



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We Protect Hoosiers and Our Environment.

Michael R. Pence
Governor

Thomas W. Easterly
Commissioner

100 North Senate Avenue
Indianapolis, Indiana 46204
(317) 232-8603
Toll Free (800) 451-6027
www.idem.IN.gov

TO: Interested Parties / Applicant

DATE: April 19, 2013

RE: Clark-Floyd Landfill / 019-31708-00097

FROM: Matthew Stuckey, Branch Chief
Permits Branch
Office of Air Quality

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 enclosed matter. 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.

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 impracticable 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.



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We Protect Hoosiers and Our Environment.

Michael R. Pence
Governor

Thomas W. Easterly
Commissioner

100 North Senate Avenue
Indianapolis, Indiana 46204
(317) 232-8603
Toll Free (800) 451-6027
www.idem.IN.gov

April 19, 2013

Mr. Robert E. Lee
President, Clark-Floyd Landfill
6108 Sable Mill Ct.
Jeffersonville, Indiana 47130

RE: 019-31708-00097
Significant Permit Modification to:
Part 70 Operating Permit T019-27744-00097

Dear Mr. Lee:

Clark-Floyd Landfill was issued Part 70 Operating Number T019-27744-00097 on August 19, 2009 for a municipal solid waste landfill. An application requesting changes to this permit was received on April 9, 2012. 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.

All other conditions of the permit shall remain unchanged and in effect. For your convenience, the entire Part 70 Operating Permit as modified will be provided at issuance. A copy of this permit is available on the internet at: www.in.gov/ai/appfiles/ide-m-caats.

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 at IDEM, OAQ, 100 North Senate Avenue, MC-61-53, Room 1003, Indianapolis, Indiana 46204-2251, or call at (800) 451-6027, and ask for David Matousek or extension 2-8253, or dial direct at (317) 232-8253.

Sincerely,

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

NCB/djm

Attachments(2):
Updated Permit
Technical Support Document

Cc: File – Clark County
Clark County Health Department
U.S. EPA, Region V
Compliance and Enforcement Branch
Southeast Regional Office



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We Protect Hoosiers and Our Environment.

Michael R. Pence
Governor

Thomas W. Easterly
Commissioner

100 North Senate Avenue
Indianapolis, Indiana 46204
(317) 232-8603
Toll Free (800) 451-6027
www.idem.IN.gov

Part 70 Operating Permit Renewal OFFICE OF AIR QUALITY

Clark-Floyd Landfill
14304 S.R. 60
Borden, Indiana 47106

(herein known as the Permittee) is hereby authorized to operate 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.: T019-27744-00097	
Issued by: Original Signed by: Tripurari P. Sinha, Ph. D., Section Chief Permits Branch Office of Air Quality	Issuance Date: August 19, 2009 Expiration Date: August 19, 2014


Significant Permit Modification No.: 019-31708-00097	
Issued by:  Nathan C. Bell, Section Chief Permits Branch Office of Air Quality	Issuance Date: April 19, 2013 Expiration Date: August 19, 2014

TABLE OF CONTENTS

A. SOURCE SUMMARY

- A.1 General Information [326 IAC 2-7-4(c)][326 IAC 2-7-5(14)][326 IAC 2-7-1(22)]
- A.2 Emission Units and Pollution Control Equipment Summary [326 IAC 2-7-4(c)(3)]
[326 IAC 2-7-5(14)]
- A.3 Specifically Regulated Insignificant Activities [326 IAC 2-7-1(21)][326 IAC 2-7-4(c)]
[326 IAC 2-7-5(14)]
- A.4 Part 70 Permit Applicability [326 IAC 2-7-2]

B. GