.79	93.46	2,677	103.41	2,961.61
2077	9.554	273.63	89.80	2,572	99.35	2,845.48
2078	9.179	262.90	86.28	2,471	95.46	2,733.91
2079	8.820	252.59	82.90	2,374	91.72	2,626.71
2080	8.474	242.68	79.65	2,281	88.12	2,523.72
2081	8.141	233.17	76.52	2,192	84.66	2,424.76
2082	7.822	224.03	73.52	2,106	81.34	2,329.68
2083	7.515	215.24	70.64	2,023	78.15	2,238.34
2084	7.221	206.80	67.87	1,944	75.09	2,150.57
2085	6.938	198.69	65.21	1,868	72.15	2,066.24
2086	6.666	190.90	62.65	1,794	69.32	1,985.23
2087	6.404	183.42	60.19	1,724	66.60	1,907.38
2088	6.153	176.23	57.83	1,656	63.99	1,832.59
2089	5.912	169.32	55.57	1,591	61.48	1,760.74
2090	5.680	162.68	53.39	1,529	59.07	1,691.70
2091	5.457	156.30	51.29	1,469	56.75	1,625.36
2092	5.243	150.17	49.28	1,411	54.53	1,561.63
2093	5.038	144.28	47.35	1,356.12	52.39	1,500.40
2094	4.840	138.62	45.49	1,302.95	50.33	1,441.57
2095	4.650	133.19	43.71	1,251.86	48.36	1,385.04
2096	4.468	127.97	42.00	1,202.77	46.46	1,330.74
2097	4.293	122.95	40.35	1,155.61	44.64	1,278.56
2098	4.125	118.13	38.77	1,110.30	42.89	1,228.42
2099	3.963	113.50	37.25	1,066.76	41.21	1,180.26
2100	3.807	109.05	35.79	1,024.93	39.59	1,133.98
2101	3.658	104.77	34.38	984.75	38.04	1,089.51
2102	3.515	100.66	33.04	946.13	36.55	1,046.79
2103	3.377	96.71	31.74	909.03	35.12	1,005.75
2104	3.245	92.92	30.50	873.39	33.74	966.31
2105	3.117	89.28	29.30	839.14	32.42	928.42
2106	2.995	85.78	28.15	806.24	31.15	892.02
2107			27.05	774.63	27.05	774.63
2108			25.99	744.25	25.99	744.25
2109			24.97	715.07	24.97	715.07
2110			23.99	687.03	23.99	687.03
2111			23.05	660.09	23.05	660.09
2112			22.14	634.21	22.14	634.21
2113			21.28	609.34	21.28	609.34
2114			20.44	585.45	20.44	585.45
2115			19.64	562.50	19.64	562.50
2116			18.87	540.44	18.87	540.44
2117			18.13	519.25	18.13	519.25

(Continued on Next Page)

Appendix A to the Technical Support Document (TSD)
National Serv-All - LandGEM Output Summary
(Continued from Previous Page)

	NSA - Landfill Section A		NSA - Landfill Section B		Total NSA Landfill Emissions	
Year	NMOC (TPY)	LFG (Avg. SCFM)	NMOC (TPY)	LFG (Avg. SCFM)	NMOC (TPY)	LFG (Avg. SCFM)
2118			17.419	498.89	17.42	498.89
2119			16.736	479.33	16.74	479.33
2120			16.080	460.53	16.08	460.53
2121			15.450	442.47	15.45	442.47
2122			14.844	425.12	14.84	425.12
2123			14.262	408.46	14.26	408.46
2124			13.703	392.44	13.70	392.44
2125			13.165	377.05	13.17	377.05
2126			12.649	362.27	12.65	362.27
2127			12.153	348.06	12.15	348.06
2128			11.677	334.42	11.68	334.42
2129			11.219	321.30	11.22	321.30
2130			10.779	308.70	10.78	308.70
2131			10.356	296.60	10.36	296.60
2132			9.950	284.97	9.95	284.97
2133			9.560	273.80	9.56	273.80
2134			9.185	263.06	9.19	263.06
2135			8.825	252.75	8.82	252.75
2136			8.479	242.84	8.48	242.84
2137			8.146	233.31	8.15	233.31
2138			7.827	224.17	7.83	224.17
2139			7.520	215.38	7.52	215.38
2140			7.225	206.93	7.23	206.93
2141			6.942	198.82	6.94	198.82
2142			6.670	191.02	6.67	191.02
2143			6.408	183.53	6.41	183.53
2144			6.157	176.33	6.16	176.33
2145			5.916	169.42	5.92	169.42
2146			5.684	162.78	5.68	162.78
2147			5.461	156.39	5.46	156.39

Appendix A to the Technical Support Document (TSD)
National Serv-All Landfill VOC Emissions

Company Name: National Serv-All Landfill (Primary Source)
Address: 6231 MacBeth Road, Ft. Wayne, IN 46809
National Serv-All Landfill SSM Number: 003-34309-00257
National Serv-All Landfill SPM Number: 003-34554-00257
United Refuse Landfill SPM Number: 003-34308-00291
Reviewer: David Matousek
Date: May 22, 21014

National Serv-All Landfill - Potential to Emit VOC

NMOC Emissions:

IDEM, OAQ completed a computer simulation of the potential emissions from the landfill using U.S. EPA LandGEM. The model indicated peak NMOC emissions from the landfill are as follows:

Peak NMOC	**257.76 TPY**
Peak Emission Year	**2053**

VOC Emissions:

VOC emissions can be estimated from the NMOC emission rate using information provided in AP-42, Chapter 2.4, November 1998. IDEM, OAQ estimates VOC emissions as shown below:

NMOC in Landfill Gas	595	ppmv	(AP-42, Ch. 2.4, Table 2.4-2, November 1998)
NMOC Emission Rate in 2053	257.76	TPY	
% VOC	39%		(AP-42, Ch. 2.4, Table 2.4-2, Note c, November 1998)
PTE VOC	**100.53**	**TPY**	

Limited Potential to Emit VOC

VOC Emissions:

AP-42, Chapter 2.4, Paragraph 2.4.4.2 - Controlled Emissions, indicates approximately 75% of the VOC generated in the landfill is captured and 25% is fugitive.

Landfill Collection Efficiency	75%	
Landfill PTE from LandGEM	100.53	TPY

Fugitive VOC emissions = Landfill PTE x (1 - collection efficiency) =	25.13	TPY
VOC Emissions to Control Devices = Landfill VOC PTE - Fugitive Emissions =	75.39	TPY
Control Device Destruction Efficiency (NSPS Requirement) =	98%	
Controlled VOC Emissions = VOC to Control Device x (1 - Destruction Efficiency)	1.51	TPY

Appendix A to the Technical Support Document (TSD)
National Serv-All Landfill CO and HAP

Company Name: National Serv-All Landfill (Primary Source)
Address: 6231 MacBeth Road, Ft. Wayne, IN 46809
National Serv-All Landfill SSM Number: 003-34309-00257
National Serv-All Landfill SPM Number: 003-34554-00257
United Refuse Landfill SPM Number: 003-34308-00291
Reviewer: David Matousek
Date: May 22, 2014

LFG Temperature	**536.67**	**°R**
LFG Pressure	**1.00**	**atm**
Maximum LandGEM LFG	**7,382**	**SCFM**
Collection Efficiency	**75%**	
Maximum Captured and Controlled LFG	**5,536.73**	**SCFM**

PTE of Carbon Monoxide

Pollutant	Molecular Weight	Concentration (ppmv)	Pollutant Flow (SCFM)	Landfill Emission (TPY)	Control Efficiency	Controlled PTE (TPY)
CO	28.01	141	0.7807	14.67	98%	0.29

PTE of Hazardous Air Pollutants (HAPs) - LandGEM and AP-42, Chapter 2.4, November 1998

Pollutant	Molecular Weight	Concentration (ppmv)	Pollutant Flow (SCFM)	Landfill Emission (TPY)	Control Efficiency	Controlled PTE (TPY)
1,1,1-Trichloroethane	133.41	0.48	0.00266	0.23784	98%	4.76E-03
1,2,2,2-Tetrachloroethane	167.85	1.1	0.00609	0.68574	98%	1.37E-02
1,1-Dichloroethane	98.97	2.4	0.01329	0.88219	98%	1.76E-02
1,1-Dichloroethene	96.94	0.2	0.00111	0.07201	98%	1.44E-03
1,2-Dichloroethane	98.96	0.41	0.00227	0.15069	98%	3.01E-03
1,2-Dichloropropane	112.99	0.18	0.00100	0.07554	98%	1.51E-03
Acrylonitrile	53.06	6.3	0.03488	1.24153	98%	0.02
Benzene (1.9 or 11)	78.11	1.9	0.01052	0.55120	98%	1.10E-02
Carbon Disulfide	76.13	0.58	0.00321	0.16400	98%	3.28E-03
Carbon Tetrachloride	153.84	0.004	0.00002	0.00229	98%	4.57E-05
Carbonyl Sulfide	60.07	0.49	0.00271	0.10932	98%	2.19E-03
Chlorobenzene	112.56	0.25	0.00138	0.10451	98%	2.09E-03
Chloroethane	64.52	1.3	0.00720	0.31152	98%	6.23E-03
Chloroform	119.39	0.03	0.00017	0.01330	98%	2.66E-04
Dichlorobenzene	147	0.21	0.00116	0.11465	98%	2.29E-03
Dichloromethane	84.94	14	0.07751	4.41660	98%	0.09
Ethylbenzene	106.16	4.6	0.02547	1.81371	98%	0.04
Ethylene Dibromide	187.88	0.001	0.00001	0.00070	98%	1.40E-05
Hexane	86.18	6.6	0.03654	2.11251	98%	0.04
Mercury	200.61	2.90E-04	0.00000	0.00022	0%	2.16E-04
Methyl Ethyl Ketone	72.11	7.1	0.03931	1.90152	98%	0.04
Methyl Isobutyl Ketone	100.16	1.9	0.01052	0.70680	98%	1.41E-02
Perchloroethylene	165.83	3.7	0.02049	2.27884	98%	0.05
Toluene (39 or 170)	**92.13**	**39**	**0.21593**	**13.34485**	**98%**	**0.27**
Trichloroethylene	131.4	2.8	0.01550	1.36647	98%	0.03
Vinyl Chloride	62.5	7.3	0.04042	1.69454	98%	0.03
Xylene	106.17	12	0.06644	4.73185	98%	0.09
				13.34	**Highest**	**0.27**
				39.08	**Total**	**0.78**

Methodology:
1) Average Pollutant Flow (SCFM) = Maximum Captured Landfill Gas (SCFM) x Concentration (ppmv) / 1,000,000
2) PTE (TPY) = 360 x Average Pollutant Flow (SCFM) x M.W. (lb/lb-mole) x P (atm) / T (°R)
3) Controlled PTE (TPY) = PTE (TPY) x (1-control efficiency)

Appendix A to the Technical Support Document (TSD)
Emission Calculations - Existing Flare EU-2 at PTE (1,200 SCFM)

Company Name: National Serv-All Landfill (Primary Source)
Address: 6231 MacBeth Road, Ft. Wayne, IN 46809
National Serv-All Landfill SSM Number: 003-34309-00257
National Serv-All Landfill SPM Number: 003-34554-00257
United Refuse Landfill SPM Number: 003-34308-00291
Reviewer: David Matousek
Date: May 15, 2014

Design Data and Physical Properties

Landfill Gas Flow at PTE	1,200.00	SCFM	Molecular Weight of (S)	32.07	lb/mole
Maximum Annual LFG Usage	630.72	MMCF/yr	Molecular Weight of (SO_2)	64.06	lb/mole
Calculated Flare Heat Input Capacity	39.600	MMBtu/hr	Molecular Weight of (HCL)	36.458	lb/mole
Landfill Gas Average Heating Value	550.00	MMBtu/MMCF	Molecular Weight of (CH_4)	16.04	lb/mole
Inlet Gas Temperature (STP)	536.67	°R	Molecular Weight of (CO_2)	44.01	lb/mole
Inlet Gas Pressure (STP)	1.00	atm			
Volume % Water in Landfill Gas	8%	(Default is 8%)			
Volume % Methane	50.00%	(Default is 50%)			

Emission Calculation - Uncontrolled Potential to Emit

Landfill Gas and Methane Flow Rates at PTE, Dry Basis

Landfill Gas Flow (SCFM, Dry) = Gas Flow at PTE (SCFM, wet) x (1 - Volume % Water)

= 1,200.00 x (1 - 8%) = 1,104.00 SCFM LFG, Dry Basis

Methane Flow Rate (SCFM CH_4, Dry) = Landfill Gas Flow Rate (SCFM, Dry) x % Methane

= 1,104.00 x 50% = 552.00 SCFM CH_4, Dry Basis

Uncontrolled PTE - All Pollutants

Pollutant	ppmv in LFG	Pollutant Flow (SCFM)	Maximum Throughput		Emission Factor		PTE (TPY)	Notes / Comments / References
PM			552.00	SCFM	17.00	lb/MMCF, CH_4, dry	2.47	AP-42, Ch. 2.4, Table 2.4-5, 11/1998
PM_{10}			552.00	SCFM	17.00	lb/MMCF, CH_4, dry	2.47	Assume the same as PM
Direct $PM_{2.5}$			552.00	SCFM	17.00	lb/MMCF, CH_4, dry	2.47	Assume the same as PM
S	46.9	0.0563					1.21	ppmv, AP-42, Ch. 2.4, page 2.4-8, 11/1998
SO_2							2.42	PTE (SO_2) = PTE (S) x M.W. (SO_2) / M.W. (S)
VOC			39.6	MMBtu/hr	0.140	lb/MMBtu	24.28	AP-42, Ch. 13.5, Table 13.5-1, 09/1991
CO			39.6	MMBtu/hr	0.370	lb/MMBtu	64.18	Performance Specification
NO_x			39.6	MMBtu/hr	0.068	lb/MMBtu	11.79	Performance Specification
HCL	42	0.0504					1.23	ppmv, AP-42, Ch. 2.4, page 2.4-9, 11/1998
CO_2							negligible	For GHGs, the uncontrolled PTE is based on the worst case scenario where landfill gas is not controlled. The flare will have negligible GHG emissions due to combustion in the flare pilot.
CH_4							negligible	
N_2O							negligible	
CO_2e							negligible	

Appendix A to the Technical Support Document (TSD)
Emission Calculations - Existing Flare EU-2 at PTE (1,200 SCFM)
(Continued from Previous Page)

Greenhouse Gas (GHG) Emission Calculation - Controlled Potential to Emit

Landfill Gas and Methane Flow Rates, Dry Basis, Controlled

Landfill Gas Flow (MMCF/yr, Dry) = Landfill Gas Usage (MMCF/yr, wet) x (1 - Volume % Water)

= 630.72 x (1 - 8%) = 580.26 MMCF/yr LFG, Dry Basis

Methane Flow Rate (MMCF/yr CH_4, Dry) = Landfill Gas Flow Rate (MMCF, Dry) x % Methane

= 580.26 x 50% = 290.13 MMCF/yr CH_4, Dry Basis

Methane and Carbon Dioxide Emissions

Methane Combusted in Flare 5,820.56 TPY

Methane Combusted in Flare 540.96 SCFM

Methane Sent to Flare
290.13 MMCF/yr
552.00 Avg. SCFM
5,939.35 TPY

98% of Methane is Combusted to CO_2 → CO_2 Created By Combustion 16,006.54 TPY

2% of Methane is Uncombusted - Emissions Assigned to Landfill → 118.79 TPY

N_2O Emissions

Methane Combusted in Flare =	540.96	SCFM
Methane Heating Value =	1,020	MMBtu/MMCF
Methane Heat Input =	290,015	MMBtu/yr
N_2O Emission Factor =	6.30E-04	kg/MMBtu
N_2O Emissions =	0.29	TPY

Controlled and/or Limited GHG Emissions Summary		
CO_2	16,007	TPY
N_2O	0.29	TPY
GHG Emissions	16,093	TPY CO_2e

Methodology:
1) Emission (TPY) = Throughput (SCFM) x Emission Factor (lb/MMCF) x 1 MMCF/1E06 CF x 1 ton/2,000lb x 60 min/hr x 8,760 hr/yr
2) Emission (TPY) = Throughput (MMBtu/hr) x Emission Factor (lb/MMBtu) x Operating Hours (hr/yr) x 1 ton/2,000 lb
3) Emission (TPY) = Throughput (MMBtu/hr) x Emission Factor (kg/MMBtu) x 2.2046 lb/kg x Operating Hours (hr/yr) x 1 ton/2,000 lb
4) Emission (TPY) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF) x 1 ton/2,000 lb
5) Emission (TPY) = 360 x Pollutant Flow (SCFM) x M.W. (lb/lb-mole) x 1 atm / T (°R), AP-42, Chapter 2.4, Eq. 4 in US Units
6) N_2O Emissions (TPY CO_2e) = Emission N_2O x Global Warming Potential (25)
7) Landfill gas heat input was approved by IDEM, OAQ under T003-31121-00291.

Appendix A to the Technical Support Document (TSD)
Emission Calculations - Existing NSA Landfill Flare (EU-3)

Company Name: National Serv-All Landfill (Primary Source)
Address: 6231 MacBeth Road, Ft. Wayne, IN 46809
National Serv-All Landfill SSM Number: 003-34309-00257
National Serv-All Landfill SPM Number: 003-34554-00257
United Refuse Landfill SPM Number: 003-34308-00291
Reviewer: David Matousek
Date: May 22, 2014

Design Data and Physical Properties

Maximum Landfill Gas Flow at PTE	5,000.00	SCFM	Molecular Weight of (S)	32.07	lb/mole
Limited Annual LFG Usage	2,628.00	MMCF/yr	Molecular Weight of (SO_2)	64.06	lb/mole
Calculated Flare Heat Input Capacity	152.10	MMBtu/hr	Molecular Weight of (HCL)	36.458	lb/mole
Landfill Gas Average Heating Value	507.00	MMBtu/MMCF	Molecular Weight of (CH_4)	16.04	lb/mole
Inlet Gas Temperature (STP)	536.67	°R	Molecular Weight of (CO_2)	44.01	lb/mole
Inlet Gas Pressure (STP)	1.00	atm			
Volume % Water in Landfill Gas	8%	(Default is 8%)			
Volume % Methane	50.00%	(Default is 50%)			

Emission Calculation - Uncontrolled Potential to Emit

Landfill Gas and Methane Flow Rates at PTE, Dry Basis

Landfill Gas Flow (SCFM, Dry) = Gas Flow at PTE (SCFM, wet) x (1 - Volume % Water)

= 5,000.00 x (1 - 8%) = 4,600.00 SCFM LFG, Dry Basis

Methane Flow Rate (SCFM CH_4, Dry) = Landfill Gas Flow Rate (SCFM, Dry) x % Methane

= 4,600.00 x 50% = 2,300.00 SCFM CH_4, Dry Basis

Uncontrolled PTE - All Pollutants

Pollutant	ppmv in LFG	Pollutant Flow (SCFM)	Maximum Throughput		Emission Factor		PTE (TPY)	Notes / Comments / References
PM			2,300.00	SCFM	17.00	lb/MMCF, CH_4, dry	10.28	AP-42, Ch. 2.4, Table 2.4-5, 11/1998
PM_{10}			2,300.00	SCFM	17.00	lb/MMCF, CH_4, dry	10.28	Assume the same as PM
Direct $PM_{2.5}$			2,300.00	SCFM	17.00	lb/MMCF, CH_4, dry	10.28	Assume the same as PM
S	46.9	0.2345					5.04	ppmv, AP-42, Ch. 2.4, page 2.4-8, 11/1998
SO_2							10.08	PTE (SO_2) = PTE (S) x M.W. (SO_2) / M.W. (S)
VOC			152.1	MMBtu/hr	0.140	lb/MMBtu	93.27	AP-42, Ch. 13.5, Table 13.5-1, 09/1991
CO			152.1	MMBtu/hr	0.370	lb/MMBtu	246.49	Performance Specification
NO_x			152.1	MMBtu/hr	0.068	lb/MMBtu	45.30	Performance Specification
HCL	42	0.21					5.14	ppmv, AP-42, Ch. 2.4, page 2.4-9, 11/1998
CO_2							negligible	For GHGs, the uncontrolled PTE is based on the worst case scenario where landfill gas is not controlled. The flare will have negligible GHG emissions due to combustion in the flare pilot.
CH_4							negligible	
N_2O							negligible	
CO_2e							negligible	

(Continued on Next Page)

Appendix A to the Technical Support Document (TSD)
Emission Calculations - Existing NSA Landfill Flare (EU-3)
(Continued from Previous Page)

Emission Calculation - Controlled Potential to Emit

Landfill Gas and Methane Flow Rates at Limited Gas Usage, Dry Basis

Limited Landfill Gas Flow (MMCF/yr, Dry) = Limited Landfill Gas Usage (MMCF/yr, wet) x (1 - Volume % Water)

= 2,628.00 x (1 - 8%) = 2,417.76 MMCF/yr LFG, Dry Basis

Limited Methane Flow Rate (MMCF/yr CH_4, Dry) = Landfill Gas Flow Rate (MMCF/yr, Dry) x % Methane

= 2,417.76 x 50% = 1,208.88 MMCF/yr CH_4, Dry Basis

Limited and/or Controlled PTE - Non-Greenhouse Gas Emissions

Pollutant	ppmv in LFG	Avg. Pollutant Flow (SCFM)	Throughput at Limited Usage		Emission Factor		PTE (TPY)	Notes / Comments / References
PM			1,208.88	MMCF/yr	17.00	lb/MMCF, CH_4, dry	10.28	AP-42, Ch. 2.4, Table 2.4-5, 11/1998
PM_{10}			1,208.88	MMCF/yr	17.00	lb/MMCF, CH_4, dry	10.28	Assume the same as PM
Direct $PM_{2.5}$			1,208.88	MMCF/yr	17.00	lb/MMCF, CH_4, dry	10.28	Assume the same as PM
S	46.9	0.2345					5.04	ppmv, AP-42, Ch. 2.4, page 2.4-8, 11/1998
SO_2							10.08	PTE (SO_2) = PTE (S) x M.W. (SO_2) / M.W. (S)
VOC			2,628.00	MMCF/yr	0.140	lb/MMBtu	93.27	AP-42, Ch. 13.5, Table 13.5-1, 09/1991
CO			2,628.00	MMCF/yr	0.370	lb/MMBtu	246.49	Performance Specification
NO_x			2,628.00	MMCF/yr	0.068	lb/MMBtu	45.30	Performance Specification
HCL	42	0.2100					5.14	ppmv, AP-42, Ch. 2.4, page 2.4-9, 11/1998

Greenhouse Gas Emissions Controlled and/or Limited Case

Methane and Carbon Dioxide Emissions

Methane Sent to Flare
1208.88 MMCF/yr
2,300.00 Avg. SCFM
24,747.27 TPY

98% of Methane is Combusted to CO_2

Methane Combusted in Flare 24,252.33 TPY
Methane Combusted in Flare 2,254.00 SCFM
CO_2 Created By Combustion 66,693.91 TPY

2% of Methane is Uncombusted - Emissions Assigned to Landfill 494.95 TPY

N_2O Emissions

Methane Combusted in Flare =	2,254.00	SCFM
Methane Heating Value =	1,013	MMBtu/MMCF
Methane Heat Input =	1.20E+06	MMBtu/yr
N_2O Emission Factor =	6.30E-04	kg/MMBtu
N_2O Emissions =	0.29	TPY

Controlled and/or Limited GHG Emissions Summary		
CO_2	66,694	TPY
N_2O	0.29	TPY
GHG Emissions	66,780	TPY CO_2e

Methodology:
1) Emission (TPY) = Throughput (SCFM) x Emission Factor (lb/MMCF) x 1 MMCF/1E06 CF x 1 ton/2,000lb x 60 min/hr x 8,760 hr/yr
2) Emission (TPY) = Throughput (MMBtu/hr) x Emission Factor (lb/MMBtu) x Operating Hours (hr/yr) x 1 ton/2,000 lb
3) Emission (TPY) = Throughput (MMBtu/hr) x Emission Factor (kg/MMBtu) x 2.2046 lb/kg x Operating Hours (hr/yr) x 1 ton/2,000 lb
4) Emission (TPY) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF) x 1 ton/2,000 lb
5) Emission (TPY) = 360 x Pollutant Flow (SCFM) x M.W. (lb/lb-mole) x 1 atm / T (°R), AP-42, Chapter 2.4, Eq. 4 in US Units

Appendix A to the Technical Support Document (TSD)
National Serv-All Landfill - Greenhouse Gas (GHG) Emissions

Company Name: National Serv-All Landfill (Primary Source)
Address: 6231 MacBeth Road, Ft. Wayne, IN 46809
National Serv-All Landfill SSM Number: 003-34309-00257
National Serv-All Landfill SPM Number: 003-34554-00257
United Refuse Landfill SPM Number: 003-34308-00291
Reviewer: David Matousek
Date: May 22, 2014

Landfill GHG Emissions

Landfill Gas Temperature	536.67	°R
Landfill Gas Pressure	1.00	atm
Landfill LFG Collection Efficiency	75%	
Molecular Weight of Methane	16.04	lb/lb-mole
Molecular Weight of Carbon Dioxide	44.01	lb/lb-mole

National Serv-All Landfill - Section A

Pollutant	LandGEM Pollutant Flow (SCFM)	Collected GHG Emissions (SCFM)	Collected GHG Emissions (TPY)	Collected GHG Emissions (TPY as CO_2e)	Control Efficiency	Controlled GHG Emissions (TPY as CO_2e)
CO_2	357.30	267.98	7,911	7,911	0%	7,911
CH_4	357.30	267.98	2,883	72,083	98%	58
N_2O	0	0	0	0	0%	0
Section A Total				**79,994**		**7,969**

National Serv-All Landfill - Section B

Pollutant	LandGEM Pollutant Flow (SCFM)	Collected GHG Emissions (SCFM)	Collected GHG Emissions (TPY)	Collected GHG Emissions (TPY as CO_2e)	Control Efficiency	Controlled GHG Emissions (TPY as CO_2e)
CO_2	3,334.00	2,500.50	73,820	73,820	0%	73,820
CH_4	3,334.00	2,500.50	26,905	672,615	98%	538
N_2O	0	0	0	0	0%	0
Section A Total				**746,435**		**74,358**

Landfill GHG Emission Summary

Landfill Section	PTE (TPY as CO_2e)	Controlled PTE (TPY as CO_2e)
A	79,994	7,969
B	746,435	74,358
Total	**826,429**	**82,327**

Methodology:

1) Collected LFG Emissions (SCFM) = Landfill Gas Generated (SCFM) x Collection Efficiency
2) Emissions (TPY) = 360 x Pollutant Flow (SCFM) x Molecular Weight (lb/lb-mole) x Pressure (atm) / Temperature (°R)
3) GHG (TPY as CO_2e) = CO_2 Emissions (TPY) + CH_4 Emissions (TPY) x 25 + N_2O Emissions (TPY) x 298

Appendix A to the Technical Support Document (TSD)
United Refuse Landfill VOC Emissions

Company Name: United Refuse Landfill
Address: 5000 Smith Road, Ft. Wayne, IN 46804
National Serv-All Landfill SSM Number: 003-34309-00257
National Serv-All Landfill SPM Number: 003-34554-00257
United Refuse Landfill SPM Number: 003-34308-00291
Reviewer: David Matousek
Date: May 22, 2014

United Refuse Landfill - Potential to Emit VOC

NMOC Emissions:

IDEM, OAQ completed a computer simulation of the potential emissions from the landfill using U.S. EPA LandGEM. The model indicated peak NMOC emissions from the landfill are as follows:

Peak NMOC	**7.01 TPY**
Peak Emission Year	**2014** (Landfill is closed)

VOC Emissions:

VOC emissions can be estimated from the NMOC emission rate using information provided in AP-42, Chapter 2.4, November 1998. IDEM, OAQ estimates VOC emissions as shown below:

NMOC in Landfill Gas	166	ppmv	(Applicant Supplied)
NMOC Emission Rate in 2053	7.013	TPY	
% VOC	39%		(AP-42, Ch. 2.4, Table 2.4-2, Note c, November 1998)
PTE VOC	**2.74**	**TPY**	

United Refuse Landfill - Limited Potential to Emit VOC

VOC Emissions:

AP-42, Chapter 2.4, Paragraph 2.4.4.2 - Controlled Emissions, indicates approximately 75% of the VOC generated in the landfill is captured and 25% is fugitive.

Landfill Collection Efficiency	75%	
Landfill PTE from LandGEM	2.74	TPY

Fugitive VOC emissions = Landfill PTE x (1 - collection efficiency) =	0.68	TPY
VOC Emissions to Control Devices = Landfill VOC PTE - Fugitive Emissions =	2.05	TPY
Control Device Destruction Efficiency (NSPS Requirement) =	98%	
Controlled VOC Emissions = VOC to Control Device x (1 - Destruction Efficiency)	0.04	TPY

Appendix A to the Technical Support Document (TSD)
United Refuse Landfill CO and HAP

Company Name: United Refuse Landfill
Address: 5000 Smith Road, Ft. Wayne, IN 46804
National Serv-All Landfill SSM Number: 003-34309-00257
National Serv-All Landfill SPM Number: 003-34554-00257
United Refuse Landfill SPM Number: 003-34308-00291
Reviewer: David Matousek
Date: May 22, 2014

LFG Temperature	**536.67**	**°R**
LFG Pressure	**1.00**	**atm**
Maximum LandGEM LFG	**720**	**SCFM**
Collection Efficiency	**75%**	
Maximum Captured and Controlled LFG	**540**	**SCFM**

PTE of Carbon Monoxide						
Pollutant	**Molecular Weight**	**Concentration (ppmv)**	**Pollutant Flow (SCFM)**	**Landfill Emission (TPY)**	**Control Efficiency**	**Controlled PTE (TPY)**
CO	28.01	141	0.0761	1.43	98%	0.03

PTE of Hazardous Air Pollutants (HAPs) - LandGEM and AP-42, Chapter 2.4, November 1998						
Pollutant	**Molecular Weight**	**Concentration (ppmv)**	**Pollutant Flow (SCFM)**	**Landfill Emission (TPY)**	**Control Efficiency**	**Controlled PTE (TPY)**
1,1,1-Trichloroethane	133.41	0.48	0.00026	0.02320	98%	4.64E-04
1,2,2,2-Tetrachloroethane	167.85	1.1	0.00059	0.06688	98%	1.34E-03
1,1-Dichloroethane	98.97	2.4	0.00130	0.08604	98%	1.72E-03
1,1-Dichloroethene	96.94	0.2	0.00011	0.00702	98%	1.40E-04
1,2-Dichloroethane	98.96	0.41	0.00022	0.01470	98%	2.94E-04
1,2-Dichloropropane	112.99	0.18	0.00010	0.00737	98%	1.47E-04
Acrylonitrile	53.06	6.3	0.00340	0.12109	98%	0.00
Benzene (1.9 or 11)	78.11	1.9	0.00103	0.05376	98%	1.08E-03
Carbon Disulfide	76.13	0.58	0.00031	0.01599	98%	3.20E-04
Carbon Tetrachloride	153.84	0.004	0.00000	0.00022	98%	4.46E-06
Carbonyl Sulfide	60.07	0.49	0.00026	0.01066	98%	2.13E-04
Chlorobenzene	112.56	0.25	0.00014	0.01019	98%	2.04E-04
Chloroethane	64.52	1.3	0.00070	0.03038	98%	6.08E-04
Chloroform	119.39	0.03	0.00002	0.00130	98%	2.59E-05
Dichlorobenzene	147	0.21	0.00011	0.01118	98%	2.24E-04
Dichloromethane	84.94	14	0.00756	0.43075	98%	0.01
Ethylbenzene	106.16	4.6	0.00248	0.17689	98%	0.00
Ethylene Dibromide	187.88	0.001	0.00000	0.00007	98%	1.36E-06
Hexane	86.18	6.6	0.00356	0.20603	98%	0.00
Mercury	200.61	2.90E-04	0.00000	0.00002	0%	2.11E-05
Methyl Ethyl Ketone	72.11	7.1	0.00383	0.18546	98%	0.00
Methyl Isobutyl Ketone	100.16	1.9	0.00103	0.06893	98%	1.38E-03
Perchloroethylene	165.83	3.7	0.00200	0.22226	98%	0.00
Toluene (39 or 170)	**92.13**	**39**	**0.02106**	**1.30153**	**98%**	**0.03**
Trichloroethylene	131.4	2.8	0.00151	0.13327	98%	0.00
Vinyl Chloride	62.5	7.3	0.00394	0.16527	98%	0.00
Xylene	106.17	12	0.00648	0.46150	98%	0.01
				1.30	**Highest**	**0.03**
				3.81	**Total**	**0.08**

Methodology:
1) Average Pollutant Flow (SCFM) = Maximum Captured Landfill Gas (SCFM) x Concentration (ppmv) / 1,000,000
2) PTE (TPY) = 360 x Average Pollutant Flow (SCFM) x M.W. (lb/lb-mole) x P (atm) / T (°R)
3) Controlled PTE (TPY) = PTE (TPY) x (1-control efficiency)

Appendix A to the Technical Support Document (TSD)
United Refuse Landfill - Greenhouse Gas (GHG) Emissions

Company Name: United Refuse Landfill
Address: 5000 Smith Road, Ft. Wayne, IN 46804
National Serv-All Landfill SSM Number: 003-34309-00257
National Serv-All Landfill SPM Number: 003-34554-00257
United Refuse Landfill SPM Number: 003-34308-00291
Reviewer: David Matousek
Date: May 22, 2014

United Refuse Landfill GHG Emissions

Landfill Gas Temperature	536.67	°R
Landfill Gas Pressure	1.00	atm
Landfill LFG Collection Efficiency	75%	
Molecular Weight of Methane	16.04	lb/lb-mole
Molecular Weight of Carbon Dioxide	44.01	lb/lb-mole

United Refuse Landfill

Pollutant	LandGEM Pollutant Flow (SCFM)	Collected GHG Emissions (SCFM)	Collected GHG Emissions (TPY)	Collected GHG Emissions (TPY as CO_2e)	Control Efficiency	Controlled GHG Emissions (TPY as CO_2e)
CO_2	360	270	7,971	7,971	0%	7,971
CH_4	360	270	2,905	72,628	98%	58
N_2O	0	0	0	0	0%	0
Landfill Total				**80,599**		**8,029**

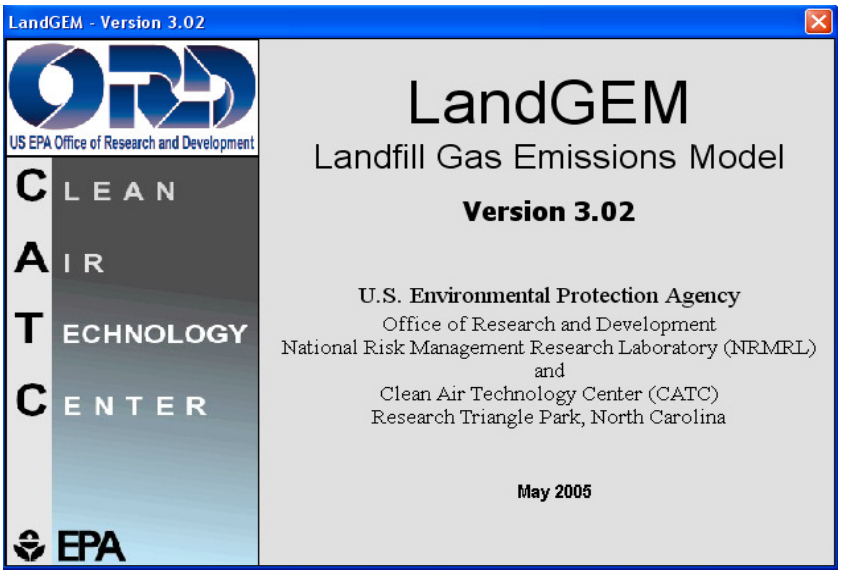
Methodology:
1) Collected LFG Emissions (SCFM) = Landfill Gas Generated (SCFM) x Collection Efficiency
2) Emissions (TPY) = 360 x Pollutant Flow (SCFM) x Molecular Weight (lb/lb-mole) x Pressure (atm) / Temperature (°R)
3) GHG (TPY as CO_2e) = CO_2 Emissions (TPY) + CH_4 Emissions (TPY) x 25 + N_2O Emissions (TPY) x 298

INVENTORY

Landfill Name or Identifier: National Serv-All Landfill - Section A

Enter year of emissions inventory: 2053

Gas / Pollutant	Emission Rate				
	(Mg/year)	*(m^3/year)*	*(av ft^3/min)*	*(ft^3/year)*	*(short tons/year)*
Total landfill gas	1.328E+04	1.064E+07	7.146E+02	3.756E+08	1.461E+04
Methane	3.548E+03	5.318E+06	3.573E+02	1.878E+08	3.903E+03
Carbon dioxide	9.735E+03	5.318E+06	3.573E+02	1.878E+08	1.071E+04
NMOC	2.268E+01	6.328E+03	4.252E-01	2.235E+05	2.495E+01
1,1,1-Trichloroethane (methyl chloroform) - HAP	2.833E-02	5.105E+00	3.430E-04	1.803E+02	3.116E-02
1,1,2,2-Tetrachloroethane - HAP/VOC	8.168E-02	1.170E+01	7.861E-04	4.132E+02	8.985E-02
1,1-Dichloroethane (ethylidene dichloride) - HAP/VOC	1.051E-01	2.553E+01	1.715E-03	9.015E+02	1.156E-01
1,1-Dichloroethene (vinylidene chloride) - HAP/VOC	8.577E-03	2.127E+00	1.429E-04	7.512E+01	9.435E-03
1,2-Dichloroethane (ethylene dichloride) - HAP/VOC	1.795E-02	4.361E+00	2.930E-04	1.540E+02	1.974E-02
1,2-Dichloropropane (propylene dichloride) - HAP/VOC	8.997E-03	1.914E+00	1.286E-04	6.761E+01	9.897E-03
2-Propanol (isopropyl alcohol) - VOC	1.330E+00	5.318E+02	3.573E-02	1.878E+04	1.463E+00
Acetone	1.799E-01	7.445E+01	5.002E-03	2.629E+03	1.978E-01
Acrylonitrile - HAP/VOC	1.479E-01	6.701E+01	4.502E-03	2.366E+03	1.627E-01
Benzene - No or Unknown Co-disposal - HAP/VOC	6.565E-02	2.021E+01	1.358E-03	7.137E+02	7.222E-02
Benzene - Co-disposal - HAP/VOC	3.801E-01	1.170E+02	7.861E-03	4.132E+03	4.181E-01
Bromodichloromethane - VOC	2.247E-01	3.297E+01	2.215E-03	1.164E+03	2.471E-01
Butane - VOC	1.286E-01	5.318E+01	3.573E-03	1.878E+03	1.414E-01
Carbon disulfide - HAP/VOC	1.953E-02	6.169E+00	4.145E-04	2.179E+02	2.149E-02
Carbon monoxide	1.735E+00	1.489E+03	1.000E-01	5.259E+04	1.908E+00
Carbon tetrachloride - HAP/VOC	2.722E-04	4.254E-02	2.859E-06	1.502E+00	2.994E-04
Carbonyl sulfide - HAP/VOC	1.302E-02	5.212E+00	3.502E-04	1.840E+02	1.432E-02
Chlorobenzene - HAP/VOC	1.245E-02	2.659E+00	1.787E-04	9.390E+01	1.369E-02
Chlorodifluoromethane	4.973E-02	1.383E+01	9.290E-04	4.883E+02	5.470E-02
Chloroethane (ethyl chloride) - HAP/VOC	3.711E-02	1.383E+01	9.290E-04	4.883E+02	4.082E-02
Chloroform - HAP/VOC	1.584E-03	3.191E-01	2.144E-05	1.127E+01	1.743E-03
Chloromethane - VOC	2.680E-02	1.276E+01	8.576E-04	4.507E+02	2.948E-02
Dichlorobenzene - (HAP for para isomer/VOC)	1.366E-02	2.234E+00	1.501E-04	7.888E+01	1.502E-02
Dichlorodifluoromethane	8.558E-01	1.702E+02	1.143E-02	6.010E+03	9.414E-01
Dichlorofluoromethane - VOC	1.184E-01	2.765E+01	1.858E-03	9.766E+02	1.302E-01
Dichloromethane (methylene chloride) - HAP	5.261E-01	1.489E+02	1.000E-02	5.259E+03	5.787E-01
Dimethyl sulfide (methyl sulfide) - VOC	2.144E-01	8.296E+01	5.574E-03	2.930E+03	2.358E-01
Ethane	1.184E+01	9.466E+03	6.360E-01	3.343E+05	1.302E+01
Ethanol - VOC	5.504E-01	2.872E+02	1.929E-02	1.014E+04	6.054E-01
Ethyl mercaptan (ethanethiol) - VOC	6.322E-02	2.446E+01	1.644E-03	8.639E+02	6.954E-02
Ethylbenzene - HAP/VOC	2.160E-01	4.893E+01	3.287E-03	1.728E+03	2.376E-01
Ethylene dibromide - HAP/VOC	8.311E-05	1.064E-02	7.146E-07	3.756E-01	9.143E-05
Fluorotrichloromethane - VOC	4.619E-02	8.083E+00	5.431E-04	2.855E+02	5.081E-02
Hexane - HAP/VOC	2.516E-01	7.020E+01	4.717E-03	2.479E+03	2.768E-01
Hydrogen sulfide	5.427E-01	3.829E+02	2.573E-02	1.352E+04	5.970E-01
Mercury (total) - HAP	2.574E-05	3.084E-03	2.072E-07	1.089E-01	2.831E-05
Methyl ethyl ketone - HAP/VOC	2.265E-01	7.552E+01	5.074E-03	2.667E+03	2.491E-01
Methyl isobutyl ketone - HAP/VOC	8.419E-02	2.021E+01	1.358E-03	7.137E+02	9.261E-02
Methyl mercaptan - VOC	5.321E-02	2.659E+01	1.787E-03	9.390E+02	5.853E-02
Pentane - VOC	1.053E-01	3.510E+01	2.358E-03	1.240E+03	1.159E-01
Perchloroethylene (tetrachloroethylene) - HAP	2.714E-01	3.935E+01	2.644E-03	1.390E+03	2.986E-01
Propane - VOC	2.145E-01	1.170E+02	7.861E-03	4.132E+03	2.360E-01
t-1,2-Dichloroethene - VOC	1.201E-01	2.978E+01	2.001E-03	1.052E+03	1.321E-01
Toluene - No or Unknown Co-disposal - HAP/VOC	1.590E+00	4.148E+02	2.787E-02	1.465E+04	1.748E+00
Toluene - Co-disposal - HAP/VOC	6.929E+00	1.808E+03	1.215E-01	6.385E+04	7.621E+00
Trichloroethylene (trichloroethene) - HAP/VOC	1.628E-01	2.978E+01	2.001E-03	1.052E+03	1.790E-01
Vinyl chloride - HAP/VOC	2.018E-01	7.764E+01	5.217E-03	2.742E+03	2.220E-01
Xylenes - HAP/VOC	5.636E-01	1.276E+02	8.576E-03	4.507E+03	6.199E-01



Summary Report

Landfill Name or Identifier: National Serv-All Landfill - Section A

Date: Wednesday, July 02, 2014

Description/Comments:

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_{CH_4} = 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	**1966**	
Landfill Closure Year (with 80-year limit)	**2006**	
Actual Closure Year (without limit)	***2006***	
Have Model Calculate Closure Year?	**No**	
Waste Design Capacity	**13,441,346**	*megagrams*

MODEL PARAMETERS

Methane Generation Rate, k	**0.040**	*year^{-1}*
Potential Methane Generation Capacity, L_o	**100**	*m^3/Mg*
NMOC Concentration	**595**	*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)*
1966	24,454	26,899	0	0
1967	25,198	27,718	24,454	26,899
1968	25,954	28,549	49,652	54,617
1969	26,724	29,396	75,606	83,167
1970	27,504	30,254	102,330	112,563
1971	28,397	31,237	129,834	142,817
1972	29,141	32,055	158,231	174,054
1973	30,133	33,146	187,372	206,109
1974	31,002	34,102	217,505	239,256
1975	31,869	35,056	248,507	273,358
1976	32,861	36,147	280,376	308,414
1977	33,854	37,239	313,237	344,561
1978	34,969	38,466	347,091	381,800
1979	40,426	44,469	382,060	420,266
1980	48,362	53,198	422,486	464,735
1981	56,299	61,929	470,848	517,933
1982	84,324	92,756	527,147	579,862
1983	140,623	154,685	611,471	672,618
1984	225,071	247,578	752,094	827,303
1985	308,775	339,653	977,165	1,074,882
1986	394,339	433,773	1,285,940	1,414,534
1987	393,099	432,409	1,680,279	1,848,307
1988	394,339	433,773	2,073,378	2,280,716
1989	394,339	433,773	2,467,717	2,714,489
1990	393,099	432,409	2,862,056	3,148,262
1991	410,460	451,506	3,255,155	3,580,671
1992	425,341	467,875	3,665,615	4,032,177
1993	379,458	417,404	4,090,956	4,500,052
1994	348,456	383,302	4,470,414	4,917,455
1995	401,780	441,958	4,818,870	5,300,757
1996	411,614	452,775	5,220,650	5,742,715
1997	416,720	458,392	5,632,264	6,195,490
1998	581,304	639,434	6,048,984	6,653,882
1999	571,215	628,337	6,630,288	7,293,317
2000	650,357	715,393	7,201,503	7,921,653
2001	666,647	733,312	7,851,860	8,637,046
2002	644,782	709,260	8,518,507	9,370,358
2003	638,893	702,782	9,163,289	10,079,618
2004	721,465	793,612	9,802,182	10,782,400
2005	728,438	801,282	10,523,647	11,576,012

WASTE ACCEPTANCE RATES (Continued)

Year	Waste Accepted		Waste-In-Place	
	(Mg/year)	*(short tons/year)*	*(Mg)*	*(short tons)*
2006	967,320	1,064,052	11,252,085	12,377,294
2007	0	0	12,219,405	13,441,346
2008	0	0	12,219,405	13,441,346
2009	0	0	12,219,405	13,441,346
2010	0	0	12,219,405	13,441,346
2011	0	0	12,219,405	13,441,346
2012	0	0	12,219,405	13,441,346
2013	0	0	12,219,405	13,441,346
2014	0	0	12,219,405	13,441,346
2015	0	0	12,219,405	13,441,346
2016	0	0	12,219,405	13,441,346
2017	0	0	12,219,405	13,441,346
2018	0	0	12,219,405	13,441,346
2019	0	0	12,219,405	13,441,346
2020	0	0	12,219,405	13,441,346
2021	0	0	12,219,405	13,441,346
2022	0	0	12,219,405	13,441,346
2023	0	0	12,219,405	13,441,346
2024	0	0	12,219,405	13,441,346
2025	0	0	12,219,405	13,441,346
2026	0	0	12,219,405	13,441,346
2027	0	0	12,219,405	13,441,346
2028	0	0	12,219,405	13,441,346
2029	0	0	12,219,405	13,441,346
2030	0	0	12,219,405	13,441,346
2031	0	0	12,219,405	13,441,346
2032	0	0	12,219,405	13,441,346
2033	0	0	12,219,405	13,441,346
2034	0	0	12,219,405	13,441,346
2035	0	0	12,219,405	13,441,346
2036	0	0	12,219,405	13,441,346
2037	0	0	12,219,405	13,441,346
2038	0	0	12,219,405	13,441,346
2039	0	0	12,219,405	13,441,346
2040	0	0	12,219,405	13,441,346
2041	0	0	12,219,405	13,441,346
2042	0	0	12,219,405	13,441,346
2043	0	0	12,219,405	13,441,346
2044	0	0	12,219,405	13,441,346
2045	0	0	12,219,405	13,441,346

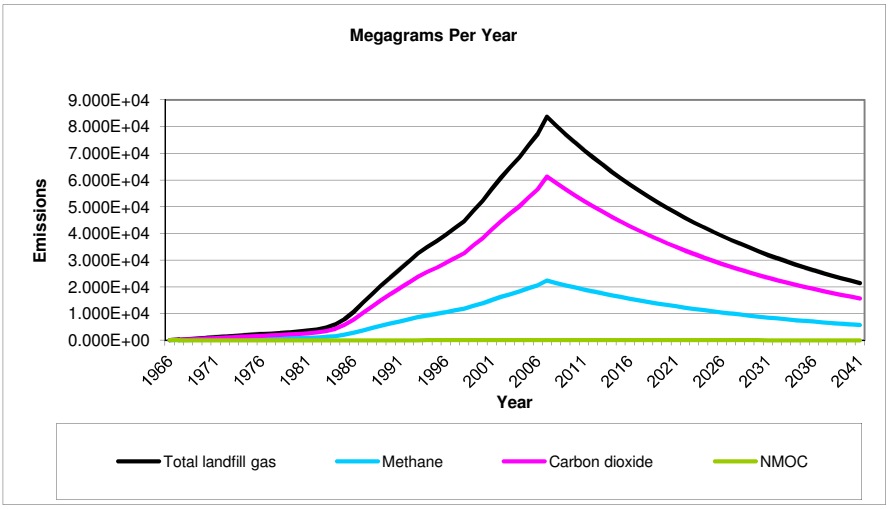
Pollutant Parameters

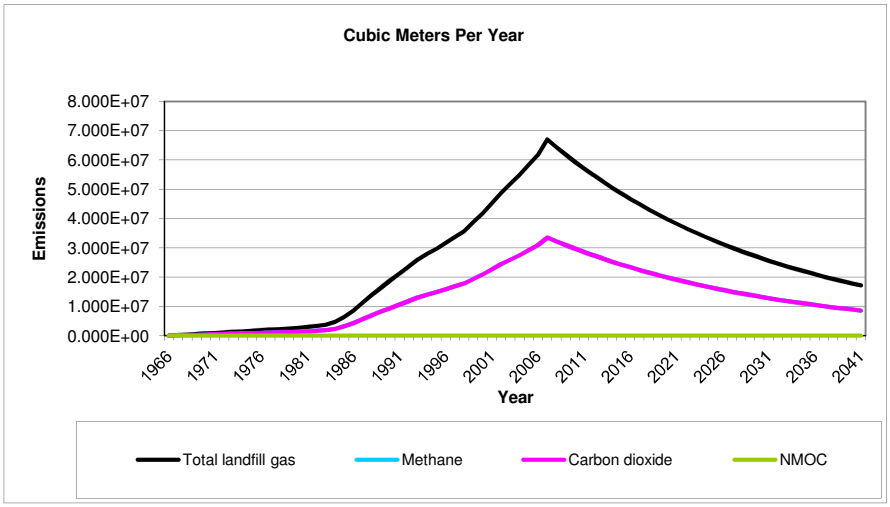
		Gas / Pollutant Default Parameters:		*User-specified Pollutant Parameters:*	
	Compound	Concentration (*ppmv*)	Molecular Weight	Concentration (*ppmv*)	Molecular Weight
Gases	Total landfill gas		0.00		
	Methane		16.04		
	Carbon dioxide		44.01		
	NMOC	4,000	86.18		
Pollutants	1,1,1-Trichloroethane (methyl chloroform) - HAP	0.48	133.41		
	1,1,2,2-Tetrachloroethane - HAP/VOC	1.1	167.85		
	1,1-Dichloroethane (ethylidene dichloride) - HAP/VOC	2.4	98.97		
	1,1-Dichloroethene (vinylidene chloride) - HAP/VOC	0.20	96.94		
	1,2-Dichloroethane (ethylene dichloride) - HAP/VOC	0.41	98.96		
	1,2-Dichloropropane (propylene dichloride) - HAP/VOC	0.18	112.99		
	2-Propanol (isopropyl alcohol) - VOC	50	60.11		
	Acetone	7.0	58.08		
	Acrylonitrile - HAP/VOC	6.3	53.06		
	Benzene - No or Unknown Co-disposal - HAP/VOC	1.9	78.11		
	Benzene - Co-disposal - HAP/VOC	11	78.11		
	Bromodichloromethane - VOC	3.1	163.83		
	Butane - VOC	5.0	58.12		
	Carbon disulfide - HAP/VOC	0.58	76.13		
	Carbon monoxide	140	28.01		
	Carbon tetrachloride - HAP/VOC	4.0E-03	153.84		
	Carbonyl sulfide - HAP/VOC	0.49	60.07		
	Chlorobenzene - HAP/VOC	0.25	112.56		
	Chlorodifluoromethane	1.3	86.47		
	Chloroethane (ethyl chloride) - HAP/VOC	1.3	64.52		
	Chloroform - HAP/VOC	0.03	119.39		
	Chloromethane - VOC	1.2	50.49		
	Dichlorobenzene - (HAP for para isomer/VOC)	0.21	147		
	Dichlorodifluoromethane	16	120.91		
	Dichlorofluoromethane - VOC	2.6	102.92		
	Dichloromethane (methylene chloride) - HAP	14	84.94		
	Dimethyl sulfide (methyl sulfide) - VOC	7.8	62.13		
	Ethane	890	30.07		
	Ethanol - VOC	27	46.08		

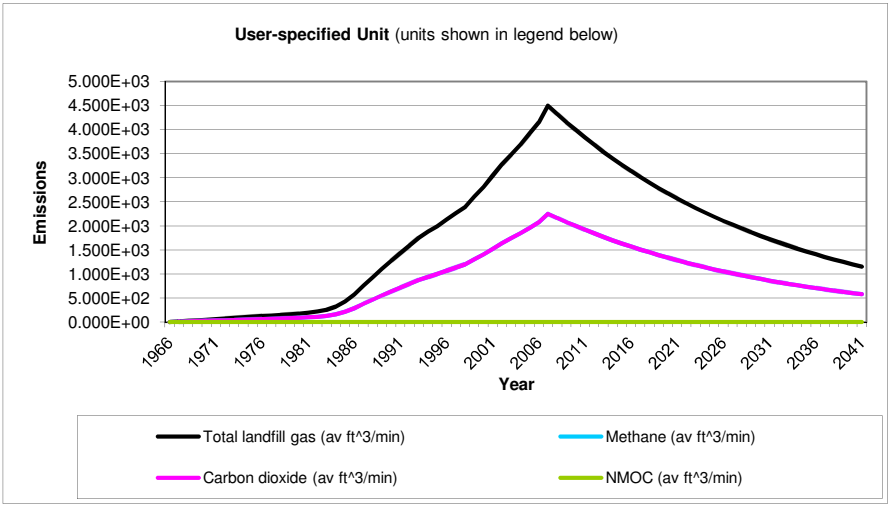
Pollutant Parameters (Continued)

		Gas / Pollutant Default Parameters:		*User-specified Pollutant Parameters:*	
	Compound	Concentration (*ppmv*)	Molecular Weight	Concentration (*ppmv*)	Molecular Weight
Pollutants	Ethyl mercaptan (ethanethiol) - VOC	2.3	62.13		
	Ethylbenzene - HAP/VOC	4.6	106.16		
	Ethylene dibromide - HAP/VOC	1.0E-03	187.88		
	Fluorotrichloromethane - VOC	0.76	137.38		
	Hexane - HAP/VOC	6.6	86.18		
	Hydrogen sulfide	36	34.08		
	Mercury (total) - HAP	2.9E-04	200.61		
	Methyl ethyl ketone - HAP/VOC	7.1	72.11		
	Methyl isobutyl ketone - HAP/VOC	1.9	100.16		
	Methyl mercaptan - VOC	2.5	48.11		
	Pentane - VOC	3.3	72.15		
	Perchloroethylene (tetrachloroethylene) - HAP	3.7	165.83		
	Propane - VOC	11	44.09		
	t-1,2-Dichloroethene - VOC	2.8	96.94		
	Toluene - No or Unknown Co-disposal - HAP/VOC	39	92.13		
	Toluene - Co-disposal - HAP/VOC	170	92.13		
	Trichloroethylene (trichloroethene) - HAP/VOC	2.8	131.40		
	Vinyl chloride - HAP/VOC	7.3	62.50		
	Xylenes - HAP/VOC	12	106.16		

Graphs


Megagrams Per Year
Emissions
9.000E+04
8.000E+04
7.000E+04
6.000E+04
5.000E+04
4.000E+04
3.000E+04
2.000E+04
1.000E+04
0.000E+00
1966
1971
1976
1981
1986
1991
1996
2001
2006
2011
2016
2021
2026
2031
2036
2041
Year
Total landfill gas
Methane
Carbon dioxide
NMOC


Cubic Meters Per Year
Emissions
8.000E+07
7.000E+07
6.000E+07
5.000E+07
4.000E+07
3.000E+07
2.000E+07
1.000E+07
0.000E+00
1966
1971
1976
1981
1986
1991
1996
2001
2006
2011
2016
2021
2026
2031
2036
2041
Year
Total landfill gas
Methane
Carbon dioxide
NMOC


User-specified Unit (units shown in legend below)
Emissions
5.000E+03
4.500E+03
4.000E+03
3.500E+03
3.000E+03
2.500E+03
2.000E+03
1.500E+03
1.000E+03
5.000E+02
0.000E+00
1966
1971
1976
1981
1986
1991
1996
2001
2006
2011
2016
2021
2026
2031
2036
2041
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)*
1966	0	0	0	0	0	0
1967	2.400E+02	1.922E+05	1.291E+01	6.410E+01	9.608E+04	6.455E+00
1968	4.778E+02	3.826E+05	2.571E+01	1.276E+02	1.913E+05	1.285E+01
1969	7.138E+02	5.716E+05	3.840E+01	1.907E+02	2.858E+05	1.920E+01
1970	9.480E+02	7.591E+05	5.101E+01	2.532E+02	3.796E+05	2.550E+01
1971	1.181E+03	9.455E+05	6.353E+01	3.154E+02	4.727E+05	3.176E+01
1972	1.413E+03	1.132E+06	7.603E+01	3.775E+02	5.658E+05	3.801E+01
1973	1.644E+03	1.316E+06	8.843E+01	4.390E+02	6.581E+05	4.422E+01
1974	1.875E+03	1.501E+06	1.009E+02	5.008E+02	7.507E+05	5.044E+01
1975	2.106E+03	1.686E+06	1.133E+02	5.624E+02	8.430E+05	5.664E+01
1976	2.336E+03	1.870E+06	1.257E+02	6.239E+02	9.352E+05	6.284E+01
1977	2.567E+03	2.055E+06	1.381E+02	6.856E+02	1.028E+06	6.905E+01
1978	2.798E+03	2.241E+06	1.506E+02	7.474E+02	1.120E+06	7.528E+01
1979	3.032E+03	2.428E+06	1.631E+02	8.098E+02	1.214E+06	8.156E+01
1980	3.309E+03	2.650E+06	1.781E+02	8.840E+02	1.325E+06	8.903E+01
1981	3.654E+03	2.926E+06	1.966E+02	9.761E+02	1.463E+06	9.831E+01
1982	4.063E+03	3.254E+06	2.186E+02	1.085E+03	1.627E+06	1.093E+02
1983	4.732E+03	3.789E+06	2.546E+02	1.264E+03	1.894E+06	1.273E+02
1984	5.926E+03	4.745E+06	3.188E+02	1.583E+03	2.373E+06	1.594E+02
1985	7.902E+03	6.328E+06	4.252E+02	2.111E+03	3.164E+06	2.126E+02
1986	1.062E+04	8.506E+06	5.715E+02	2.837E+03	4.253E+06	2.858E+02
1987	1.408E+04	1.127E+07	7.573E+02	3.760E+03	5.636E+06	3.787E+02
1988	1.738E+04	1.392E+07	9.352E+02	4.643E+03	6.959E+06	4.676E+02
1989	2.057E+04	1.647E+07	1.107E+03	5.494E+03	8.235E+06	5.533E+02
1990	2.363E+04	1.892E+07	1.271E+03	6.312E+03	9.462E+06	6.357E+02
1991	2.656E+04	2.127E+07	1.429E+03	7.095E+03	1.064E+07	7.146E+02
1992	2.955E+04	2.366E+07	1.590E+03	7.893E+03	1.183E+07	7.949E+02
1993	3.256E+04	2.608E+07	1.752E+03	8.698E+03	1.304E+07	8.760E+02
1994	3.501E+04	2.804E+07	1.884E+03	9.352E+03	1.402E+07	9.419E+02
1995	3.706E+04	2.967E+07	1.994E+03	9.899E+03	1.484E+07	9.969E+02
1996	3.955E+04	3.167E+07	2.128E+03	1.056E+04	1.583E+07	1.064E+03
1997	4.204E+04	3.366E+07	2.262E+03	1.123E+04	1.683E+07	1.131E+03
1998	4.448E+04	3.562E+07	2.393E+03	1.188E+04	1.781E+07	1.196E+03
1999	4.844E+04	3.879E+07	2.606E+03	1.294E+04	1.939E+07	1.303E+03
2000	5.214E+04	4.175E+07	2.805E+03	1.393E+04	2.088E+07	1.403E+03
2001	5.648E+04	4.523E+07	3.039E+03	1.509E+04	2.261E+07	1.519E+03
2002	6.081E+04	4.869E+07	3.272E+03	1.624E+04	2.435E+07	1.636E+03
2003	6.475E+04	5.185E+07	3.484E+03	1.730E+04	2.592E+07	1.742E+03
2004	6.848E+04	5.484E+07	3.684E+03	1.829E+04	2.742E+07	1.842E+03
2005	7.288E+04	5.836E+07	3.921E+03	1.947E+04	2.918E+07	1.960E+03
2006	7.717E+04	6.179E+07	4.152E+03	2.061E+04	3.090E+07	2.076E+03
2007	8.363E+04	6.697E+07	4.500E+03	2.234E+04	3.348E+07	2.250E+03
2008	8.035E+04	6.434E+07	4.323E+03	2.146E+04	3.217E+07	2.162E+03
2009	7.720E+04	6.182E+07	4.154E+03	2.062E+04	3.091E+07	2.077E+03
2010	7.418E+04	5.940E+07	3.991E+03	1.981E+04	2.970E+07	1.995E+03
2011	7.127E+04	5.707E+07	3.834E+03	1.904E+04	2.853E+07	1.917E+03
2012	6.847E+04	5.483E+07	3.684E+03	1.829E+04	2.742E+07	1.842E+03
2013	6.579E+04	5.268E+07	3.540E+03	1.757E+04	2.634E+07	1.770E+03
2014	6.321E+04	5.061E+07	3.401E+03	1.688E+04	2.531E+07	1.700E+03
2015	6.073E+04	4.863E+07	3.267E+03	1.622E+04	2.432E+07	1.634E+03

Results (Continued)

Year	Total landfill gas			Methane		
	(Mg/year)	*(m^3/year)*	*(av ft^3/min)*	*(Mg/year)*	*(m^3/year)*	*(av ft^3/min)*
2016	5.835E+04	4.672E+07	3.139E+03	1.559E+04	2.336E+07	1.570E+03
2017	5.606E+04	4.489E+07	3.016E+03	1.497E+04	2.245E+07	1.508E+03
2018	5.386E+04	4.313E+07	2.898E+03	1.439E+04	2.157E+07	1.449E+03
2019	5.175E+04	4.144E+07	2.784E+03	1.382E+04	2.072E+07	1.392E+03
2020	4.972E+04	3.981E+07	2.675E+03	1.328E+04	1.991E+07	1.338E+03
2021	4.777E+04	3.825E+07	2.570E+03	1.276E+04	1.913E+07	1.285E+03
2022	4.590E+04	3.675E+07	2.469E+03	1.226E+04	1.838E+07	1.235E+03
2023	4.410E+04	3.531E+07	2.373E+03	1.178E+04	1.766E+07	1.186E+03
2024	4.237E+04	3.393E+07	2.280E+03	1.132E+04	1.696E+07	1.140E+03
2025	4.071E+04	3.260E+07	2.190E+03	1.087E+04	1.630E+07	1.095E+03
2026	3.911E+04	3.132E+07	2.104E+03	1.045E+04	1.566E+07	1.052E+03
2027	3.758E+04	3.009E+07	2.022E+03	1.004E+04	1.505E+07	1.011E+03
2028	3.611E+04	2.891E+07	1.943E+03	9.644E+03	1.446E+07	9.713E+02
2029	3.469E+04	2.778E+07	1.866E+03	9.266E+03	1.389E+07	9.332E+02
2030	3.333E+04	2.669E+07	1.793E+03	8.903E+03	1.334E+07	8.966E+02
2031	3.202E+04	2.564E+07	1.723E+03	8.554E+03	1.282E+07	8.614E+02
2032	3.077E+04	2.464E+07	1.655E+03	8.218E+03	1.232E+07	8.277E+02
2033	2.956E+04	2.367E+07	1.590E+03	7.896E+03	1.184E+07	7.952E+02
2034	2.840E+04	2.274E+07	1.528E+03	7.586E+03	1.137E+07	7.640E+02
2035	2.729E+04	2.185E+07	1.468E+03	7.289E+03	1.093E+07	7.341E+02
2036	2.622E+04	2.099E+07	1.411E+03	7.003E+03	1.050E+07	7.053E+02
2037	2.519E+04	2.017E+07	1.355E+03	6.728E+03	1.009E+07	6.776E+02
2038	2.420E+04	1.938E+07	1.302E+03	6.465E+03	9.690E+06	6.511E+02
2039	2.325E+04	1.862E+07	1.251E+03	6.211E+03	9.310E+06	6.255E+02
2040	2.234E+04	1.789E+07	1.202E+03	5.968E+03	8.945E+06	6.010E+02
2041	2.147E+04	1.719E+07	1.155E+03	5.734E+03	8.594E+06	5.774E+02
2042	2.062E+04	1.651E+07	1.110E+03	5.509E+03	8.257E+06	5.548E+02
2043	1.982E+04	1.587E+07	1.066E+03	5.293E+03	7.933E+06	5.331E+02
2044	1.904E+04	1.524E+07	1.024E+03	5.085E+03	7.622E+06	5.121E+02
2045	1.829E+04	1.465E+07	9.841E+02	4.886E+03	7.324E+06	4.921E+02
2046	1.757E+04	1.407E+07	9.455E+02	4.694E+03	7.036E+06	4.728E+02
2047	1.689E+04	1.352E+07	9.085E+02	4.510E+03	6.760E+06	4.542E+02
2048	1.622E+04	1.299E+07	8.729E+02	4.333E+03	6.495E+06	4.364E+02
2049	1.559E+04	1.248E+07	8.386E+02	4.163E+03	6.241E+06	4.193E+02
2050	1.498E+04	1.199E+07	8.057E+02	4.000E+03	5.996E+06	4.029E+02
2051	1.439E+04	1.152E+07	7.741E+02	3.843E+03	5.761E+06	3.871E+02
2052	1.382E+04	1.107E+07	7.438E+02	3.693E+03	5.535E+06	3.719E+02
2053	1.328E+04	1.064E+07	7.146E+02	3.548E+03	5.318E+06	3.573E+02
2054	1.276E+04	1.022E+07	6.866E+02	3.409E+03	5.109E+06	3.433E+02
2055	1.226E+04	9.818E+06	6.597E+02	3.275E+03	4.909E+06	3.298E+02
2056	1.178E+04	9.433E+06	6.338E+02	3.147E+03	4.717E+06	3.169E+02
2057	1.132E+04	9.063E+06	6.090E+02	3.023E+03	4.532E+06	3.045E+02
2058	1.087E+04	8.708E+06	5.851E+02	2.905E+03	4.354E+06	2.925E+02
2059	1.045E+04	8.367E+06	5.621E+02	2.791E+03	4.183E+06	2.811E+02
2060	1.004E+04	8.038E+06	5.401E+02	2.681E+03	4.019E+06	2.701E+02
2061	9.645E+03	7.723E+06	5.189E+02	2.576E+03	3.862E+06	2.595E+02
2062	9.267E+03	7.420E+06	4.986E+02	2.475E+03	3.710E+06	2.493E+02
2063	8.903E+03	7.130E+06	4.790E+02	2.378E+03	3.565E+06	2.395E+02
2064	8.554E+03	6.850E+06	4.602E+02	2.285E+03	3.425E+06	2.301E+02
2065	8.219E+03	6.581E+06	4.422E+02	2.195E+03	3.291E+06	2.211E+02
2066	7.897E+03	6.323E+06	4.249E+02	2.109E+03	3.162E+06	2.124E+02

Results (Continued)

Year	Total landfill gas			Methane		
	(Mg/year)	*(m^3/year)*	*(av ft^3/min)*	*(Mg/year)*	*(m^3/year)*	*(av ft^3/min)*
2067	7.587E+03	6.075E+06	4.082E+02	2.027E+03	3.038E+06	2.041E+02
2068	7.290E+03	5.837E+06	3.922E+02	1.947E+03	2.919E+06	1.961E+02
2069	7.004E+03	5.608E+06	3.768E+02	1.871E+03	2.804E+06	1.884E+02
2070	6.729E+03	5.388E+06	3.620E+02	1.797E+03	2.694E+06	1.810E+02
2071	6.465E+03	5.177E+06	3.478E+02	1.727E+03	2.589E+06	1.739E+02
2072	6.212E+03	4.974E+06	3.342E+02	1.659E+03	2.487E+06	1.671E+02
2073	5.968E+03	4.779E+06	3.211E+02	1.594E+03	2.390E+06	1.606E+02
2074	5.734E+03	4.592E+06	3.085E+02	1.532E+03	2.296E+06	1.543E+02
2075	5.509E+03	4.412E+06	2.964E+02	1.472E+03	2.206E+06	1.482E+02
2076	5.293E+03	4.239E+06	2.848E+02	1.414E+03	2.119E+06	1.424E+02
2077	5.086E+03	4.072E+06	2.736E+02	1.358E+03	2.036E+06	1.368E+02
2078	4.886E+03	3.913E+06	2.629E+02	1.305E+03	1.956E+06	1.314E+02
2079	4.695E+03	3.759E+06	2.526E+02	1.254E+03	1.880E+06	1.263E+02
2080	4.511E+03	3.612E+06	2.427E+02	1.205E+03	1.806E+06	1.213E+02
2081	4.334E+03	3.470E+06	2.332E+02	1.158E+03	1.735E+06	1.166E+02
2082	4.164E+03	3.334E+06	2.240E+02	1.112E+03	1.667E+06	1.120E+02
2083	4.001E+03	3.203E+06	2.152E+02	1.069E+03	1.602E+06	1.076E+02
2084	3.844E+03	3.078E+06	2.068E+02	1.027E+03	1.539E+06	1.034E+02
2085	3.693E+03	2.957E+06	1.987E+02	9.864E+02	1.479E+06	9.935E+01
2086	3.548E+03	2.841E+06	1.909E+02	9.478E+02	1.421E+06	9.545E+01
2087	3.409E+03	2.730E+06	1.834E+02	9.106E+02	1.365E+06	9.171E+01
2088	3.275E+03	2.623E+06	1.762E+02	8.749E+02	1.311E+06	8.811E+01
2089	3.147E+03	2.520E+06	1.693E+02	8.406E+02	1.260E+06	8.466E+01
2090	3.024E+03	2.421E+06	1.627E+02	8.076E+02	1.211E+06	8.134E+01
2091	2.905E+03	2.326E+06	1.563E+02	7.760E+02	1.163E+06	7.815E+01
2092	2.791E+03	2.235E+06	1.502E+02	7.455E+02	1.118E+06	7.508E+01
2093	2.682E+03	2.147E+06	1.443E+02	7.163E+02	1.074E+06	7.214E+01
2094	2.577E+03	2.063E+06	1.386E+02	6.882E+02	1.032E+06	6.931E+01
2095	2.476E+03	1.982E+06	1.332E+02	6.612E+02	9.911E+05	6.659E+01
2096	2.378E+03	1.905E+06	1.280E+02	6.353E+02	9.523E+05	6.398E+01
2097	2.285E+03	1.830E+06	1.229E+02	6.104E+02	9.149E+05	6.147E+01
2098	2.196E+03	1.758E+06	1.181E+02	5.865E+02	8.791E+05	5.906E+01
2099	2.109E+03	1.689E+06	1.135E+02	5.635E+02	8.446E+05	5.675E+01
2100	2.027E+03	1.623E+06	1.090E+02	5.414E+02	8.115E+05	5.452E+01
2101	1.947E+03	1.559E+06	1.048E+02	5.201E+02	7.797E+05	5.238E+01
2102	1.871E+03	1.498E+06	1.007E+02	4.997E+02	7.491E+05	5.033E+01
2103	1.798E+03	1.439E+06	9.671E+01	4.802E+02	7.197E+05	4.836E+01
2104	1.727E+03	1.383E+06	9.292E+01	4.613E+02	6.915E+05	4.646E+01
2105	1.659E+03	1.329E+06	8.928E+01	4.432E+02	6.644E+05	4.464E+01
2106	1.594E+03	1.277E+06	8.578E+01	4.259E+02	6.383E+05	4.289E+01

Results (Continued)

Year	Carbon dioxide			NMOC		
	(Mg/year)	*(m^3/year)*	*(av ft^3/min)*	*(Mg/year)*	*(m^3/year)*	*(av ft^3/min)*
1966	0	0	0	0	0	0
1967	1.759E+02	9.608E+04	6.455E+00	4.098E-01	1.143E+02	7.682E-03
1968	3.502E+02	1.913E+05	1.285E+01	8.160E-01	2.277E+02	1.530E-02
1969	5.231E+02	2.858E+05	1.920E+01	1.219E+00	3.401E+02	2.285E-02
1970	6.948E+02	3.796E+05	2.550E+01	1.619E+00	4.517E+02	3.035E-02
1971	8.654E+02	4.727E+05	3.176E+01	2.017E+00	5.626E+02	3.780E-02
1972	1.036E+03	5.658E+05	3.801E+01	2.413E+00	6.733E+02	4.524E-02
1973	1.205E+03	6.581E+05	4.422E+01	2.807E+00	7.831E+02	5.262E-02
1974	1.374E+03	7.507E+05	5.044E+01	3.202E+00	8.933E+02	6.002E-02
1975	1.543E+03	8.430E+05	5.664E+01	3.596E+00	1.003E+03	6.741E-02
1976	1.712E+03	9.352E+05	6.284E+01	3.989E+00	1.113E+03	7.477E-02
1977	1.881E+03	1.028E+06	6.905E+01	4.383E+00	1.223E+03	8.217E-02
1978	2.051E+03	1.120E+06	7.528E+01	4.779E+00	1.333E+03	8.958E-02
1979	2.222E+03	1.214E+06	8.156E+01	5.178E+00	1.444E+03	9.705E-02
1980	2.425E+03	1.325E+06	8.903E+01	5.652E+00	1.577E+03	1.059E-01
1981	2.678E+03	1.463E+06	9.831E+01	6.241E+00	1.741E+03	1.170E-01
1982	2.978E+03	1.627E+06	1.093E+02	6.940E+00	1.936E+03	1.301E-01
1983	3.468E+03	1.894E+06	1.273E+02	8.081E+00	2.254E+03	1.515E-01
1984	4.343E+03	2.373E+06	1.594E+02	1.012E+01	2.823E+03	1.897E-01
1985	5.792E+03	3.164E+06	2.126E+02	1.350E+01	3.765E+03	2.530E-01
1986	7.785E+03	4.253E+06	2.858E+02	1.814E+01	5.061E+03	3.401E-01
1987	1.032E+04	5.636E+06	3.787E+02	2.404E+01	6.706E+03	4.506E-01
1988	1.274E+04	6.959E+06	4.676E+02	2.968E+01	8.281E+03	5.564E-01
1989	1.508E+04	8.235E+06	5.533E+02	3.513E+01	9.800E+03	6.585E-01
1990	1.732E+04	9.462E+06	6.357E+02	4.036E+01	1.126E+04	7.565E-01
1991	1.947E+04	1.064E+07	7.146E+02	4.537E+01	1.266E+04	8.504E-01
1992	2.166E+04	1.183E+07	7.949E+02	5.047E+01	1.408E+04	9.460E-01
1993	2.387E+04	1.304E+07	8.760E+02	5.561E+01	1.552E+04	1.042E+00
1994	2.566E+04	1.402E+07	9.419E+02	5.979E+01	1.668E+04	1.121E+00
1995	2.716E+04	1.484E+07	9.969E+02	6.329E+01	1.766E+04	1.186E+00
1996	2.898E+04	1.583E+07	1.064E+03	6.754E+01	1.884E+04	1.266E+00
1997	3.081E+04	1.683E+07	1.131E+03	7.179E+01	2.003E+04	1.346E+00
1998	3.260E+04	1.781E+07	1.196E+03	7.596E+01	2.119E+04	1.424E+00
1999	3.550E+04	1.939E+07	1.303E+03	8.272E+01	2.308E+04	1.551E+00
2000	3.822E+04	2.088E+07	1.403E+03	8.905E+01	2.484E+04	1.669E+00
2001	4.139E+04	2.261E+07	1.519E+03	9.646E+01	2.691E+04	1.808E+00
2002	4.457E+04	2.435E+07	1.636E+03	1.038E+02	2.897E+04	1.947E+00
2003	4.746E+04	2.592E+07	1.742E+03	1.106E+02	3.085E+04	2.073E+00
2004	5.019E+04	2.742E+07	1.842E+03	1.170E+02	3.263E+04	2.192E+00
2005	5.341E+04	2.918E+07	1.960E+03	1.245E+02	3.472E+04	2.333E+00
2006	5.655E+04	3.090E+07	2.076E+03	1.318E+02	3.677E+04	2.470E+00
2007	6.129E+04	3.348E+07	2.250E+03	1.428E+02	3.985E+04	2.677E+00
2008	5.889E+04	3.217E+07	2.162E+03	1.372E+02	3.828E+04	2.572E+00
2009	5.658E+04	3.091E+07	2.077E+03	1.318E+02	3.678E+04	2.471E+00
2010	5.436E+04	2.970E+07	1.995E+03	1.267E+02	3.534E+04	2.375E+00
2011	5.223E+04	2.853E+07	1.917E+03	1.217E+02	3.396E+04	2.281E+00
2012	5.018E+04	2.742E+07	1.842E+03	1.169E+02	3.262E+04	2.192E+00
2013	4.822E+04	2.634E+07	1.770E+03	1.124E+02	3.134E+04	2.106E+00
2014	4.633E+04	2.531E+07	1.700E+03	1.079E+02	3.012E+04	2.023E+00
2015	4.451E+04	2.432E+07	1.634E+03	1.037E+02	2.893E+04	1.944E+00

Results (Continued)

Year	Carbon dioxide			NMOC		
	(Mg/year)	*(m^3/year)*	*(av ft^3/min)*	*(Mg/year)*	*(m^3/year)*	*(av ft^3/min)*
2016	4.276E+04	2.336E+07	1.570E+03	9.965E+01	2.780E+04	1.868E+00
2017	4.109E+04	2.245E+07	1.508E+03	9.574E+01	2.671E+04	1.795E+00
2018	3.948E+04	2.157E+07	1.449E+03	9.199E+01	2.566E+04	1.724E+00
2019	3.793E+04	2.072E+07	1.392E+03	8.838E+01	2.466E+04	1.657E+00
2020	3.644E+04	1.991E+07	1.338E+03	8.492E+01	2.369E+04	1.592E+00
2021	3.501E+04	1.913E+07	1.285E+03	8.159E+01	2.276E+04	1.529E+00
2022	3.364E+04	1.838E+07	1.235E+03	7.839E+01	2.187E+04	1.469E+00
2023	3.232E+04	1.766E+07	1.186E+03	7.531E+01	2.101E+04	1.412E+00
2024	3.105E+04	1.696E+07	1.140E+03	7.236E+01	2.019E+04	1.356E+00
2025	2.984E+04	1.630E+07	1.095E+03	6.952E+01	1.940E+04	1.303E+00
2026	2.867E+04	1.566E+07	1.052E+03	6.680E+01	1.864E+04	1.252E+00
2027	2.754E+04	1.505E+07	1.011E+03	6.418E+01	1.790E+04	1.203E+00
2028	2.646E+04	1.446E+07	9.713E+02	6.166E+01	1.720E+04	1.156E+00
2029	2.542E+04	1.389E+07	9.332E+02	5.924E+01	1.653E+04	1.111E+00
2030	2.443E+04	1.334E+07	8.966E+02	5.692E+01	1.588E+04	1.067E+00
2031	2.347E+04	1.282E+07	8.614E+02	5.469E+01	1.526E+04	1.025E+00
2032	2.255E+04	1.232E+07	8.277E+02	5.254E+01	1.466E+04	9.849E-01
2033	2.166E+04	1.184E+07	7.952E+02	5.048E+01	1.408E+04	9.463E-01
2034	2.082E+04	1.137E+07	7.640E+02	4.850E+01	1.353E+04	9.092E-01
2035	2.000E+04	1.093E+07	7.341E+02	4.660E+01	1.300E+04	8.736E-01
2036	1.921E+04	1.050E+07	7.053E+02	4.478E+01	1.249E+04	8.393E-01
2037	1.846E+04	1.009E+07	6.776E+02	4.302E+01	1.200E+04	8.064E-01
2038	1.774E+04	9.690E+06	6.511E+02	4.133E+01	1.153E+04	7.748E-01
2039	1.704E+04	9.310E+06	6.255E+02	3.971E+01	1.108E+04	7.444E-01
2040	1.637E+04	8.945E+06	6.010E+02	3.816E+01	1.064E+04	7.152E-01
2041	1.573E+04	8.594E+06	5.774E+02	3.666E+01	1.023E+04	6.872E-01
2042	1.511E+04	8.257E+06	5.548E+02	3.522E+01	9.826E+03	6.602E-01
2043	1.452E+04	7.933E+06	5.331E+02	3.384E+01	9.441E+03	6.343E-01
2044	1.395E+04	7.622E+06	5.121E+02	3.251E+01	9.071E+03	6.095E-01
2045	1.341E+04	7.324E+06	4.921E+02	3.124E+01	8.715E+03	5.856E-01
2046	1.288E+04	7.036E+06	4.728E+02	3.001E+01	8.373E+03	5.626E-01
2047	1.238E+04	6.760E+06	4.542E+02	2.884E+01	8.045E+03	5.405E-01
2048	1.189E+04	6.495E+06	4.364E+02	2.771E+01	7.730E+03	5.193E-01
2049	1.142E+04	6.241E+06	4.193E+02	2.662E+01	7.426E+03	4.990E-01
2050	1.098E+04	5.996E+06	4.029E+02	2.558E+01	7.135E+03	4.794E-01
2051	1.055E+04	5.761E+06	3.871E+02	2.457E+01	6.855E+03	4.606E-01
2052	1.013E+04	5.535E+06	3.719E+02	2.361E+01	6.587E+03	4.426E-01
2053	9.735E+03	5.318E+06	3.573E+02	2.268E+01	6.328E+03	4.252E-01
2054	9.353E+03	5.109E+06	3.433E+02	2.179E+01	6.080E+03	4.085E-01
2055	8.986E+03	4.909E+06	3.298E+02	2.094E+01	5.842E+03	3.925E-01
2056	8.634E+03	4.717E+06	3.169E+02	2.012E+01	5.613E+03	3.771E-01
2057	8.295E+03	4.532E+06	3.045E+02	1.933E+01	5.393E+03	3.623E-01
2058	7.970E+03	4.354E+06	2.925E+02	1.857E+01	5.181E+03	3.481E-01
2059	7.657E+03	4.183E+06	2.811E+02	1.784E+01	4.978E+03	3.345E-01
2060	7.357E+03	4.019E+06	2.701E+02	1.714E+01	4.783E+03	3.214E-01
2061	7.069E+03	3.862E+06	2.595E+02	1.647E+01	4.595E+03	3.088E-01
2062	6.792E+03	3.710E+06	2.493E+02	1.583E+01	4.415E+03	2.967E-01
2063	6.525E+03	3.565E+06	2.395E+02	1.521E+01	4.242E+03	2.850E-01
2064	6.269E+03	3.425E+06	2.301E+02	1.461E+01	4.076E+03	2.738E-01
2065	6.024E+03	3.291E+06	2.211E+02	1.404E+01	3.916E+03	2.631E-01
2066	5.787E+03	3.162E+06	2.124E+02	1.349E+01	3.762E+03	2.528E-01

Results (Continued)

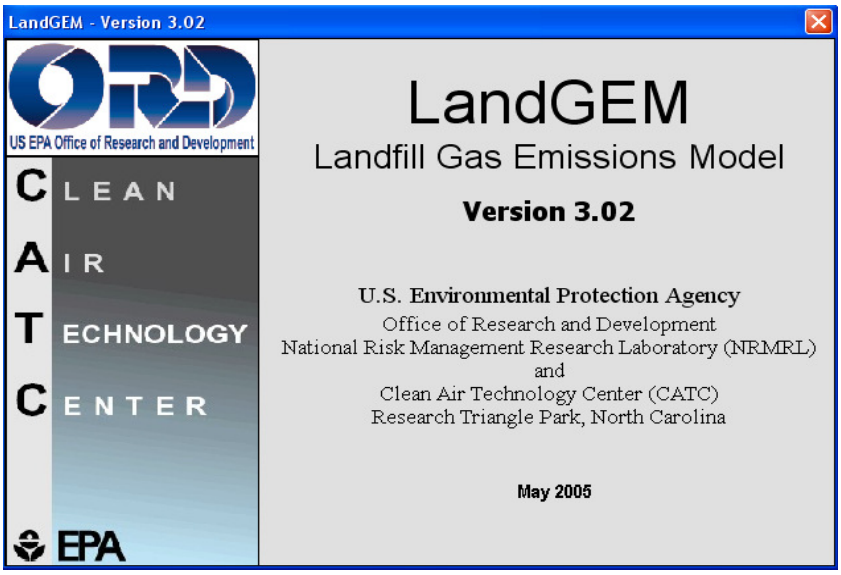
Year	Carbon dioxide			NMOC		
	(Mg/year)	*(m^3/year)*	*(av ft^3/min)*	*(Mg/year)*	*(m^3/year)*	*(av ft^3/min)*
2067	5.560E+03	3.038E+06	2.041E+02	1.296E+01	3.615E+03	2.429E-01
2068	5.342E+03	2.919E+06	1.961E+02	1.245E+01	3.473E+03	2.334E-01
2069	5.133E+03	2.804E+06	1.884E+02	1.196E+01	3.337E+03	2.242E-01
2070	4.932E+03	2.694E+06	1.810E+02	1.149E+01	3.206E+03	2.154E-01
2071	4.738E+03	2.589E+06	1.739E+02	1.104E+01	3.080E+03	2.070E-01
2072	4.553E+03	2.487E+06	1.671E+02	1.061E+01	2.960E+03	1.989E-01
2073	4.374E+03	2.390E+06	1.606E+02	1.019E+01	2.844E+03	1.911E-01
2074	4.203E+03	2.296E+06	1.543E+02	9.793E+00	2.732E+03	1.836E-01
2075	4.038E+03	2.206E+06	1.482E+02	9.409E+00	2.625E+03	1.764E-01
2076	3.879E+03	2.119E+06	1.424E+02	9.040E+00	2.522E+03	1.695E-01
2077	3.727E+03	2.036E+06	1.368E+02	8.686E+00	2.423E+03	1.628E-01
2078	3.581E+03	1.956E+06	1.314E+02	8.345E+00	2.328E+03	1.564E-01
2079	3.441E+03	1.880E+06	1.263E+02	8.018E+00	2.237E+03	1.503E-01
2080	3.306E+03	1.806E+06	1.213E+02	7.703E+00	2.149E+03	1.444E-01
2081	3.176E+03	1.735E+06	1.166E+02	7.401E+00	2.065E+03	1.387E-01
2082	3.052E+03	1.667E+06	1.120E+02	7.111E+00	1.984E+03	1.333E-01
2083	2.932E+03	1.602E+06	1.076E+02	6.832E+00	1.906E+03	1.281E-01
2084	2.817E+03	1.539E+06	1.034E+02	6.564E+00	1.831E+03	1.230E-01
2085	2.707E+03	1.479E+06	9.935E+01	6.307E+00	1.760E+03	1.182E-01
2086	2.600E+03	1.421E+06	9.545E+01	6.060E+00	1.691E+03	1.136E-01
2087	2.498E+03	1.365E+06	9.171E+01	5.822E+00	1.624E+03	1.091E-01
2088	2.401E+03	1.311E+06	8.811E+01	5.594E+00	1.561E+03	1.049E-01
2089	2.306E+03	1.260E+06	8.466E+01	5.374E+00	1.499E+03	1.007E-01
2090	2.216E+03	1.211E+06	8.134E+01	5.164E+00	1.441E+03	9.679E-02
2091	2.129E+03	1.163E+06	7.815E+01	4.961E+00	1.384E+03	9.300E-02
2092	2.046E+03	1.118E+06	7.508E+01	4.767E+00	1.330E+03	8.935E-02
2093	1.965E+03	1.074E+06	7.214E+01	4.580E+00	1.278E+03	8.585E-02
2094	1.888E+03	1.032E+06	6.931E+01	4.400E+00	1.228E+03	8.248E-02
2095	1.814E+03	9.911E+05	6.659E+01	4.228E+00	1.179E+03	7.925E-02
2096	1.743E+03	9.523E+05	6.398E+01	4.062E+00	1.133E+03	7.614E-02
2097	1.675E+03	9.149E+05	6.147E+01	3.903E+00	1.089E+03	7.315E-02
2098	1.609E+03	8.791E+05	5.906E+01	3.750E+00	1.046E+03	7.029E-02
2099	1.546E+03	8.446E+05	5.675E+01	3.603E+00	1.005E+03	6.753E-02
2100	1.485E+03	8.115E+05	5.452E+01	3.461E+00	9.657E+02	6.488E-02
2101	1.427E+03	7.797E+05	5.238E+01	3.326E+00	9.278E+02	6.234E-02
2102	1.371E+03	7.491E+05	5.033E+01	3.195E+00	8.914E+02	5.989E-02
2103	1.317E+03	7.197E+05	4.836E+01	3.070E+00	8.565E+02	5.755E-02
2104	1.266E+03	6.915E+05	4.646E+01	2.950E+00	8.229E+02	5.529E-02
2105	1.216E+03	6.644E+05	4.464E+01	2.834E+00	7.906E+02	5.312E-02
2106	1.168E+03	6.383E+05	4.289E+01	2.723E+00	7.596E+02	5.104E-02

INVENTORY

Landfill Name or Identifier: National Serv-All Landfill - Section B

Enter year of emissions inventory: 2053

Gas / Pollutant	Emission Rate				
	(Mg/year)	*(m^3/year)*	*(av ft^3/min)*	*(ft^3/year)*	*(short tons/year)*
Total landfill gas	1.239E+05	9.924E+07	6.668E+03	3.505E+09	1.363E+05
Methane	3.310E+04	4.962E+07	3.334E+03	1.752E+09	3.641E+04
Carbon dioxide	9.083E+04	4.962E+07	3.334E+03	1.752E+09	9.991E+04
NMOC	2.116E+02	5.905E+04	3.967E+00	2.085E+06	2.328E+02
1,1,1-Trichloroethane (methyl chloroform) - HAP	2.643E-01	4.763E+01	3.200E-03	1.682E+03	2.907E-01
1,1,2,2-Tetrachloroethane - HAP/VOC	7.621E-01	1.092E+02	7.334E-03	3.855E+03	8.383E-01
1,1-Dichloroethane (ethylidene dichloride) - HAP/VOC	9.804E-01	2.382E+02	1.600E-02	8.411E+03	1.078E+00
1,1-Dichloroethene (vinylidene chloride) - HAP/VOC	8.002E-02	1.985E+01	1.334E-03	7.009E+02	8.803E-02
1,2-Dichloroethane (ethylene dichloride) - HAP/VOC	1.675E-01	4.069E+01	2.734E-03	1.437E+03	1.842E-01
1,2-Dichloropropane (propylene dichloride) - HAP/VOC	8.395E-02	1.786E+01	1.200E-03	6.308E+02	9.234E-02
2-Propanol (isopropyl alcohol) - VOC	1.241E+01	4.962E+03	3.334E-01	1.752E+05	1.365E+01
Acetone	1.678E+00	6.947E+02	4.667E-02	2.453E+04	1.846E+00
Acrylonitrile - HAP/VOC	1.380E+00	6.252E+02	4.201E-02	2.208E+04	1.518E+00
Benzene - No or Unknown Co-disposal - HAP/VOC	6.126E-01	1.885E+02	1.267E-02	6.659E+03	6.738E-01
Benzene - Co-disposal - HAP/VOC	3.546E+00	1.092E+03	7.334E-02	3.855E+04	3.901E+00
Bromodichloromethane - VOC	2.096E+00	3.076E+02	2.067E-02	1.086E+04	2.306E+00
Butane - VOC	1.199E+00	4.962E+02	3.334E-02	1.752E+04	1.319E+00
Carbon disulfide - HAP/VOC	1.823E-01	5.756E+01	3.867E-03	2.033E+03	2.005E-01
Carbon monoxide	1.619E+01	1.389E+04	9.335E-01	4.906E+05	1.780E+01
Carbon tetrachloride - HAP/VOC	2.540E-03	3.969E-01	2.667E-05	1.402E+01	2.794E-03
Carbonyl sulfide - HAP/VOC	1.215E-01	4.863E+01	3.267E-03	1.717E+03	1.336E-01
Chlorobenzene - HAP/VOC	1.161E-01	2.481E+01	1.667E-03	8.761E+02	1.278E-01
Chlorodifluoromethane	4.640E-01	1.290E+02	8.668E-03	4.556E+03	5.104E-01
Chloroethane (ethyl chloride) - HAP/VOC	3.462E-01	1.290E+02	8.668E-03	4.556E+03	3.808E-01
Chloroform - HAP/VOC	1.478E-02	2.977E+00	2.000E-04	1.051E+02	1.626E-02
Chloromethane - VOC	2.501E-01	1.191E+02	8.001E-03	4.205E+03	2.751E-01
Dichlorobenzene - (HAP for para isomer/VOC)	1.274E-01	2.084E+01	1.400E-03	7.360E+02	1.402E-01
Dichlorodifluoromethane	7.985E+00	1.588E+03	1.067E-01	5.607E+04	8.783E+00
Dichlorofluoromethane - VOC	1.104E+00	2.580E+02	1.734E-02	9.112E+03	1.215E+00
Dichloromethane (methylene chloride) - HAP	4.908E+00	1.389E+03	9.335E-02	4.906E+04	5.399E+00
Dimethyl sulfide (methyl sulfide) - VOC	2.000E+00	7.740E+02	5.201E-02	2.734E+04	2.200E+00
Ethane	1.105E+02	8.832E+04	5.934E+00	3.119E+06	1.215E+02
Ethanol - VOC	5.135E+00	2.679E+03	1.800E-01	9.462E+04	5.649E+00
Ethyl mercaptan (ethanethiol) - VOC	5.898E-01	2.282E+02	1.534E-02	8.060E+03	6.488E-01
Ethylbenzene - HAP/VOC	2.016E+00	4.565E+02	3.067E-02	1.612E+04	2.217E+00
Ethylene dibromide - HAP/VOC	7.755E-04	9.924E-02	6.668E-06	3.505E+00	8.530E-04
Fluorotrichloromethane - VOC	4.309E-01	7.542E+01	5.067E-03	2.663E+03	4.740E-01
Hexane - HAP/VOC	2.348E+00	6.550E+02	4.401E-02	2.313E+04	2.582E+00
Hydrogen sulfide	5.064E+00	3.573E+03	2.400E-01	1.262E+05	5.570E+00
Mercury (total) - HAP	2.401E-04	2.878E-02	1.934E-06	1.016E+00	2.641E-04
Methyl ethyl ketone - HAP/VOC	2.113E+00	7.046E+02	4.734E-02	2.488E+04	2.325E+00
Methyl isobutyl ketone - HAP/VOC	7.855E-01	1.885E+02	1.267E-02	6.659E+03	8.640E-01
Methyl mercaptan - VOC	4.964E-01	2.481E+02	1.667E-02	8.761E+03	5.461E-01
Pentane - VOC	9.827E-01	3.275E+02	2.200E-02	1.156E+04	1.081E+00
Perchloroethylene (tetrachloroethylene) - HAP	2.533E+00	3.672E+02	2.467E-02	1.297E+04	2.786E+00
Propane - VOC	2.002E+00	1.092E+03	7.334E-02	3.855E+04	2.202E+00
t-1,2-Dichloroethene - VOC	1.120E+00	2.779E+02	1.867E-02	9.813E+03	1.232E+00
Toluene - No or Unknown Co-disposal - HAP/VOC	1.483E+01	3.870E+03	2.600E-01	1.367E+05	1.631E+01
Toluene - Co-disposal - HAP/VOC	6.465E+01	1.687E+04	1.134E+00	5.958E+05	7.111E+01
Trichloroethylene (trichloroethene) - HAP/VOC	1.519E+00	2.779E+02	1.867E-02	9.813E+03	1.670E+00
Vinyl chloride - HAP/VOC	1.883E+00	7.244E+02	4.867E-02	2.558E+04	2.071E+00
Xylenes - HAP/VOC	5.258E+00	1.191E+03	8.001E-02	4.205E+04	5.784E+00



Summary Report

Landfill Name or Identifier: National Serv-All Landfill - Section B

Date: Wednesday, July 02, 2014

Description/Comments:

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_{CH_4} = 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	**2007**	
Landfill Closure Year (with 80-year limit)	**2053**	
Actual Closure Year (without limit)	***2053***	
Have Model Calculate Closure Year?	**No**	
Waste Design Capacity	**30,275,865**	*megagrams*

MODEL PARAMETERS

Methane Generation Rate, k	**0.040**	*year^{-1}*
Potential Methane Generation Capacity, L_o	**100**	*m^3/Mg*
NMOC Concentration	**595**	*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)*
2007	690,184	759,202	0	0
2008	681,893	750,082	690,184	759,202
2009	677,355	745,091	1,372,077	1,509,285
2010	659,395	725,335	2,049,432	2,254,375
2011	684,852	753,337	2,708,827	2,979,710
2012	692,243	761,467	3,393,679	3,733,047
2013	583,700	642,070	4,085,922	4,494,514
2014	583,700	642,070	4,669,622	5,136,584
2015	583,700	642,070	5,253,322	5,778,654
2016	583,700	642,070	5,837,022	6,420,724
2017	583,700	642,070	6,420,722	7,062,794
2018	583,700	642,070	7,004,422	7,704,864
2019	583,700	642,070	7,588,122	8,346,934
2020	583,700	642,070	8,171,822	8,989,004
2021	583,700	642,070	8,755,522	9,631,074
2022	583,700	642,070	9,339,222	10,273,144
2023	583,700	642,070	9,922,922	10,915,214
2024	583,700	642,070	10,506,622	11,557,284
2025	583,700	642,070	11,090,322	12,199,354
2026	583,700	642,070	11,674,022	12,841,424
2027	583,700	642,070	12,257,722	13,483,494
2028	583,700	642,070	12,841,422	14,125,564
2029	583,700	642,070	13,425,122	14,767,634
2030	583,700	642,070	14,008,822	15,409,704
2031	583,700	642,070	14,592,522	16,051,774
2032	583,700	642,070	15,176,222	16,693,844
2033	583,700	642,070	15,759,922	17,335,914
2034	583,700	642,070	16,343,622	17,977,984
2035	583,700	642,070	16,927,322	18,620,054
2036	583,700	642,070	17,511,022	19,262,124
2037	583,700	642,070	18,094,722	19,904,194
2038	583,700	642,070	18,678,422	20,546,264
2039	583,700	642,070	19,262,122	21,188,334
2040	583,700	642,070	19,845,822	21,830,404
2041	583,700	642,070	20,429,522	22,472,474
2042	583,700	642,070	21,013,222	23,114,544
2043	583,700	642,070	21,596,922	23,756,614
2044	583,700	642,070	22,180,622	24,398,684
2045	583,700	642,070	22,764,322	25,040,754
2046	583,700	642,070	23,348,022	25,682,824

WASTE ACCEPTANCE RATES (Continued)

Year	Waste Accepted		Waste-In-Place	
	(Mg/year)	*(short tons/year)*	*(Mg)*	*(short tons)*
2047	583,700	642,070	23,931,722	26,324,894
2048	583,700	642,070	24,515,422	26,966,964
2049	583,700	642,070	25,099,122	27,609,034
2050	583,700	642,070	25,682,822	28,251,104
2051	583,700	642,070	26,266,522	28,893,174
2052	583,700	642,070	26,850,222	29,535,244
2053	89,594	98,553	27,433,922	30,177,314
2054	0	0	27,523,516	30,275,868
2055	0	0	27,523,516	30,275,868
2056	0	0	27,523,516	30,275,868
2057	0	0	27,523,516	30,275,868
2058	0	0	27,523,516	30,275,868
2059	0	0	27,523,516	30,275,868
2060	0	0	27,523,516	30,275,868
2061	0	0	27,523,516	30,275,868
2062	0	0	27,523,516	30,275,868
2063	0	0	27,523,516	30,275,868
2064	0	0	27,523,516	30,275,868
2065	0	0	27,523,516	30,275,868
2066	0	0	27,523,516	30,275,868
2067	0	0	27,523,516	30,275,868
2068	0	0	27,523,516	30,275,868
2069	0	0	27,523,516	30,275,868
2070	0	0	27,523,516	30,275,868
2071	0	0	27,523,516	30,275,868
2072	0	0	27,523,516	30,275,868
2073	0	0	27,523,516	30,275,868
2074	0	0	27,523,516	30,275,868
2075	0	0	27,523,516	30,275,868
2076	0	0	27,523,516	30,275,868
2077	0	0	27,523,516	30,275,868
2078	0	0	27,523,516	30,275,868
2079	0	0	27,523,516	30,275,868
2080	0	0	27,523,516	30,275,868
2081	0	0	27,523,516	30,275,868
2082	0	0	27,523,516	30,275,868
2083	0	0	27,523,516	30,275,868
2084	0	0	27,523,516	30,275,868
2085	0	0	27,523,516	30,275,868
2086	0	0	27,523,516	30,275,868

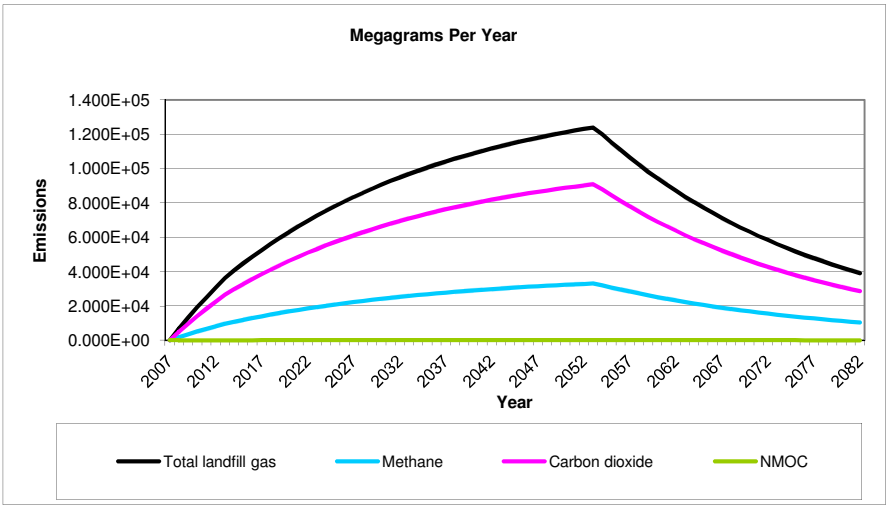
Pollutant Parameters

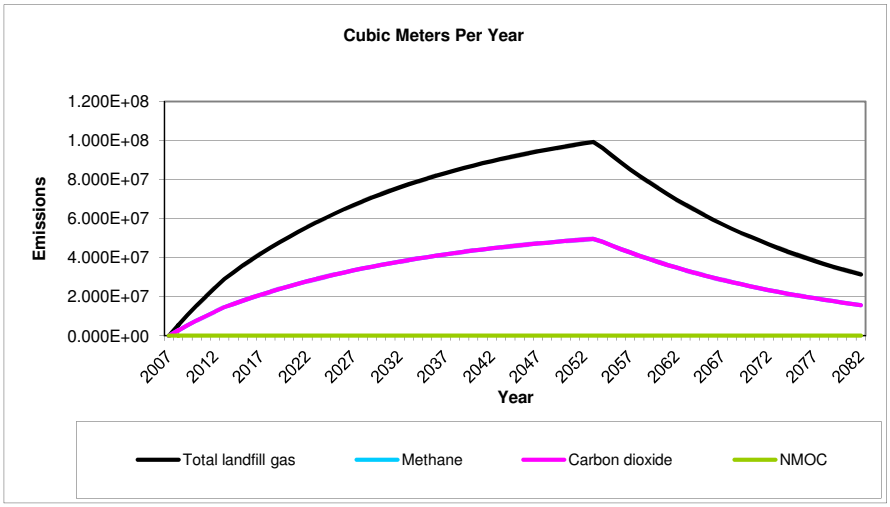
		Gas / Pollutant Default Parameters:		***User-specified Pollutant Parameters:***	
	Compound	Concentration (*ppmv*)	Molecular Weight	Concentration (*ppmv*)	Molecular Weight
Gases	Total landfill gas		0.00		
	Methane		16.04		
	Carbon dioxide		44.01		
	NMOC	4,000	86.18		
Pollutants	1,1,1-Trichloroethane (methyl chloroform) - HAP	0.48	133.41		
	1,1,2,2-Tetrachloroethane - HAP/VOC	1.1	167.85		
	1,1-Dichloroethane (ethylidene dichloride) - HAP/VOC	2.4	98.97		
	1,1-Dichloroethene (vinylidene chloride) - HAP/VOC	0.20	96.94		
	1,2-Dichloroethane (ethylene dichloride) - HAP/VOC	0.41	98.96		
	1,2-Dichloropropane (propylene dichloride) - HAP/VOC	0.18	112.99		
	2-Propanol (isopropyl alcohol) - VOC	50	60.11		
	Acetone	7.0	58.08		
	Acrylonitrile - HAP/VOC	6.3	53.06		
	Benzene - No or Unknown Co-disposal - HAP/VOC	1.9	78.11		
	Benzene - Co-disposal - HAP/VOC	11	78.11		
	Bromodichloromethane - VOC	3.1	163.83		
	Butane - VOC	5.0	58.12		
	Carbon disulfide - HAP/VOC	0.58	76.13		
	Carbon monoxide	140	28.01		
	Carbon tetrachloride - HAP/VOC	4.0E-03	153.84		
	Carbonyl sulfide - HAP/VOC	0.49	60.07		
	Chlorobenzene - HAP/VOC	0.25	112.56		
	Chlorodifluoromethane	1.3	86.47		
	Chloroethane (ethyl chloride) - HAP/VOC	1.3	64.52		
	Chloroform - HAP/VOC	0.03	119.39		
	Chloromethane - VOC	1.2	50.49		
	Dichlorobenzene - (HAP for para isomer/VOC)	0.21	147		
	Dichlorodifluoromethane	16	120.91		
	Dichlorofluoromethane - VOC	2.6	102.92		
	Dichloromethane (methylene chloride) - HAP	14	84.94		
	Dimethyl sulfide (methyl sulfide) - VOC	7.8	62.13		
	Ethane	890	30.07		
	Ethanol - VOC	27	46.08		

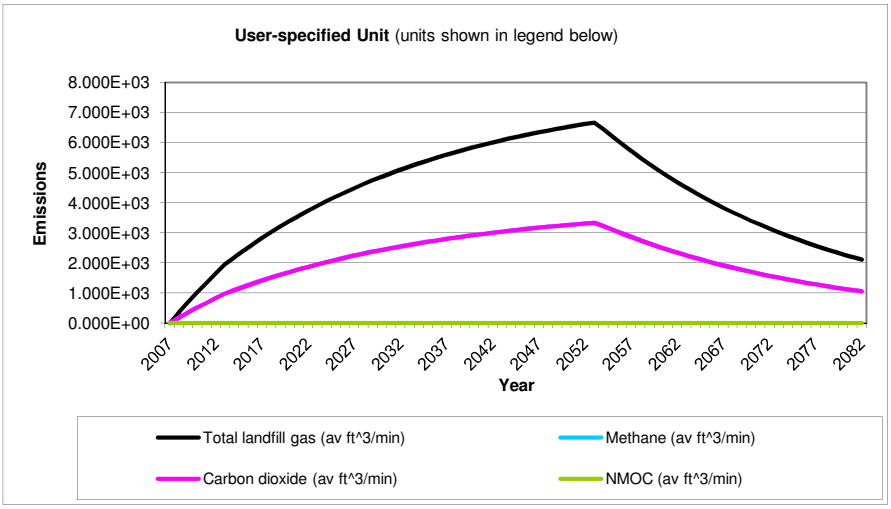
Pollutant Parameters (Continued)

		Gas / Pollutant Default Parameters:		***User-specified Pollutant Parameters:***	
	Compound	Concentration (*ppmv*)	Molecular Weight	Concentration (*ppmv*)	Molecular Weight
Pollutants	Ethyl mercaptan (ethanethiol) - VOC	2.3	62.13		
	Ethylbenzene - HAP/VOC	4.6	106.16		
	Ethylene dibromide - HAP/VOC	1.0E-03	187.88		
	Fluorotrichloromethane - VOC	0.76	137.38		
	Hexane - HAP/VOC	6.6	86.18		
	Hydrogen sulfide	36	34.08		
	Mercury (total) - HAP	2.9E-04	200.61		
	Methyl ethyl ketone - HAP/VOC	7.1	72.11		
	Methyl isobutyl ketone - HAP/VOC	1.9	100.16		
	Methyl mercaptan - VOC	2.5	48.11		
	Pentane - VOC	3.3	72.15		
	Perchloroethylene (tetrachloroethylene) - HAP	3.7	165.83		
	Propane - VOC	11	44.09		
	t-1,2-Dichloroethene - VOC	2.8	96.94		
	Toluene - No or Unknown Co-disposal - HAP/VOC	39	92.13		
	Toluene - Co-disposal - HAP/VOC	170	92.13		
	Trichloroethylene (trichloroethene) - HAP/VOC	2.8	131.40		
	Vinyl chloride - HAP/VOC	7.3	62.50		
	Xylenes - HAP/VOC	12	106.16		

Graphs


Megagrams Per Year
Emissions
1.400E+05
1.200E+05
1.000E+05
8.000E+04
6.000E+04
4.000E+04
2.000E+04
0.000E+00
2007 2012 2017 2022 2027 2032 2037 2042 2047 2052 2057 2062 2067 2072 2077 2082
Year
Total landfill gas
Methane
Carbon dioxide
NMOC


Cubic Meters Per Year
Emissions
1.200E+08
1.000E+08
8.000E+07
6.000E+07
4.000E+07
2.000E+07
0.000E+00
2007 2012 2017 2022 2027 2032 2037 2042 2047 2052 2057 2062 2067 2072 2077 2082
Year
Total landfill gas
Methane
Carbon dioxide
NMOC


User-specified Unit (units shown in legend below)
Emissions
8.000E+03
7.000E+03
6.000E+03
5.000E+03
4.000E+03
3.000E+03
2.000E+03
1.000E+03
0.000E+00
2007 2012 2017 2022 2027 2032 2037 2042 2047 2052 2057 2062 2067 2072 2077 2082
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)*
2007	0	0	0	0	0	0
2008	6.773E+03	5.423E+06	3.644E+02	1.809E+03	2.712E+06	1.822E+02
2009	1.320E+04	1.057E+07	7.101E+02	3.526E+03	5.284E+06	3.551E+02
2010	1.933E+04	1.548E+07	1.040E+03	5.163E+03	7.738E+06	5.199E+02
2011	2.504E+04	2.005E+07	1.347E+03	6.689E+03	1.003E+07	6.736E+02
2012	3.078E+04	2.465E+07	1.656E+03	8.222E+03	1.232E+07	8.280E+02
2013	3.637E+04	2.912E+07	1.957E+03	9.714E+03	1.456E+07	9.783E+02
2014	4.067E+04	3.256E+07	2.188E+03	1.086E+04	1.628E+07	1.094E+03
2015	4.480E+04	3.587E+07	2.410E+03	1.197E+04	1.794E+07	1.205E+03
2016	4.877E+04	3.905E+07	2.624E+03	1.303E+04	1.953E+07	1.312E+03
2017	5.259E+04	4.211E+07	2.829E+03	1.405E+04	2.105E+07	1.415E+03
2018	5.625E+04	4.505E+07	3.027E+03	1.503E+04	2.252E+07	1.513E+03
2019	5.978E+04	4.787E+07	3.216E+03	1.597E+04	2.393E+07	1.608E+03
2020	6.316E+04	5.058E+07	3.398E+03	1.687E+04	2.529E+07	1.699E+03
2021	6.641E+04	5.318E+07	3.573E+03	1.774E+04	2.659E+07	1.787E+03
2022	6.953E+04	5.568E+07	3.741E+03	1.857E+04	2.784E+07	1.871E+03
2023	7.254E+04	5.808E+07	3.903E+03	1.938E+04	2.904E+07	1.951E+03
2024	7.542E+04	6.039E+07	4.058E+03	2.015E+04	3.020E+07	2.029E+03
2025	7.819E+04	6.261E+07	4.207E+03	2.089E+04	3.131E+07	2.103E+03
2026	8.085E+04	6.474E+07	4.350E+03	2.160E+04	3.237E+07	2.175E+03
2027	8.341E+04	6.679E+07	4.488E+03	2.228E+04	3.340E+07	2.244E+03
2028	8.587E+04	6.876E+07	4.620E+03	2.294E+04	3.438E+07	2.310E+03
2029	8.823E+04	7.065E+07	4.747E+03	2.357E+04	3.532E+07	2.373E+03
2030	9.050E+04	7.247E+07	4.869E+03	2.417E+04	3.623E+07	2.434E+03
2031	9.268E+04	7.421E+07	4.986E+03	2.475E+04	3.711E+07	2.493E+03
2032	9.477E+04	7.589E+07	5.099E+03	2.531E+04	3.794E+07	2.549E+03
2033	9.678E+04	7.750E+07	5.207E+03	2.585E+04	3.875E+07	2.604E+03
2034	9.871E+04	7.905E+07	5.311E+03	2.637E+04	3.952E+07	2.656E+03
2035	1.006E+05	8.053E+07	5.411E+03	2.686E+04	4.027E+07	2.706E+03
2036	1.024E+05	8.196E+07	5.507E+03	2.734E+04	4.098E+07	2.754E+03
2037	1.041E+05	8.334E+07	5.599E+03	2.780E+04	4.167E+07	2.800E+03
2038	1.057E+05	8.465E+07	5.688E+03	2.824E+04	4.233E+07	2.844E+03
2039	1.073E+05	8.592E+07	5.773E+03	2.866E+04	4.296E+07	2.887E+03
2040	1.088E+05	8.714E+07	5.855E+03	2.907E+04	4.357E+07	2.927E+03
2041	1.103E+05	8.831E+07	5.933E+03	2.946E+04	4.415E+07	2.967E+03
2042	1.117E+05	8.943E+07	6.009E+03	2.983E+04	4.472E+07	3.004E+03
2043	1.130E+05	9.051E+07	6.082E+03	3.019E+04	4.526E+07	3.041E+03
2044	1.143E+05	9.155E+07	6.151E+03	3.054E+04	4.578E+07	3.076E+03
2045	1.156E+05	9.255E+07	6.218E+03	3.087E+04	4.627E+07	3.109E+03
2046	1.168E+05	9.350E+07	6.283E+03	3.119E+04	4.675E+07	3.141E+03
2047	1.179E+05	9.443E+07	6.344E+03	3.150E+04	4.721E+07	3.172E+03
2048	1.190E+05	9.531E+07	6.404E+03	3.179E+04	4.765E+07	3.202E+03
2049	1.201E+05	9.616E+07	6.461E+03	3.208E+04	4.808E+07	3.230E+03
2050	1.211E+05	9.697E+07	6.516E+03	3.235E+04	4.849E+07	3.258E+03
2051	1.221E+05	9.776E+07	6.568E+03	3.261E+04	4.888E+07	3.284E+03
2052	1.230E+05	9.851E+07	6.619E+03	3.286E+04	4.926E+07	3.310E+03
2053	1.239E+05	9.924E+07	6.668E+03	3.310E+04	4.962E+07	3.334E+03
2054	1.199E+05	9.605E+07	6.454E+03	3.204E+04	4.802E+07	3.227E+03
2055	1.152E+05	9.228E+07	6.200E+03	3.078E+04	4.614E+07	3.100E+03
2056	1.107E+05	8.866E+07	5.957E+03	2.958E+04	4.433E+07	2.979E+03

Results (Continued)

Year	Total landfill gas			Methane		
	(Mg/year)	*(m^3/year)*	*(av ft^3/min)*	*(Mg/year)*	*(m^3/year)*	*(av ft^3/min)*
2057	1.064E+05	8.519E+07	5.724E+03	2.842E+04	4.259E+07	2.862E+03
2058	1.022E+05	8.185E+07	5.499E+03	2.730E+04	4.092E+07	2.750E+03
2059	9.821E+04	7.864E+07	5.284E+03	2.623E+04	3.932E+07	2.642E+03
2060	9.435E+04	7.555E+07	5.077E+03	2.520E+04	3.778E+07	2.538E+03
2061	9.066E+04	7.259E+07	4.877E+03	2.421E+04	3.630E+07	2.439E+03
2062	8.710E+04	6.975E+07	4.686E+03	2.327E+04	3.487E+07	2.343E+03
2063	8.369E+04	6.701E+07	4.502E+03	2.235E+04	3.351E+07	2.251E+03
2064	8.040E+04	6.438E+07	4.326E+03	2.148E+04	3.219E+07	2.163E+03
2065	7.725E+04	6.186E+07	4.156E+03	2.063E+04	3.093E+07	2.078E+03
2066	7.422E+04	5.943E+07	3.993E+03	1.983E+04	2.972E+07	1.997E+03
2067	7.131E+04	5.710E+07	3.837E+03	1.905E+04	2.855E+07	1.918E+03
2068	6.852E+04	5.486E+07	3.686E+03	1.830E+04	2.743E+07	1.843E+03
2069	6.583E+04	5.271E+07	3.542E+03	1.758E+04	2.636E+07	1.771E+03
2070	6.325E+04	5.065E+07	3.403E+03	1.689E+04	2.532E+07	1.701E+03
2071	6.077E+04	4.866E+07	3.269E+03	1.623E+04	2.433E+07	1.635E+03
2072	5.839E+04	4.675E+07	3.141E+03	1.560E+04	2.338E+07	1.571E+03
2073	5.610E+04	4.492E+07	3.018E+03	1.498E+04	2.246E+07	1.509E+03
2074	5.390E+04	4.316E+07	2.900E+03	1.440E+04	2.158E+07	1.450E+03
2075	5.178E+04	4.147E+07	2.786E+03	1.383E+04	2.073E+07	1.393E+03
2076	4.975E+04	3.984E+07	2.677E+03	1.329E+04	1.992E+07	1.338E+03
2077	4.780E+04	3.828E+07	2.572E+03	1.277E+04	1.914E+07	1.286E+03
2078	4.593E+04	3.678E+07	2.471E+03	1.227E+04	1.839E+07	1.236E+03
2079	4.413E+04	3.533E+07	2.374E+03	1.179E+04	1.767E+07	1.187E+03
2080	4.240E+04	3.395E+07	2.281E+03	1.132E+04	1.697E+07	1.141E+03
2081	4.073E+04	3.262E+07	2.192E+03	1.088E+04	1.631E+07	1.096E+03
2082	3.914E+04	3.134E+07	2.106E+03	1.045E+04	1.567E+07	1.053E+03
2083	3.760E+04	3.011E+07	2.023E+03	1.004E+04	1.506E+07	1.012E+03
2084	3.613E+04	2.893E+07	1.944E+03	9.650E+03	1.446E+07	9.719E+02
2085	3.471E+04	2.780E+07	1.868E+03	9.272E+03	1.390E+07	9.338E+02
2086	3.335E+04	2.671E+07	1.794E+03	8.908E+03	1.335E+07	8.972E+02
2087	3.204E+04	2.566E+07	1.724E+03	8.559E+03	1.283E+07	8.620E+02
2088	3.079E+04	2.465E+07	1.656E+03	8.223E+03	1.233E+07	8.282E+02
2089	2.958E+04	2.369E+07	1.591E+03	7.901E+03	1.184E+07	7.957E+02
2090	2.842E+04	2.276E+07	1.529E+03	7.591E+03	1.138E+07	7.645E+02
2091	2.730E+04	2.186E+07	1.469E+03	7.293E+03	1.093E+07	7.345E+02
2092	2.623E+04	2.101E+07	1.411E+03	7.007E+03	1.050E+07	7.057E+02
2093	2.521E+04	2.018E+07	1.356E+03	6.733E+03	1.009E+07	6.781E+02
2094	2.422E+04	1.939E+07	1.303E+03	6.469E+03	9.696E+06	6.515E+02
2095	2.327E+04	1.863E+07	1.252E+03	6.215E+03	9.316E+06	6.259E+02
2096	2.236E+04	1.790E+07	1.203E+03	5.971E+03	8.951E+06	6.014E+02
2097	2.148E+04	1.720E+07	1.156E+03	5.737E+03	8.600E+06	5.778E+02
2098	2.064E+04	1.652E+07	1.110E+03	5.512E+03	8.262E+06	5.551E+02
2099	1.983E+04	1.588E+07	1.067E+03	5.296E+03	7.938E+06	5.334E+02
2100	1.905E+04	1.525E+07	1.025E+03	5.088E+03	7.627E+06	5.125E+02
2101	1.830E+04	1.466E+07	9.847E+02	4.889E+03	7.328E+06	4.924E+02
2102	1.759E+04	1.408E+07	9.461E+02	4.697E+03	7.041E+06	4.731E+02
2103	1.690E+04	1.353E+07	9.090E+02	4.513E+03	6.765E+06	4.545E+02
2104	1.623E+04	1.300E+07	8.734E+02	4.336E+03	6.499E+06	4.367E+02
2105	1.560E+04	1.249E+07	8.391E+02	4.166E+03	6.245E+06	4.196E+02
2106	1.499E+04	1.200E+07	8.062E+02	4.003E+03	6.000E+06	4.031E+02
2107	1.440E+04	1.153E+07	7.746E+02	3.846E+03	5.764E+06	3.873E+02

Results (Continued)

Year	Total landfill gas			Methane		
	(Mg/year)	*(m^3/year)*	*(av ft^3/min)*	*(Mg/year)*	*(m^3/year)*	*(av ft^3/min)*
2108	1.383E+04	1.108E+07	7.443E+02	3.695E+03	5.538E+06	3.721E+02
2109	1.329E+04	1.064E+07	7.151E+02	3.550E+03	5.321E+06	3.575E+02
2110	1.277E+04	1.023E+07	6.870E+02	3.411E+03	5.113E+06	3.435E+02
2111	1.227E+04	9.824E+06	6.601E+02	3.277E+03	4.912E+06	3.300E+02
2112	1.179E+04	9.439E+06	6.342E+02	3.149E+03	4.720E+06	3.171E+02
2113	1.133E+04	9.069E+06	6.093E+02	3.025E+03	4.534E+06	3.047E+02
2114	1.088E+04	8.713E+06	5.855E+02	2.907E+03	4.357E+06	2.927E+02
2115	1.045E+04	8.372E+06	5.625E+02	2.793E+03	4.186E+06	2.812E+02
2116	1.004E+04	8.043E+06	5.404E+02	2.683E+03	4.022E+06	2.702E+02
2117	9.651E+03	7.728E+06	5.192E+02	2.578E+03	3.864E+06	2.596E+02
2118	9.273E+03	7.425E+06	4.989E+02	2.477E+03	3.713E+06	2.494E+02
2119	8.909E+03	7.134E+06	4.793E+02	2.380E+03	3.567E+06	2.397E+02
2120	8.560E+03	6.854E+06	4.605E+02	2.286E+03	3.427E+06	2.303E+02
2121	8.224E+03	6.585E+06	4.425E+02	2.197E+03	3.293E+06	2.212E+02
2122	7.902E+03	6.327E+06	4.251E+02	2.111E+03	3.164E+06	2.126E+02
2123	7.592E+03	6.079E+06	4.085E+02	2.028E+03	3.040E+06	2.042E+02
2124	7.294E+03	5.841E+06	3.924E+02	1.948E+03	2.920E+06	1.962E+02
2125	7.008E+03	5.612E+06	3.771E+02	1.872E+03	2.806E+06	1.885E+02
2126	6.733E+03	5.392E+06	3.623E+02	1.799E+03	2.696E+06	1.811E+02
2127	6.469E+03	5.180E+06	3.481E+02	1.728E+03	2.590E+06	1.740E+02
2128	6.216E+03	4.977E+06	3.344E+02	1.660E+03	2.489E+06	1.672E+02
2129	5.972E+03	4.782E+06	3.213E+02	1.595E+03	2.391E+06	1.607E+02
2130	5.738E+03	4.595E+06	3.087E+02	1.533E+03	2.297E+06	1.544E+02
2131	5.513E+03	4.414E+06	2.966E+02	1.473E+03	2.207E+06	1.483E+02
2132	5.297E+03	4.241E+06	2.850E+02	1.415E+03	2.121E+06	1.425E+02
2133	5.089E+03	4.075E+06	2.738E+02	1.359E+03	2.037E+06	1.369E+02
2134	4.889E+03	3.915E+06	2.631E+02	1.306E+03	1.958E+06	1.315E+02
2135	4.698E+03	3.762E+06	2.527E+02	1.255E+03	1.881E+06	1.264E+02
2136	4.513E+03	3.614E+06	2.428E+02	1.206E+03	1.807E+06	1.214E+02
2137	4.336E+03	3.472E+06	2.333E+02	1.158E+03	1.736E+06	1.167E+02
2138	4.166E+03	3.336E+06	2.242E+02	1.113E+03	1.668E+06	1.121E+02
2139	4.003E+03	3.205E+06	2.154E+02	1.069E+03	1.603E+06	1.077E+02
2140	3.846E+03	3.080E+06	2.069E+02	1.027E+03	1.540E+06	1.035E+02
2141	3.695E+03	2.959E+06	1.988E+02	9.871E+02	1.480E+06	9.941E+01
2142	3.550E+03	2.843E+06	1.910E+02	9.484E+02	1.422E+06	9.551E+01
2143	3.411E+03	2.732E+06	1.835E+02	9.112E+02	1.366E+06	9.177E+01
2144	3.277E+03	2.624E+06	1.763E+02	8.754E+02	1.312E+06	8.817E+01
2145	3.149E+03	2.522E+06	1.694E+02	8.411E+02	1.261E+06	8.471E+01
2146	3.025E+03	2.423E+06	1.628E+02	8.081E+02	1.211E+06	8.139E+01
2147	2.907E+03	2.328E+06	1.564E+02	7.764E+02	1.164E+06	7.820E+01

Results (Continued)

Year	Carbon dioxide			NMOC		
	(Mg/year)	*(m^3/year)*	*(av ft^3/min)*	*(Mg/year)*	*(m^3/year)*	*(av ft^3/min)*
2007	0	0	0	0	0	0
2008	4.964E+03	2.712E+06	1.822E+02	1.157E+01	3.227E+03	2.168E-01
2009	9.673E+03	5.284E+06	3.551E+02	2.254E+01	6.288E+03	4.225E-01
2010	1.417E+04	7.738E+06	5.199E+02	3.301E+01	9.209E+03	6.187E-01
2011	1.835E+04	1.003E+07	6.736E+02	4.277E+01	1.193E+04	8.016E-01
2012	2.256E+04	1.232E+07	8.280E+02	5.257E+01	1.466E+04	9.853E-01
2013	2.665E+04	1.456E+07	9.783E+02	6.211E+01	1.733E+04	1.164E+00
2014	2.980E+04	1.628E+07	1.094E+03	6.945E+01	1.938E+04	1.302E+00
2015	3.283E+04	1.794E+07	1.205E+03	7.651E+01	2.135E+04	1.434E+00
2016	3.574E+04	1.953E+07	1.312E+03	8.329E+01	2.324E+04	1.561E+00
2017	3.854E+04	2.105E+07	1.415E+03	8.981E+01	2.506E+04	1.683E+00
2018	4.123E+04	2.252E+07	1.513E+03	9.607E+01	2.680E+04	1.801E+00
2019	4.381E+04	2.393E+07	1.608E+03	1.021E+02	2.848E+04	1.914E+00
2020	4.629E+04	2.529E+07	1.699E+03	1.079E+02	3.009E+04	2.022E+00
2021	4.867E+04	2.659E+07	1.787E+03	1.134E+02	3.164E+04	2.126E+00
2022	5.096E+04	2.784E+07	1.871E+03	1.188E+02	3.313E+04	2.226E+00
2023	5.316E+04	2.904E+07	1.951E+03	1.239E+02	3.456E+04	2.322E+00
2024	5.527E+04	3.020E+07	2.029E+03	1.288E+02	3.593E+04	2.414E+00
2025	5.730E+04	3.131E+07	2.103E+03	1.335E+02	3.725E+04	2.503E+00
2026	5.926E+04	3.237E+07	2.175E+03	1.381E+02	3.852E+04	2.588E+00
2027	6.113E+04	3.340E+07	2.244E+03	1.424E+02	3.974E+04	2.670E+00
2028	6.293E+04	3.438E+07	2.310E+03	1.466E+02	4.091E+04	2.749E+00
2029	6.466E+04	3.532E+07	2.373E+03	1.507E+02	4.204E+04	2.824E+00
2030	6.632E+04	3.623E+07	2.434E+03	1.546E+02	4.312E+04	2.897E+00
2031	6.792E+04	3.711E+07	2.493E+03	1.583E+02	4.416E+04	2.967E+00
2032	6.946E+04	3.794E+07	2.549E+03	1.618E+02	4.515E+04	3.034E+00
2033	7.093E+04	3.875E+07	2.604E+03	1.653E+02	4.611E+04	3.098E+00
2034	7.235E+04	3.952E+07	2.656E+03	1.686E+02	4.703E+04	3.160E+00
2035	7.371E+04	4.027E+07	2.706E+03	1.718E+02	4.792E+04	3.220E+00
2036	7.502E+04	4.098E+07	2.754E+03	1.748E+02	4.877E+04	3.277E+00
2037	7.627E+04	4.167E+07	2.800E+03	1.777E+02	4.958E+04	3.332E+00
2038	7.748E+04	4.233E+07	2.844E+03	1.805E+02	5.037E+04	3.384E+00
2039	7.864E+04	4.296E+07	2.887E+03	1.832E+02	5.112E+04	3.435E+00
2040	7.975E+04	4.357E+07	2.927E+03	1.858E+02	5.185E+04	3.484E+00
2041	8.082E+04	4.415E+07	2.967E+03	1.883E+02	5.254E+04	3.530E+00
2042	8.185E+04	4.472E+07	3.004E+03	1.907E+02	5.321E+04	3.575E+00
2043	8.284E+04	4.526E+07	3.041E+03	1.930E+02	5.385E+04	3.619E+00
2044	8.379E+04	4.578E+07	3.076E+03	1.953E+02	5.447E+04	3.660E+00
2045	8.470E+04	4.627E+07	3.109E+03	1.974E+02	5.507E+04	3.700E+00
2046	8.558E+04	4.675E+07	3.141E+03	1.994E+02	5.564E+04	3.738E+00
2047	8.642E+04	4.721E+07	3.172E+03	2.014E+02	5.618E+04	3.775E+00
2048	8.723E+04	4.765E+07	3.202E+03	2.033E+02	5.671E+04	3.810E+00
2049	8.801E+04	4.808E+07	3.230E+03	2.051E+02	5.721E+04	3.844E+00
2050	8.876E+04	4.849E+07	3.258E+03	2.068E+02	5.770E+04	3.877E+00
2051	8.947E+04	4.888E+07	3.284E+03	2.085E+02	5.817E+04	3.908E+00
2052	9.016E+04	4.926E+07	3.310E+03	2.101E+02	5.861E+04	3.938E+00
2053	9.083E+04	4.962E+07	3.334E+03	2.116E+02	5.905E+04	3.967E+00
2054	8.791E+04	4.802E+07	3.227E+03	2.048E+02	5.715E+04	3.840E+00
2055	8.446E+04	4.614E+07	3.100E+03	1.968E+02	5.491E+04	3.689E+00
2056	8.115E+04	4.433E+07	2.979E+03	1.891E+02	5.276E+04	3.545E+00

Results (Continued)

Year	Carbon dioxide			NMOC		
	(Mg/year)	*(m^3/year)*	*(av ft^3/min)*	*(Mg/year)*	*(m^3/year)*	*(av ft^3/min)*
2057	7.797E+04	4.259E+07	2.862E+03	1.817E+02	5.069E+04	3.406E+00
2058	7.491E+04	4.092E+07	2.750E+03	1.746E+02	4.870E+04	3.272E+00
2059	7.197E+04	3.932E+07	2.642E+03	1.677E+02	4.679E+04	3.144E+00
2060	6.915E+04	3.778E+07	2.538E+03	1.611E+02	4.496E+04	3.021E+00
2061	6.644E+04	3.630E+07	2.439E+03	1.548E+02	4.319E+04	2.902E+00
2062	6.383E+04	3.487E+07	2.343E+03	1.488E+02	4.150E+04	2.788E+00
2063	6.133E+04	3.351E+07	2.251E+03	1.429E+02	3.987E+04	2.679E+00
2064	5.893E+04	3.219E+07	2.163E+03	1.373E+02	3.831E+04	2.574E+00
2065	5.662E+04	3.093E+07	2.078E+03	1.319E+02	3.681E+04	2.473E+00
2066	5.440E+04	2.972E+07	1.997E+03	1.268E+02	3.536E+04	2.376E+00
2067	5.226E+04	2.855E+07	1.918E+03	1.218E+02	3.398E+04	2.283E+00
2068	5.021E+04	2.743E+07	1.843E+03	1.170E+02	3.264E+04	2.193E+00
2069	4.825E+04	2.636E+07	1.771E+03	1.124E+02	3.136E+04	2.107E+00
2070	4.635E+04	2.532E+07	1.701E+03	1.080E+02	3.013E+04	2.025E+00
2071	4.454E+04	2.433E+07	1.635E+03	1.038E+02	2.895E+04	1.945E+00
2072	4.279E+04	2.338E+07	1.571E+03	9.971E+01	2.782E+04	1.869E+00
2073	4.111E+04	2.246E+07	1.509E+03	9.580E+01	2.673E+04	1.796E+00
2074	3.950E+04	2.158E+07	1.450E+03	9.204E+01	2.568E+04	1.725E+00
2075	3.795E+04	2.073E+07	1.393E+03	8.844E+01	2.467E+04	1.658E+00
2076	3.646E+04	1.992E+07	1.338E+03	8.497E+01	2.370E+04	1.593E+00
2077	3.503E+04	1.914E+07	1.286E+03	8.164E+01	2.278E+04	1.530E+00
2078	3.366E+04	1.839E+07	1.236E+03	7.844E+01	2.188E+04	1.470E+00
2079	3.234E+04	1.767E+07	1.187E+03	7.536E+01	2.102E+04	1.413E+00
2080	3.107E+04	1.697E+07	1.141E+03	7.241E+01	2.020E+04	1.357E+00
2081	2.985E+04	1.631E+07	1.096E+03	6.957E+01	1.941E+04	1.304E+00
2082	2.868E+04	1.567E+07	1.053E+03	6.684E+01	1.865E+04	1.253E+00
2083	2.756E+04	1.506E+07	1.012E+03	6.422E+01	1.792E+04	1.204E+00
2084	2.648E+04	1.446E+07	9.719E+02	6.170E+01	1.721E+04	1.157E+00
2085	2.544E+04	1.390E+07	9.338E+02	5.928E+01	1.654E+04	1.111E+00
2086	2.444E+04	1.335E+07	8.972E+02	5.696E+01	1.589E+04	1.068E+00
2087	2.348E+04	1.283E+07	8.620E+02	5.472E+01	1.527E+04	1.026E+00
2088	2.256E+04	1.233E+07	8.282E+02	5.258E+01	1.467E+04	9.855E-01
2089	2.168E+04	1.184E+07	7.957E+02	5.052E+01	1.409E+04	9.469E-01
2090	2.083E+04	1.138E+07	7.645E+02	4.853E+01	1.354E+04	9.098E-01
2091	2.001E+04	1.093E+07	7.345E+02	4.663E+01	1.301E+04	8.741E-01
2092	1.923E+04	1.050E+07	7.057E+02	4.480E+01	1.250E+04	8.398E-01
2093	1.847E+04	1.009E+07	6.781E+02	4.305E+01	1.201E+04	8.069E-01
2094	1.775E+04	9.696E+06	6.515E+02	4.136E+01	1.154E+04	7.753E-01
2095	1.705E+04	9.316E+06	6.259E+02	3.974E+01	1.109E+04	7.449E-01
2096	1.638E+04	8.951E+06	6.014E+02	3.818E+01	1.065E+04	7.156E-01
2097	1.574E+04	8.600E+06	5.778E+02	3.668E+01	1.023E+04	6.876E-01
2098	1.512E+04	8.262E+06	5.551E+02	3.524E+01	9.832E+03	6.606E-01
2099	1.453E+04	7.938E+06	5.334E+02	3.386E+01	9.447E+03	6.347E-01
2100	1.396E+04	7.627E+06	5.125E+02	3.253E+01	9.076E+03	6.098E-01
2101	1.341E+04	7.328E+06	4.924E+02	3.126E+01	8.720E+03	5.859E-01
2102	1.289E+04	7.041E+06	4.731E+02	3.003E+01	8.378E+03	5.629E-01
2103	1.238E+04	6.765E+06	4.545E+02	2.885E+01	8.050E+03	5.409E-01
2104	1.190E+04	6.499E+06	4.367E+02	2.772E+01	7.734E+03	5.197E-01
2105	1.143E+04	6.245E+06	4.196E+02	2.664E+01	7.431E+03	4.993E-01
2106	1.098E+04	6.000E+06	4.031E+02	2.559E+01	7.140E+03	4.797E-01
2107	1.055E+04	5.764E+06	3.873E+02	2.459E+01	6.860E+03	4.609E-01

Results (Continued)

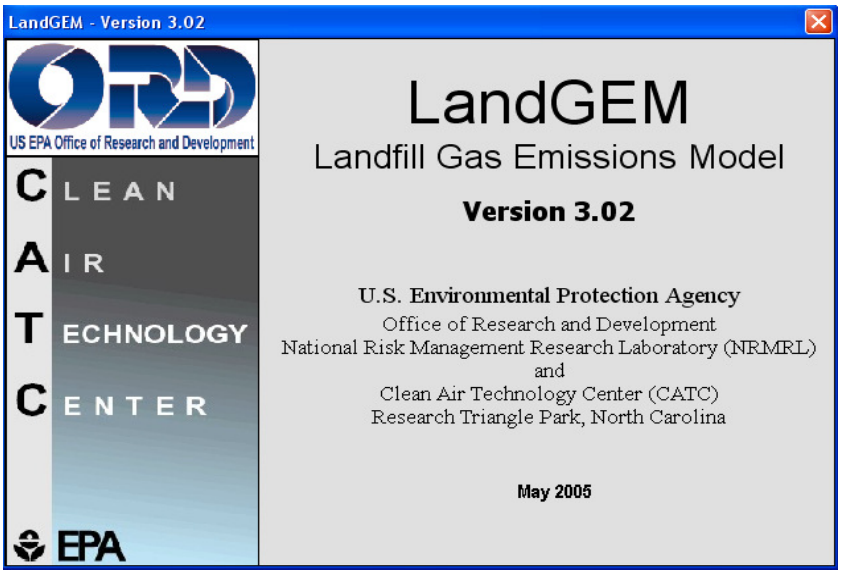
Year	Carbon dioxide			NMOC		
	(Mg/year)	*(m^3/year)*	*(av ft^3/min)*	*(Mg/year)*	*(m^3/year)*	*(av ft^3/min)*
2108	1.014E+04	5.538E+06	3.721E+02	2.362E+01	6.591E+03	4.428E-01
2109	9.741E+03	5.321E+06	3.575E+02	2.270E+01	6.332E+03	4.255E-01
2110	9.359E+03	5.113E+06	3.435E+02	2.181E+01	6.084E+03	4.088E-01
2111	8.992E+03	4.912E+06	3.300E+02	2.095E+01	5.845E+03	3.928E-01
2112	8.639E+03	4.720E+06	3.171E+02	2.013E+01	5.616E+03	3.774E-01
2113	8.300E+03	4.534E+06	3.047E+02	1.934E+01	5.396E+03	3.626E-01
2114	7.975E+03	4.357E+06	2.927E+02	1.858E+01	5.184E+03	3.483E-01
2115	7.662E+03	4.186E+06	2.812E+02	1.785E+01	4.981E+03	3.347E-01
2116	7.362E+03	4.022E+06	2.702E+02	1.715E+01	4.786E+03	3.216E-01
2117	7.073E+03	3.864E+06	2.596E+02	1.648E+01	4.598E+03	3.090E-01
2118	6.796E+03	3.713E+06	2.494E+02	1.584E+01	4.418E+03	2.968E-01
2119	6.529E+03	3.567E+06	2.397E+02	1.521E+01	4.245E+03	2.852E-01
2120	6.273E+03	3.427E+06	2.303E+02	1.462E+01	4.078E+03	2.740E-01
2121	6.027E+03	3.293E+06	2.212E+02	1.405E+01	3.918E+03	2.633E-01
2122	5.791E+03	3.164E+06	2.126E+02	1.349E+01	3.765E+03	2.529E-01
2123	5.564E+03	3.040E+06	2.042E+02	1.297E+01	3.617E+03	2.430E-01
2124	5.346E+03	2.920E+06	1.962E+02	1.246E+01	3.475E+03	2.335E-01
2125	5.136E+03	2.806E+06	1.885E+02	1.197E+01	3.339E+03	2.243E-01
2126	4.935E+03	2.696E+06	1.811E+02	1.150E+01	3.208E+03	2.155E-01
2127	4.741E+03	2.590E+06	1.740E+02	1.105E+01	3.082E+03	2.071E-01
2128	4.555E+03	2.489E+06	1.672E+02	1.062E+01	2.961E+03	1.990E-01
2129	4.377E+03	2.391E+06	1.607E+02	1.020E+01	2.845E+03	1.912E-01
2130	4.205E+03	2.297E+06	1.544E+02	9.799E+00	2.734E+03	1.837E-01
2131	4.040E+03	2.207E+06	1.483E+02	9.415E+00	2.627E+03	1.765E-01
2132	3.882E+03	2.121E+06	1.425E+02	9.046E+00	2.524E+03	1.696E-01
2133	3.730E+03	2.037E+06	1.369E+02	8.691E+00	2.425E+03	1.629E-01
2134	3.583E+03	1.958E+06	1.315E+02	8.350E+00	2.330E+03	1.565E-01
2135	3.443E+03	1.881E+06	1.264E+02	8.023E+00	2.238E+03	1.504E-01
2136	3.308E+03	1.807E+06	1.214E+02	7.708E+00	2.150E+03	1.445E-01
2137	3.178E+03	1.736E+06	1.167E+02	7.406E+00	2.066E+03	1.388E-01
2138	3.054E+03	1.668E+06	1.121E+02	7.116E+00	1.985E+03	1.334E-01
2139	2.934E+03	1.603E+06	1.077E+02	6.837E+00	1.907E+03	1.281E-01
2140	2.819E+03	1.540E+06	1.035E+02	6.568E+00	1.832E+03	1.231E-01
2141	2.708E+03	1.480E+06	9.941E+01	6.311E+00	1.761E+03	1.183E-01
2142	2.602E+03	1.422E+06	9.551E+01	6.063E+00	1.692E+03	1.137E-01
2143	2.500E+03	1.366E+06	9.177E+01	5.826E+00	1.625E+03	1.092E-01
2144	2.402E+03	1.312E+06	8.817E+01	5.597E+00	1.562E+03	1.049E-01
2145	2.308E+03	1.261E+06	8.471E+01	5.378E+00	1.500E+03	1.008E-01
2146	2.217E+03	1.211E+06	8.139E+01	5.167E+00	1.441E+03	9.685E-02
2147	2.130E+03	1.164E+06	7.820E+01	4.964E+00	1.385E+03	9.305E-02

INVENTORY

Landfill Name or Identifier: United Refuse Landfill

Enter year of emissions inventory: 2014

Gas / Pollutant	Emission Rate				
	(Mg/year)	*(m^3/year)*	*(av ft^3/min)*	*(ft^3/year)*	*(short tons/year)*
Total landfill gas	1.338E+04	1.072E+07	7.200E+02	3.784E+08	1.472E+04
Methane	3.574E+03	5.358E+06	3.600E+02	1.892E+08	3.932E+03
Carbon dioxide	9.807E+03	5.358E+06	3.600E+02	1.892E+08	1.079E+04
NMOC	6.376E+00	1.779E+03	1.195E-01	6.282E+04	7.013E+00
1,1,1-Trichloroethane (methyl chloroform) - HAP	2.854E-02	5.143E+00	3.456E-04	1.816E+02	3.139E-02
1,1,2,2-Tetrachloroethane - HAP/VOC	8.229E-02	1.179E+01	7.920E-04	4.162E+02	9.052E-02
1,1-Dichloroethane (ethylidene dichloride) - HAP/VOC	1.059E-01	2.572E+01	1.728E-03	9.082E+02	1.164E-01
1,1-Dichloroethene (vinylidene chloride) - HAP/VOC	8.641E-03	2.143E+00	1.440E-04	7.568E+01	9.505E-03
1,2-Dichloroethane (ethylene dichloride) - HAP/VOC	1.808E-02	4.393E+00	2.952E-04	1.551E+02	1.989E-02
1,2-Dichloropropane (propylene dichloride) - HAP/VOC	9.064E-03	1.929E+00	1.296E-04	6.811E+01	9.971E-03
2-Propanol (isopropyl alcohol) - VOC	1.339E+00	5.358E+02	3.600E-02	1.892E+04	1.473E+00
Acetone	1.812E-01	7.501E+01	5.040E-03	2.649E+03	1.993E-01
Acrylonitrile - HAP/VOC	1.490E-01	6.751E+01	4.536E-03	2.384E+03	1.639E-01
Benzene - No or Unknown Co-disposal - HAP/VOC	6.614E-02	2.036E+01	1.368E-03	7.190E+02	7.276E-02
Benzene - Co-disposal - HAP/VOC	3.829E-01	1.179E+02	7.920E-03	4.162E+03	4.212E-01
Bromodichloromethane - VOC	2.263E-01	3.322E+01	2.232E-03	1.173E+03	2.490E-01
Butane - VOC	1.295E-01	5.358E+01	3.600E-03	1.892E+03	1.425E-01
Carbon disulfide - HAP/VOC	1.968E-02	6.215E+00	4.176E-04	2.195E+02	2.165E-02
Carbon monoxide	1.748E+00	1.500E+03	1.008E-01	5.298E+04	1.922E+00
Carbon tetrachloride - HAP/VOC	2.743E-04	4.286E-02	2.880E-06	1.514E+00	3.017E-04
Carbonyl sulfide - HAP/VOC	1.312E-02	5.250E+00	3.528E-04	1.854E+02	1.443E-02
Chlorobenzene - HAP/VOC	1.254E-02	2.679E+00	1.800E-04	9.460E+01	1.380E-02
Chlorodifluoromethane	5.010E-02	1.393E+01	9.359E-04	4.919E+02	5.511E-02
Chloroethane (ethyl chloride) - HAP/VOC	3.738E-02	1.393E+01	9.359E-04	4.919E+02	4.112E-02
Chloroform - HAP/VOC	1.596E-03	3.215E-01	2.160E-05	1.135E+01	1.756E-03
Chloromethane - VOC	2.700E-02	1.286E+01	8.639E-04	4.541E+02	2.970E-02
Dichlorobenzene - (HAP for para isomer/VOC)	1.376E-02	2.250E+00	1.512E-04	7.947E+01	1.513E-02
Dichlorodifluoromethane	8.622E-01	1.714E+02	1.152E-02	6.055E+03	9.484E-01
Dichlorofluoromethane - VOC	1.193E-01	2.786E+01	1.872E-03	9.839E+02	1.312E-01
Dichloromethane (methylene chloride) - HAP	5.300E-01	1.500E+02	1.008E-02	5.298E+03	5.830E-01
Dimethyl sulfide (methyl sulfide) - VOC	2.160E-01	8.358E+01	5.616E-03	2.952E+03	2.376E-01
Ethane	1.193E+01	9.537E+03	6.408E-01	3.368E+05	1.312E+01
Ethanol - VOC	5.545E-01	2.893E+02	1.944E-02	1.022E+04	6.099E-01
Ethyl mercaptan (ethanethiol) - VOC	6.369E-02	2.465E+01	1.656E-03	8.703E+02	7.006E-02
Ethylbenzene - HAP/VOC	2.176E-01	4.929E+01	3.312E-03	1.741E+03	2.394E-01
Ethylene dibromide - HAP/VOC	8.373E-05	1.072E-02	7.200E-07	3.784E-01	9.211E-05
Fluorotrichloromethane - VOC	4.653E-02	8.144E+00	5.472E-04	2.876E+02	5.119E-02
Hexane - HAP/VOC	2.535E-01	7.072E+01	4.752E-03	2.497E+03	2.788E-01
Hydrogen sulfide	5.468E-01	3.857E+02	2.592E-02	1.362E+04	6.015E-01
Mercury (total) - HAP	2.593E-05	3.107E-03	2.088E-07	1.097E-01	2.852E-05
Methyl ethyl ketone - HAP/VOC	2.282E-01	7.608E+01	5.112E-03	2.687E+03	2.510E-01
Methyl isobutyl ketone - HAP/VOC	8.481E-02	2.036E+01	1.368E-03	7.190E+02	9.330E-02
Methyl mercaptan - VOC	5.360E-02	2.679E+01	1.800E-03	9.460E+02	5.896E-02
Pentane - VOC	1.061E-01	3.536E+01	2.376E-03	1.249E+03	1.167E-01
Perchloroethylene (tetrachloroethylene) - HAP	2.735E-01	3.965E+01	2.664E-03	1.400E+03	3.008E-01
Propane - VOC	2.161E-01	1.179E+02	7.920E-03	4.162E+03	2.378E-01
t-1,2-Dichloroethene - VOC	1.210E-01	3.000E+01	2.016E-03	1.060E+03	1.331E-01
Toluene - No or Unknown Co-disposal - HAP/VOC	1.601E+00	4.179E+02	2.808E-02	1.476E+04	1.761E+00
Toluene - Co-disposal - HAP/VOC	6.980E+00	1.822E+03	1.224E-01	6.433E+04	7.678E+00
Trichloroethylene (trichloroethene) - HAP/VOC	1.640E-01	3.000E+01	2.016E-03	1.060E+03	1.804E-01
Vinyl chloride - HAP/VOC	2.033E-01	7.822E+01	5.256E-03	2.762E+03	2.237E-01
Xylenes - HAP/VOC	5.678E-01	1.286E+02	8.639E-03	4.541E+03	6.245E-01



Summary Report

Landfill Name or Identifier: United Refuse Landfill

Date: Wednesday, July 02, 2014

Description/Comments:

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_{CH_4} = 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	**1976**	
Landfill Closure Year (with 80-year limit)	**2000**	
Actual Closure Year (without limit)	***2000***	
Have Model Calculate Closure Year?	**Yes**	
Waste Design Capacity	**3,009,050**	*megagrams*

MODEL PARAMETERS

Methane Generation Rate, k	**0.040**	*year^{-1}*
Potential Methane Generation Capacity, L_o	**100**	*m^3/Mg*
NMOC Concentration	**166**	*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)*
1976	45,470	50,017	0	0
1977	45,470	50,017	45,470	50,017
1978	45,460	50,006	90,940	100,034
1979	45,500	50,050	136,400	150,040
1980	45,400	49,940	181,900	200,090
1981	45,500	50,050	227,300	250,030
1982	45,500	50,050	272,800	300,080
1983	45,400	49,940	318,300	350,130
1984	45,500	50,050	363,700	400,070
1985	45,500	50,050	409,200	450,120
1986	45,400	49,940	454,700	500,170
1987	45,500	50,050	500,100	550,110
1988	45,500	50,050	545,600	600,160
1989	45,500	50,050	591,100	650,210
1990	45,400	49,940	636,600	700,260
1991	147,700	162,470	682,000	750,200
1992	230,300	253,330	829,700	912,670
1993	239,000	262,900	1,060,000	1,166,000
1994	300,000	330,000	1,299,000	1,428,900
1995	267,000	293,700	1,599,000	1,758,900
1996	266,000	292,600	1,866,000	2,052,600
1997	289,000	317,900	2,132,000	2,345,200
1998	289,000	317,900	2,421,000	2,663,100
1999	289,000	317,900	2,710,000	2,981,000
2000	10,050	11,055	2,999,000	3,298,900
2001	0	0	3,009,050	3,309,955
2002	0	0	3,009,050	3,309,955
2003	0	0	3,009,050	3,309,955
2004	0	0	3,009,050	3,309,955
2005	0	0	3,009,050	3,309,955
2006	0	0	3,009,050	3,309,955
2007	0	0	3,009,050	3,309,955
2008	0	0	3,009,050	3,309,955
2009	0	0	3,009,050	3,309,955
2010	0	0	3,009,050	3,309,955
2011	0	0	3,009,050	3,309,955
2012	0	0	3,009,050	3,309,955
2013	0	0	3,009,050	3,309,955
2014	0	0	3,009,050	3,309,955
2015	0	0	3,009,050	3,309,955

WASTE ACCEPTANCE RATES (Continued)

Year	Waste Accepted		Waste-In-Place	
	(Mg/year)	*(short tons/year)*	*(Mg)*	*(short tons)*
2016	0	0	3,009,050	3,309,955
2017	0	0	3,009,050	3,309,955
2018	0	0	3,009,050	3,309,955
2019	0	0	3,009,050	3,309,955
2020	0	0	3,009,050	3,309,955
2021	0	0	3,009,050	3,309,955
2022	0	0	3,009,050	3,309,955
2023	0	0	3,009,050	3,309,955
2024	0	0	3,009,050	3,309,955
2025	0	0	3,009,050	3,309,955
2026	0	0	3,009,050	3,309,955
2027	0	0	3,009,050	3,309,955
2028	0	0	3,009,050	3,309,955
2029	0	0	3,009,050	3,309,955
2030	0	0	3,009,050	3,309,955
2031	0	0	3,009,050	3,309,955
2032	0	0	3,009,050	3,309,955
2033	0	0	3,009,050	3,309,955
2034	0	0	3,009,050	3,309,955
2035	0	0	3,009,050	3,309,955
2036	0	0	3,009,050	3,309,955
2037	0	0	3,009,050	3,309,955
2038	0	0	3,009,050	3,309,955
2039	0	0	3,009,050	3,309,955
2040	0	0	3,009,050	3,309,955
2041	0	0	3,009,050	3,309,955
2042	0	0	3,009,050	3,309,955
2043	0	0	3,009,050	3,309,955
2044	0	0	3,009,050	3,309,955
2045	0	0	3,009,050	3,309,955
2046	0	0	3,009,050	3,309,955
2047	0	0	3,009,050	3,309,955
2048	0	0	3,009,050	3,309,955
2049	0	0	3,009,050	3,309,955
2050	0	0	3,009,050	3,309,955
2051	0	0	3,009,050	3,309,955
2052	0	0	3,009,050	3,309,955
2053	0	0	3,009,050	3,309,955
2054	0	0	3,009,050	3,309,955
2055	0	0	3,009,050	3,309,955

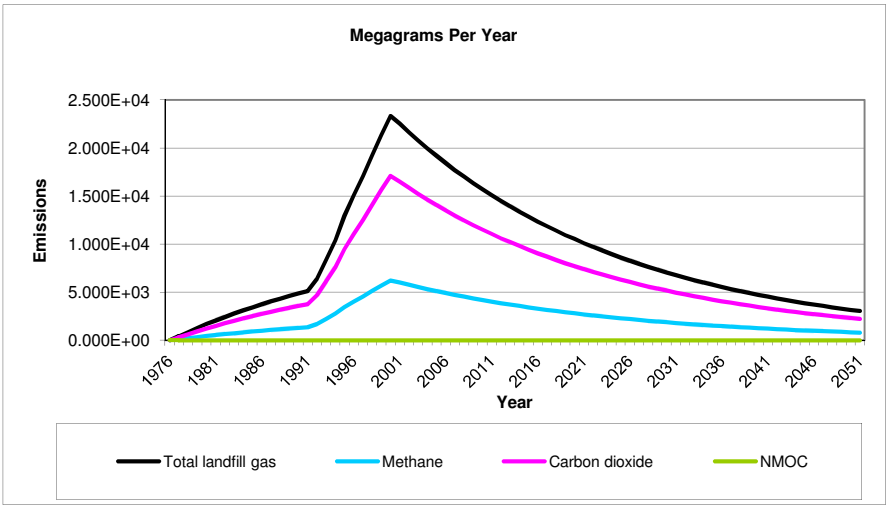
Pollutant Parameters

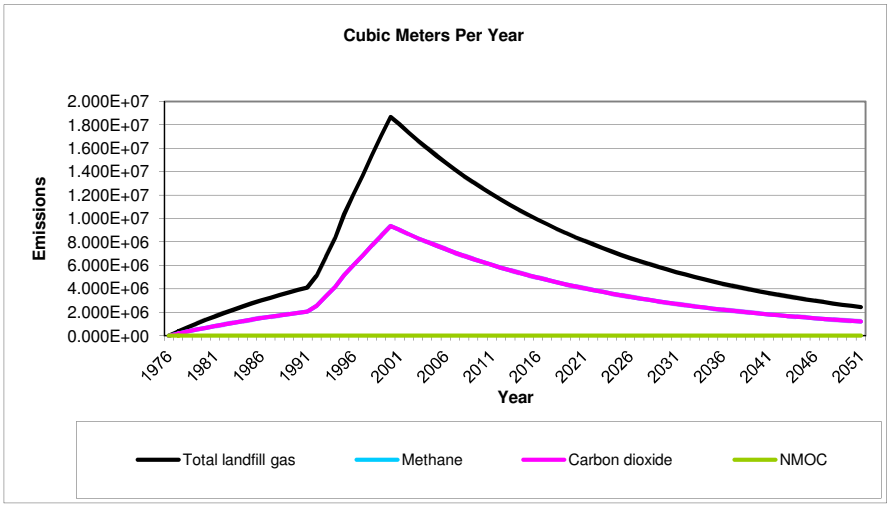
		Gas / Pollutant Default Parameters:		*User-specified Pollutant Parameters:*	
	Compound	Concentration (*ppmv*)	Molecular Weight	Concentration (*ppmv*)	Molecular Weight
Gases	Total landfill gas		0.00		
	Methane		16.04		
	Carbon dioxide		44.01		
	NMOC	4,000	86.18		
Pollutants	1,1,1-Trichloroethane (methyl chloroform) - HAP	0.48	133.41		
	1,1,2,2-Tetrachloroethane - HAP/VOC	1.1	167.85		
	1,1-Dichloroethane (ethylidene dichloride) - HAP/VOC	2.4	98.97		
	1,1-Dichloroethene (vinylidene chloride) - HAP/VOC	0.20	96.94		
	1,2-Dichloroethane (ethylene dichloride) - HAP/VOC	0.41	98.96		
	1,2-Dichloropropane (propylene dichloride) - HAP/VOC	0.18	112.99		
	2-Propanol (isopropyl alcohol) - VOC	50	60.11		
	Acetone	7.0	58.08		
	Acrylonitrile - HAP/VOC	6.3	53.06		
	Benzene - No or Unknown Co-disposal - HAP/VOC	1.9	78.11		
	Benzene - Co-disposal - HAP/VOC	11	78.11		
	Bromodichloromethane - VOC	3.1	163.83		
	Butane - VOC	5.0	58.12		
	Carbon disulfide - HAP/VOC	0.58	76.13		
	Carbon monoxide	140	28.01		
	Carbon tetrachloride - HAP/VOC	4.0E-03	153.84		
	Carbonyl sulfide - HAP/VOC	0.49	60.07		
	Chlorobenzene - HAP/VOC	0.25	112.56		
	Chlorodifluoromethane	1.3	86.47		
	Chloroethane (ethyl chloride) - HAP/VOC	1.3	64.52		
	Chloroform - HAP/VOC	0.03	119.39		
	Chloromethane - VOC	1.2	50.49		
	Dichlorobenzene - (HAP for para isomer/VOC)	0.21	147		
	Dichlorodifluoromethane	16	120.91		
	Dichlorofluoromethane - VOC	2.6	102.92		
	Dichloromethane (methylene chloride) - HAP	14	84.94		
	Dimethyl sulfide (methyl sulfide) - VOC	7.8	62.13		
	Ethane	890	30.07		
	Ethanol - VOC	27	46.08		

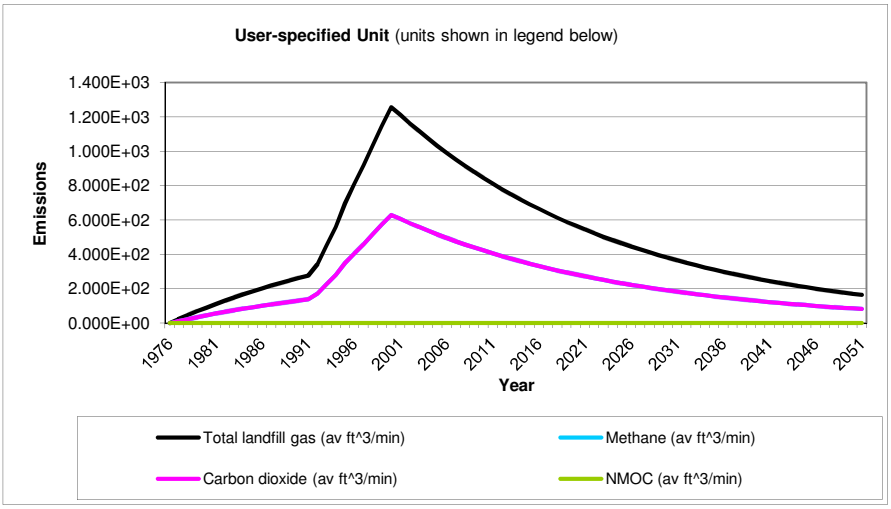
Pollutant Parameters (Continued)

		Gas / Pollutant Default Parameters:		*User-specified Pollutant Parameters:*	
	Compound	Concentration (*ppmv*)	Molecular Weight	Concentration (*ppmv*)	Molecular Weight
Pollutants	Ethyl mercaptan (ethanethiol) - VOC	2.3	62.13		
	Ethylbenzene - HAP/VOC	4.6	106.16		
	Ethylene dibromide - HAP/VOC	1.0E-03	187.88		
	Fluorotrichloromethane - VOC	0.76	137.38		
	Hexane - HAP/VOC	6.6	86.18		
	Hydrogen sulfide	36	34.08		
	Mercury (total) - HAP	2.9E-04	200.61		
	Methyl ethyl ketone - HAP/VOC	7.1	72.11		
	Methyl isobutyl ketone - HAP/VOC	1.9	100.16		
	Methyl mercaptan - VOC	2.5	48.11		
	Pentane - VOC	3.3	72.15		
	Perchloroethylene (tetrachloroethylene) - HAP	3.7	165.83		
	Propane - VOC	11	44.09		
	t-1,2-Dichloroethene - VOC	2.8	96.94		
	Toluene - No or Unknown Co-disposal - HAP/VOC	39	92.13		
	Toluene - Co-disposal - HAP/VOC	170	92.13		
	Trichloroethylene (trichloroethene) - HAP/VOC	2.8	131.40		
	Vinyl chloride - HAP/VOC	7.3	62.50		
	Xylenes - HAP/VOC	12	106.16		

Graphs


Megagrams Per Year
Emissions
2.500E+04
2.000E+04
1.500E+04
1.000E+04
5.000E+03
0.000E+00
1976
1981
1986
1991
1996
2001
2006
2011
2016
2021
2026
2031
2036
2041
2046
2051
Year
Total landfill gas
Methane
Carbon dioxide
NMOC


Cubic Meters Per Year
Emissions
2.000E+07
1.800E+07
1.600E+07
1.400E+07
1.200E+07
1.000E+07
8.000E+06
6.000E+06
4.000E+06
2.000E+06
0.000E+00
1976
1981
1986
1991
1996
2001
2006
2011
2016
2021
2026
2031
2036
2041
2046
2051
Year
Total landfill gas
Methane
Carbon dioxide
NMOC


User-specified Unit (units shown in legend below)
Emissions
1.400E+03
1.200E+03
1.000E+03
8.000E+02
6.000E+02
4.000E+02
2.000E+02
0.000E+00
1976
1981
1986
1991
1996
2001
2006
2011
2016
2021
2026
2031
2036
2041
2046
2051
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)*
1976	0	0	0	0	0	0
1977	4.462E+02	3.573E+05	2.401E+01	1.192E+02	1.786E+05	1.200E+01
1978	8.749E+02	7.006E+05	4.707E+01	2.337E+02	3.503E+05	2.354E+01
1979	1.287E+03	1.030E+06	6.923E+01	3.437E+02	5.152E+05	3.461E+01
1980	1.683E+03	1.347E+06	9.054E+01	4.495E+02	6.737E+05	4.527E+01
1981	2.062E+03	1.651E+06	1.110E+02	5.509E+02	8.257E+05	5.548E+01
1982	2.428E+03	1.944E+06	1.306E+02	6.485E+02	9.721E+05	6.531E+01
1983	2.779E+03	2.225E+06	1.495E+02	7.424E+02	1.113E+06	7.476E+01
1984	3.116E+03	2.495E+06	1.676E+02	8.322E+02	1.247E+06	8.382E+01
1985	3.440E+03	2.755E+06	1.851E+02	9.189E+02	1.377E+06	9.254E+01
1986	3.752E+03	3.004E+06	2.018E+02	1.002E+03	1.502E+06	1.009E+02
1987	4.050E+03	3.243E+06	2.179E+02	1.082E+03	1.622E+06	1.090E+02
1988	4.338E+03	3.473E+06	2.334E+02	1.159E+03	1.737E+06	1.167E+02
1989	4.614E+03	3.695E+06	2.483E+02	1.232E+03	1.847E+06	1.241E+02
1990	4.880E+03	3.907E+06	2.625E+02	1.303E+03	1.954E+06	1.313E+02
1991	5.134E+03	4.111E+06	2.762E+02	1.371E+03	2.055E+06	1.381E+02
1992	6.382E+03	5.110E+06	3.434E+02	1.705E+03	2.555E+06	1.717E+02
1993	8.392E+03	6.720E+06	4.515E+02	2.242E+03	3.360E+06	2.257E+02
1994	1.041E+04	8.334E+06	5.600E+02	2.780E+03	4.167E+06	2.800E+02
1995	1.294E+04	1.036E+07	6.964E+02	3.457E+03	5.182E+06	3.482E+02
1996	1.506E+04	1.206E+07	8.101E+02	4.022E+03	6.028E+06	4.050E+02
1997	1.708E+04	1.367E+07	9.187E+02	4.561E+03	6.837E+06	4.594E+02
1998	1.924E+04	1.541E+07	1.035E+03	5.140E+03	7.704E+06	5.176E+02
1999	2.132E+04	1.708E+07	1.147E+03	5.696E+03	8.538E+06	5.736E+02
2000	2.332E+04	1.868E+07	1.255E+03	6.230E+03	9.338E+06	6.274E+02
2001	2.251E+04	1.802E+07	1.211E+03	6.012E+03	9.012E+06	6.055E+02
2002	2.163E+04	1.732E+07	1.164E+03	5.776E+03	8.658E+06	5.818E+02
2003	2.078E+04	1.664E+07	1.118E+03	5.550E+03	8.319E+06	5.589E+02
2004	1.996E+04	1.599E+07	1.074E+03	5.332E+03	7.993E+06	5.370E+02
2005	1.918E+04	1.536E+07	1.032E+03	5.123E+03	7.679E+06	5.160E+02
2006	1.843E+04	1.476E+07	9.915E+02	4.922E+03	7.378E+06	4.957E+02
2007	1.771E+04	1.418E+07	9.526E+02	4.729E+03	7.089E+06	4.763E+02
2008	1.701E+04	1.362E+07	9.152E+02	4.544E+03	6.811E+06	4.576E+02
2009	1.634E+04	1.309E+07	8.794E+02	4.366E+03	6.544E+06	4.397E+02
2010	1.570E+04	1.257E+07	8.449E+02	4.195E+03	6.287E+06	4.224E+02
2011	1.509E+04	1.208E+07	8.117E+02	4.030E+03	6.041E+06	4.059E+02
2012	1.450E+04	1.161E+07	7.799E+02	3.872E+03	5.804E+06	3.900E+02
2013	1.393E+04	1.115E+07	7.493E+02	3.720E+03	5.576E+06	3.747E+02
2014	1.338E+04	1.072E+07	7.200E+02	3.574E+03	5.358E+06	3.600E+02
2015	1.286E+04	1.030E+07	6.917E+02	3.434E+03	5.148E+06	3.459E+02
2016	1.235E+04	9.891E+06	6.646E+02	3.300E+03	4.946E+06	3.323E+02
2017	1.187E+04	9.504E+06	6.385E+02	3.170E+03	4.752E+06	3.193E+02
2018	1.140E+04	9.131E+06	6.135E+02	3.046E+03	4.565E+06	3.068E+02
2019	1.096E+04	8.773E+06	5.894E+02	2.926E+03	4.386E+06	2.947E+02
2020	1.053E+04	8.429E+06	5.663E+02	2.812E+03	4.214E+06	2.832E+02
2021	1.011E+04	8.098E+06	5.441E+02	2.701E+03	4.049E+06	2.721E+02
2022	9.717E+03	7.781E+06	5.228E+02	2.595E+03	3.890E+06	2.614E+02
2023	9.336E+03	7.476E+06	5.023E+02	2.494E+03	3.738E+06	2.511E+02
2024	8.970E+03	7.183E+06	4.826E+02	2.396E+03	3.591E+06	2.413E+02
2025	8.618E+03	6.901E+06	4.637E+02	2.302E+03	3.450E+06	2.318E+02

Results (Continued)

Year	Total landfill gas			Methane		
	(Mg/year)	*(m^3/year)*	*(av ft^3/min)*	*(Mg/year)*	*(m^3/year)*	*(av ft^3/min)*
2026	8.280E+03	6.630E+06	4.455E+02	2.212E+03	3.315E+06	2.227E+02
2027	7.956E+03	6.370E+06	4.280E+02	2.125E+03	3.185E+06	2.140E+02
2028	7.644E+03	6.121E+06	4.112E+02	2.042E+03	3.060E+06	2.056E+02
2029	7.344E+03	5.881E+06	3.951E+02	1.962E+03	2.940E+06	1.976E+02
2030	7.056E+03	5.650E+06	3.796E+02	1.885E+03	2.825E+06	1.898E+02
2031	6.779E+03	5.429E+06	3.647E+02	1.811E+03	2.714E+06	1.824E+02
2032	6.513E+03	5.216E+06	3.504E+02	1.740E+03	2.608E+06	1.752E+02
2033	6.258E+03	5.011E+06	3.367E+02	1.672E+03	2.506E+06	1.683E+02
2034	6.013E+03	4.815E+06	3.235E+02	1.606E+03	2.407E+06	1.617E+02
2035	5.777E+03	4.626E+06	3.108E+02	1.543E+03	2.313E+06	1.554E+02
2036	5.550E+03	4.444E+06	2.986E+02	1.483E+03	2.222E+06	1.493E+02
2037	5.333E+03	4.270E+06	2.869E+02	1.424E+03	2.135E+06	1.435E+02
2038	5.124E+03	4.103E+06	2.757E+02	1.369E+03	2.051E+06	1.378E+02
2039	4.923E+03	3.942E+06	2.649E+02	1.315E+03	1.971E+06	1.324E+02
2040	4.730E+03	3.787E+06	2.545E+02	1.263E+03	1.894E+06	1.272E+02
2041	4.544E+03	3.639E+06	2.445E+02	1.214E+03	1.819E+06	1.222E+02
2042	4.366E+03	3.496E+06	2.349E+02	1.166E+03	1.748E+06	1.175E+02
2043	4.195E+03	3.359E+06	2.257E+02	1.121E+03	1.680E+06	1.128E+02
2044	4.030E+03	3.227E+06	2.168E+02	1.077E+03	1.614E+06	1.084E+02
2045	3.872E+03	3.101E+06	2.083E+02	1.034E+03	1.550E+06	1.042E+02
2046	3.721E+03	2.979E+06	2.002E+02	9.938E+02	1.490E+06	1.001E+02
2047	3.575E+03	2.862E+06	1.923E+02	9.548E+02	1.431E+06	9.616E+01
2048	3.434E+03	2.750E+06	1.848E+02	9.174E+02	1.375E+06	9.239E+01
2049	3.300E+03	2.642E+06	1.775E+02	8.814E+02	1.321E+06	8.877E+01
2050	3.170E+03	2.539E+06	1.706E+02	8.469E+02	1.269E+06	8.529E+01
2051	3.046E+03	2.439E+06	1.639E+02	8.137E+02	1.220E+06	8.194E+01
2052	2.927E+03	2.344E+06	1.575E+02	7.817E+02	1.172E+06	7.873E+01
2053	2.812E+03	2.252E+06	1.513E+02	7.511E+02	1.126E+06	7.564E+01
2054	2.702E+03	2.163E+06	1.454E+02	7.216E+02	1.082E+06	7.268E+01
2055	2.596E+03	2.079E+06	1.397E+02	6.933E+02	1.039E+06	6.983E+01
2056	2.494E+03	1.997E+06	1.342E+02	6.662E+02	9.985E+05	6.709E+01
2057	2.396E+03	1.919E+06	1.289E+02	6.400E+02	9.594E+05	6.446E+01
2058	2.302E+03	1.844E+06	1.239E+02	6.149E+02	9.218E+05	6.193E+01
2059	2.212E+03	1.771E+06	1.190E+02	5.908E+02	8.856E+05	5.950E+01
2060	2.125E+03	1.702E+06	1.143E+02	5.677E+02	8.509E+05	5.717E+01
2061	2.042E+03	1.635E+06	1.099E+02	5.454E+02	8.175E+05	5.493E+01
2062	1.962E+03	1.571E+06	1.056E+02	5.240E+02	7.855E+05	5.278E+01
2063	1.885E+03	1.509E+06	1.014E+02	5.035E+02	7.547E+05	5.071E+01
2064	1.811E+03	1.450E+06	9.744E+01	4.837E+02	7.251E+05	4.872E+01
2065	1.740E+03	1.393E+06	9.361E+01	4.648E+02	6.966E+05	4.681E+01
2066	1.672E+03	1.339E+06	8.994E+01	4.465E+02	6.693E+05	4.497E+01
2067	1.606E+03	1.286E+06	8.642E+01	4.290E+02	6.431E+05	4.321E+01
2068	1.543E+03	1.236E+06	8.303E+01	4.122E+02	6.179E+05	4.151E+01
2069	1.483E+03	1.187E+06	7.977E+01	3.960E+02	5.936E+05	3.989E+01
2070	1.425E+03	1.141E+06	7.665E+01	3.805E+02	5.704E+05	3.832E+01
2071	1.369E+03	1.096E+06	7.364E+01	3.656E+02	5.480E+05	3.682E+01
2072	1.315E+03	1.053E+06	7.075E+01	3.513E+02	5.265E+05	3.538E+01
2073	1.263E+03	1.012E+06	6.798E+01	3.375E+02	5.059E+05	3.399E+01
2074	1.214E+03	9.721E+05	6.531E+01	3.243E+02	4.860E+05	3.266E+01
2075	1.166E+03	9.339E+05	6.275E+01	3.115E+02	4.670E+05	3.138E+01
2076	1.121E+03	8.973E+05	6.029E+01	2.993E+02	4.487E+05	3.015E+01

Results (Continued)

Year	Total landfill gas			Methane		
	(Mg/year)	*(m^3/year)*	*(av ft^3/min)*	*(Mg/year)*	*(m^3/year)*	*(av ft^3/min)*
2077	1.077E+03	8.621E+05	5.793E+01	2.876E+02	4.311E+05	2.896E+01
2078	1.034E+03	8.283E+05	5.566E+01	2.763E+02	4.142E+05	2.783E+01
2079	9.939E+02	7.959E+05	5.347E+01	2.655E+02	3.979E+05	2.674E+01
2080	9.549E+02	7.647E+05	5.138E+01	2.551E+02	3.823E+05	2.569E+01
2081	9.175E+02	7.347E+05	4.936E+01	2.451E+02	3.673E+05	2.468E+01
2082	8.815E+02	7.059E+05	4.743E+01	2.355E+02	3.529E+05	2.371E+01
2083	8.469E+02	6.782E+05	4.557E+01	2.262E+02	3.391E+05	2.278E+01
2084	8.137E+02	6.516E+05	4.378E+01	2.174E+02	3.258E+05	2.189E+01
2085	7.818E+02	6.260E+05	4.206E+01	2.088E+02	3.130E+05	2.103E+01
2086	7.512E+02	6.015E+05	4.041E+01	2.006E+02	3.007E+05	2.021E+01
2087	7.217E+02	5.779E+05	3.883E+01	1.928E+02	2.890E+05	1.941E+01
2088	6.934E+02	5.553E+05	3.731E+01	1.852E+02	2.776E+05	1.865E+01
2089	6.662E+02	5.335E+05	3.584E+01	1.780E+02	2.667E+05	1.792E+01
2090	6.401E+02	5.126E+05	3.444E+01	1.710E+02	2.563E+05	1.722E+01
2091	6.150E+02	4.925E+05	3.309E+01	1.643E+02	2.462E+05	1.654E+01
2092	5.909E+02	4.732E+05	3.179E+01	1.578E+02	2.366E+05	1.590E+01
2093	5.677E+02	4.546E+05	3.054E+01	1.516E+02	2.273E+05	1.527E+01
2094	5.455E+02	4.368E+05	2.935E+01	1.457E+02	2.184E+05	1.467E+01
2095	5.241E+02	4.197E+05	2.820E+01	1.400E+02	2.098E+05	1.410E+01
2096	5.035E+02	4.032E+05	2.709E+01	1.345E+02	2.016E+05	1.355E+01
2097	4.838E+02	3.874E+05	2.603E+01	1.292E+02	1.937E+05	1.301E+01
2098	4.648E+02	3.722E+05	2.501E+01	1.242E+02	1.861E+05	1.250E+01
2099	4.466E+02	3.576E+05	2.403E+01	1.193E+02	1.788E+05	1.201E+01
2100	4.291E+02	3.436E+05	2.309E+01	1.146E+02	1.718E+05	1.154E+01
2101	4.122E+02	3.301E+05	2.218E+01	1.101E+02	1.651E+05	1.109E+01
2102	3.961E+02	3.172E+05	2.131E+01	1.058E+02	1.586E+05	1.066E+01
2103	3.806E+02	3.047E+05	2.047E+01	1.016E+02	1.524E+05	1.024E+01
2104	3.656E+02	2.928E+05	1.967E+01	9.766E+01	1.464E+05	9.836E+00
2105	3.513E+02	2.813E+05	1.890E+01	9.383E+01	1.406E+05	9.450E+00
2106	3.375E+02	2.703E+05	1.816E+01	9.016E+01	1.351E+05	9.080E+00
2107	3.243E+02	2.597E+05	1.745E+01	8.662E+01	1.298E+05	8.724E+00
2108	3.116E+02	2.495E+05	1.676E+01	8.322E+01	1.247E+05	8.382E+00
2109	2.994E+02	2.397E+05	1.611E+01	7.996E+01	1.199E+05	8.053E+00
2110	2.876E+02	2.303E+05	1.547E+01	7.683E+01	1.152E+05	7.737E+00
2111	2.763E+02	2.213E+05	1.487E+01	7.381E+01	1.106E+05	7.434E+00
2112	2.655E+02	2.126E+05	1.428E+01	7.092E+01	1.063E+05	7.142E+00
2113	2.551E+02	2.043E+05	1.372E+01	6.814E+01	1.021E+05	6.862E+00
2114	2.451E+02	1.963E+05	1.319E+01	6.547E+01	9.813E+04	6.593E+00
2115	2.355E+02	1.886E+05	1.267E+01	6.290E+01	9.428E+04	6.335E+00
2116	2.262E+02	1.812E+05	1.217E+01	6.043E+01	9.058E+04	6.086E+00

Results (Continued)

Year	Carbon dioxide			NMOC		
	(Mg/year)	*(m^3/year)*	*(av ft^3/min)*	*(Mg/year)*	*(m^3/year)*	*(av ft^3/min)*
1976	0	0	0	0	0	0
1977	3.270E+02	1.786E+05	1.200E+01	2.126E-01	5.931E+01	3.985E-03
1978	6.412E+02	3.503E+05	2.354E+01	4.169E-01	1.163E+02	7.814E-03
1979	9.430E+02	5.152E+05	3.461E+01	6.131E-01	1.710E+02	1.149E-02
1980	1.233E+03	6.737E+05	4.527E+01	8.018E-01	2.237E+02	1.503E-02
1981	1.511E+03	8.257E+05	5.548E+01	9.826E-01	2.741E+02	1.842E-02
1982	1.779E+03	9.721E+05	6.531E+01	1.157E+00	3.227E+02	2.168E-02
1983	2.037E+03	1.113E+06	7.476E+01	1.324E+00	3.694E+02	2.482E-02
1984	2.283E+03	1.247E+06	8.382E+01	1.485E+00	4.142E+02	2.783E-02
1985	2.521E+03	1.377E+06	9.254E+01	1.639E+00	4.573E+02	3.072E-02
1986	2.750E+03	1.502E+06	1.009E+02	1.788E+00	4.987E+02	3.351E-02
1987	2.968E+03	1.622E+06	1.090E+02	1.930E+00	5.384E+02	3.617E-02
1988	3.179E+03	1.737E+06	1.167E+02	2.067E+00	5.766E+02	3.874E-02
1989	3.382E+03	1.847E+06	1.241E+02	2.198E+00	6.133E+02	4.121E-02
1990	3.576E+03	1.954E+06	1.313E+02	2.325E+00	6.486E+02	4.358E-02
1991	3.763E+03	2.055E+06	1.381E+02	2.446E+00	6.824E+02	4.585E-02
1992	4.677E+03	2.555E+06	1.717E+02	3.041E+00	8.483E+02	5.700E-02
1993	6.150E+03	3.360E+06	2.257E+02	3.998E+00	1.115E+03	7.495E-02
1994	7.628E+03	4.167E+06	2.800E+02	4.959E+00	1.383E+03	9.296E-02
1995	9.486E+03	5.182E+06	3.482E+02	6.167E+00	1.721E+03	1.156E-01
1996	1.103E+04	6.028E+06	4.050E+02	7.174E+00	2.001E+03	1.345E-01
1997	1.251E+04	6.837E+06	4.594E+02	8.136E+00	2.270E+03	1.525E-01
1998	1.410E+04	7.704E+06	5.176E+02	9.168E+00	2.558E+03	1.719E-01
1999	1.563E+04	8.538E+06	5.736E+02	1.016E+01	2.834E+03	1.904E-01
2000	1.709E+04	9.338E+06	6.274E+02	1.111E+01	3.100E+03	2.083E-01
2001	1.650E+04	9.012E+06	6.055E+02	1.072E+01	2.992E+03	2.010E-01
2002	1.585E+04	8.658E+06	5.818E+02	1.030E+01	2.875E+03	1.931E-01
2003	1.523E+04	8.319E+06	5.589E+02	9.900E+00	2.762E+03	1.856E-01
2004	1.463E+04	7.993E+06	5.370E+02	9.512E+00	2.654E+03	1.783E-01
2005	1.406E+04	7.679E+06	5.160E+02	9.139E+00	2.550E+03	1.713E-01
2006	1.351E+04	7.378E+06	4.957E+02	8.780E+00	2.450E+03	1.646E-01
2007	1.298E+04	7.089E+06	4.763E+02	8.436E+00	2.353E+03	1.581E-01
2008	1.247E+04	6.811E+06	4.576E+02	8.105E+00	2.261E+03	1.519E-01
2009	1.198E+04	6.544E+06	4.397E+02	7.787E+00	2.173E+03	1.460E-01
2010	1.151E+04	6.287E+06	4.224E+02	7.482E+00	2.087E+03	1.402E-01
2011	1.106E+04	6.041E+06	4.059E+02	7.189E+00	2.006E+03	1.348E-01
2012	1.062E+04	5.804E+06	3.900E+02	6.907E+00	1.927E+03	1.295E-01
2013	1.021E+04	5.576E+06	3.747E+02	6.636E+00	1.851E+03	1.244E-01
2014	9.807E+03	5.358E+06	3.600E+02	6.376E+00	1.779E+03	1.195E-01
2015	9.423E+03	5.148E+06	3.459E+02	6.126E+00	1.709E+03	1.148E-01
2016	9.053E+03	4.946E+06	3.323E+02	5.886E+00	1.642E+03	1.103E-01
2017	8.698E+03	4.752E+06	3.193E+02	5.655E+00	1.578E+03	1.060E-01
2018	8.357E+03	4.565E+06	3.068E+02	5.433E+00	1.516E+03	1.018E-01
2019	8.029E+03	4.386E+06	2.947E+02	5.220E+00	1.456E+03	9.785E-02
2020	7.715E+03	4.214E+06	2.832E+02	5.015E+00	1.399E+03	9.401E-02
2021	7.412E+03	4.049E+06	2.721E+02	4.819E+00	1.344E+03	9.033E-02
2022	7.121E+03	3.890E+06	2.614E+02	4.630E+00	1.292E+03	8.678E-02
2023	6.842E+03	3.738E+06	2.511E+02	4.448E+00	1.241E+03	8.338E-02
2024	6.574E+03	3.591E+06	2.413E+02	4.274E+00	1.192E+03	8.011E-02
2025	6.316E+03	3.450E+06	2.318E+02	4.106E+00	1.146E+03	7.697E-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)*
2026	6.068E+03	3.315E+06	2.227E+02	3.945E+00	1.101E+03	7.395E-02
2027	5.831E+03	3.185E+06	2.140E+02	3.791E+00	1.057E+03	7.105E-02
2028	5.602E+03	3.060E+06	2.056E+02	3.642E+00	1.016E+03	6.827E-02
2029	5.382E+03	2.940E+06	1.976E+02	3.499E+00	9.762E+02	6.559E-02
2030	5.171E+03	2.825E+06	1.898E+02	3.362E+00	9.379E+02	6.302E-02
2031	4.968E+03	2.714E+06	1.824E+02	3.230E+00	9.011E+02	6.055E-02
2032	4.774E+03	2.608E+06	1.752E+02	3.103E+00	8.658E+02	5.817E-02
2033	4.586E+03	2.506E+06	1.683E+02	2.982E+00	8.319E+02	5.589E-02
2034	4.407E+03	2.407E+06	1.617E+02	2.865E+00	7.992E+02	5.370E-02
2035	4.234E+03	2.313E+06	1.554E+02	2.752E+00	7.679E+02	5.159E-02
2036	4.068E+03	2.222E+06	1.493E+02	2.645E+00	7.378E+02	4.957E-02
2037	3.908E+03	2.135E+06	1.435E+02	2.541E+00	7.089E+02	4.763E-02
2038	3.755E+03	2.051E+06	1.378E+02	2.441E+00	6.811E+02	4.576E-02
2039	3.608E+03	1.971E+06	1.324E+02	2.346E+00	6.544E+02	4.397E-02
2040	3.466E+03	1.894E+06	1.272E+02	2.254E+00	6.287E+02	4.224E-02
2041	3.330E+03	1.819E+06	1.222E+02	2.165E+00	6.040E+02	4.059E-02
2042	3.200E+03	1.748E+06	1.175E+02	2.080E+00	5.804E+02	3.899E-02
2043	3.074E+03	1.680E+06	1.128E+02	1.999E+00	5.576E+02	3.747E-02
2044	2.954E+03	1.614E+06	1.084E+02	1.920E+00	5.357E+02	3.600E-02
2045	2.838E+03	1.550E+06	1.042E+02	1.845E+00	5.147E+02	3.459E-02
2046	2.727E+03	1.490E+06	1.001E+02	1.773E+00	4.946E+02	3.323E-02
2047	2.620E+03	1.431E+06	9.616E+01	1.703E+00	4.752E+02	3.193E-02
2048	2.517E+03	1.375E+06	9.239E+01	1.636E+00	4.565E+02	3.067E-02
2049	2.418E+03	1.321E+06	8.877E+01	1.572E+00	4.386E+02	2.947E-02
2050	2.324E+03	1.269E+06	8.529E+01	1.511E+00	4.214E+02	2.832E-02
2051	2.232E+03	1.220E+06	8.194E+01	1.451E+00	4.049E+02	2.721E-02
2052	2.145E+03	1.172E+06	7.873E+01	1.394E+00	3.890E+02	2.614E-02
2053	2.061E+03	1.126E+06	7.564E+01	1.340E+00	3.738E+02	2.511E-02
2054	1.980E+03	1.082E+06	7.268E+01	1.287E+00	3.591E+02	2.413E-02
2055	1.902E+03	1.039E+06	6.983E+01	1.237E+00	3.450E+02	2.318E-02
2056	1.828E+03	9.985E+05	6.709E+01	1.188E+00	3.315E+02	2.227E-02
2057	1.756E+03	9.594E+05	6.446E+01	1.142E+00	3.185E+02	2.140E-02
2058	1.687E+03	9.218E+05	6.193E+01	1.097E+00	3.060E+02	2.056E-02
2059	1.621E+03	8.856E+05	5.950E+01	1.054E+00	2.940E+02	1.976E-02
2060	1.558E+03	8.509E+05	5.717E+01	1.013E+00	2.825E+02	1.898E-02
2061	1.496E+03	8.175E+05	5.493E+01	9.729E-01	2.714E+02	1.824E-02
2062	1.438E+03	7.855E+05	5.278E+01	9.347E-01	2.608E+02	1.752E-02
2063	1.381E+03	7.547E+05	5.071E+01	8.981E-01	2.505E+02	1.683E-02
2064	1.327E+03	7.251E+05	4.872E+01	8.629E-01	2.407E+02	1.617E-02
2065	1.275E+03	6.966E+05	4.681E+01	8.290E-01	2.313E+02	1.554E-02
2066	1.225E+03	6.693E+05	4.497E+01	7.965E-01	2.222E+02	1.493E-02
2067	1.177E+03	6.431E+05	4.321E+01	7.653E-01	2.135E+02	1.435E-02
2068	1.131E+03	6.179E+05	4.151E+01	7.353E-01	2.051E+02	1.378E-02
2069	1.087E+03	5.936E+05	3.989E+01	7.065E-01	1.971E+02	1.324E-02
2070	1.044E+03	5.704E+05	3.832E+01	6.788E-01	1.894E+02	1.272E-02
2071	1.003E+03	5.480E+05	3.682E+01	6.521E-01	1.819E+02	1.222E-02
2072	9.638E+02	5.265E+05	3.538E+01	6.266E-01	1.748E+02	1.174E-02
2073	9.260E+02	5.059E+05	3.399E+01	6.020E-01	1.679E+02	1.128E-02
2074	8.897E+02	4.860E+05	3.266E+01	5.784E-01	1.614E+02	1.084E-02
2075	8.548E+02	4.670E+05	3.138E+01	5.557E-01	1.550E+02	1.042E-02
2076	8.213E+02	4.487E+05	3.015E+01	5.339E-01	1.490E+02	1.001E-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)*
2077	7.891E+02	4.311E+05	2.896E+01	5.130E-01	1.431E+02	9.616E-03
2078	7.581E+02	4.142E+05	2.783E+01	4.929E-01	1.375E+02	9.239E-03
2079	7.284E+02	3.979E+05	2.674E+01	4.736E-01	1.321E+02	8.877E-03
2080	6.998E+02	3.823E+05	2.569E+01	4.550E-01	1.269E+02	8.529E-03
2081	6.724E+02	3.673E+05	2.468E+01	4.371E-01	1.220E+02	8.194E-03
2082	6.460E+02	3.529E+05	2.371E+01	4.200E-01	1.172E+02	7.873E-03
2083	6.207E+02	3.391E+05	2.278E+01	4.035E-01	1.126E+02	7.564E-03
2084	5.964E+02	3.258E+05	2.189E+01	3.877E-01	1.082E+02	7.268E-03
2085	5.730E+02	3.130E+05	2.103E+01	3.725E-01	1.039E+02	6.983E-03
2086	5.505E+02	3.007E+05	2.021E+01	3.579E-01	9.985E+01	6.709E-03
2087	5.289E+02	2.890E+05	1.941E+01	3.439E-01	9.593E+01	6.446E-03
2088	5.082E+02	2.776E+05	1.865E+01	3.304E-01	9.217E+01	6.193E-03
2089	4.883E+02	2.667E+05	1.792E+01	3.174E-01	8.856E+01	5.950E-03
2090	4.691E+02	2.563E+05	1.722E+01	3.050E-01	8.509E+01	5.717E-03
2091	4.507E+02	2.462E+05	1.654E+01	2.930E-01	8.175E+01	5.493E-03
2092	4.331E+02	2.366E+05	1.590E+01	2.815E-01	7.854E+01	5.277E-03
2093	4.161E+02	2.273E+05	1.527E+01	2.705E-01	7.546E+01	5.070E-03
2094	3.998E+02	2.184E+05	1.467E+01	2.599E-01	7.250E+01	4.872E-03
2095	3.841E+02	2.098E+05	1.410E+01	2.497E-01	6.966E+01	4.681E-03
2096	3.690E+02	2.016E+05	1.355E+01	2.399E-01	6.693E+01	4.497E-03
2097	3.546E+02	1.937E+05	1.301E+01	2.305E-01	6.431E+01	4.321E-03
2098	3.407E+02	1.861E+05	1.250E+01	2.215E-01	6.178E+01	4.151E-03
2099	3.273E+02	1.788E+05	1.201E+01	2.128E-01	5.936E+01	3.989E-03
2100	3.145E+02	1.718E+05	1.154E+01	2.044E-01	5.703E+01	3.832E-03
2101	3.021E+02	1.651E+05	1.109E+01	1.964E-01	5.480E+01	3.682E-03
2102	2.903E+02	1.586E+05	1.066E+01	1.887E-01	5.265E+01	3.538E-03
2103	2.789E+02	1.524E+05	1.024E+01	1.813E-01	5.058E+01	3.399E-03
2104	2.680E+02	1.464E+05	9.836E+00	1.742E-01	4.860E+01	3.266E-03
2105	2.575E+02	1.406E+05	9.450E+00	1.674E-01	4.670E+01	3.137E-03
2106	2.474E+02	1.351E+05	9.080E+00	1.608E-01	4.486E+01	3.014E-03
2107	2.377E+02	1.298E+05	8.724E+00	1.545E-01	4.311E+01	2.896E-03
2108	2.283E+02	1.247E+05	8.382E+00	1.485E-01	4.142E+01	2.783E-03
2109	2.194E+02	1.199E+05	8.053E+00	1.426E-01	3.979E+01	2.674E-03
2110	2.108E+02	1.152E+05	7.737E+00	1.370E-01	3.823E+01	2.569E-03
2111	2.025E+02	1.106E+05	7.434E+00	1.317E-01	3.673E+01	2.468E-03
2112	1.946E+02	1.063E+05	7.142E+00	1.265E-01	3.529E+01	2.371E-03
2113	1.870E+02	1.021E+05	6.862E+00	1.215E-01	3.391E+01	2.278E-03
2114	1.796E+02	9.813E+04	6.593E+00	1.168E-01	3.258E+01	2.189E-03
2115	1.726E+02	9.428E+04	6.335E+00	1.122E-01	3.130E+01	2.103E-03
2116	1.658E+02	9.058E+04	6.086E+00	1.078E-01	3.007E+01	2.021E-03

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
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Governor

Thomas W. Easterly
Commissioner

SENT VIA U.S. MAIL: CONFIRMED DELIVERY AND SIGNATURE REQUESTED

TO: Tom Brown
Republic Services of Indiana LP d/b/a National Serv-All Landfill
6231 MacBeth Road
Fort Wayne, IN 46809

DATE: September 4, 2014

FROM: Matt Stuckey, Branch Chief
Permits Branch
Office of Air Quality

SUBJECT: Final Decision
Significant Permit Modification
003-34554-00257

Enclosed is the final decision and supporting materials for the air permit application referenced above. Please note that this packet contains the original, signed, permit documents.

The final decision is being sent to you because our records indicate that you are the contact person for this application. However, if you are not the appropriate person within your company to receive this document, please forward it to the correct person.

A copy of the final decision and supporting materials has also been sent via standard mail to:
Bret Bocabella – General Manager
Matthew Bourdreau – Cornerstone Environmental
OAQ Permits Branch Interested Parties List

If you have technical questions regarding the enclosed documents, please contact the Office of Air Quality, Permits Branch at (317) 233-0178, or toll-free at 1-800-451-6027 (ext. 3-0178), and ask to speak to the permit reviewer who prepared the permit. If you think you have received this document in error, please contact Joanne Smiddie-Brush of my staff at 1-800-451-6027 (ext 3-0185), or via e-mail at jbrush@idem.IN.gov.

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Michael R. Pence
Governor

Thomas W. Easterly
Commissioner

September 4, 2014

TO: Allen County Public Library – Waynedale Branch

From: Matthew Stuckey, Branch Chief
Permits Branch
Office of Air Quality

Subject: **Important Information for Display Regarding a Final Determination**

Applicant Name: Republic Services LP, d/b/a National Serv-All Landfill
Permit Number: 003-34554-00257

You previously received information to make available to the public during the public comment period of a draft permit. Enclosed is a copy of the final decision and supporting materials for the same project. Please place the enclosed information along with the information you previously received. To ensure that your patrons have ample opportunity to review the enclosed permit, **we ask that you retain this document for at least 60 days.**

The applicant is responsible for placing a copy of the application in your library. If the permit application is not on file, or if you have any questions concerning this public review process, please contact Joanne Smiddie-Brush, OAQ Permits Administration Section at 1-800-451-6027, extension 3-0185.

Enclosures
Final Library.dot 6/13/2013

Mail Code 61-53

IDEM Staff	GHOTOPP 9/4/2014 Republic Services of IN LP DBA National Serv All Landfill 003-34554-00257 Final		AFFIX STAMP HERE IF USED AS CERTIFICATE OF MAILING
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3		Daniel & Sandy Trimmer 15021 Yellow River Road Columbia City IN 46725 *(Affected Party)*									
4		Duane & Deborah Clark Clark Farms 6973 E. 500 S. Columbia City IN 46725 *(Affected Party)*									
5		Fort Wayne City Council and Mayors Office 200 E Berry Street Ste 120 Fort Wayne IN 46802 *(Local Official)*									
6		Allen County Public Library, Waynedale Branch 2200 Lower Huntington Rd Fort Wayne IN 46809 *(Library)*									
7		Mr. Jeff Coburn Plumbers & Steamfitters, Local 166 2930 W Ludwig Rd Fort Wayne IN 46818-1328 *(Affected Party)*									
8		Allen Co. Board of Commissioners 200 E Berry Street Ste 410 Fort Wayne IN 46802 *(Local Official)*									
9		Fort Wayne-Allen County Health Department 200 E Berry St Suite 360 Fort Wayne IN 46802 *(Health Department)*									
10		Mr. Matthew Bourdreau Cornerstone Environmental 39395 W 12 Mile Road Farmington Hills MI 48331 *(Consultant)*									
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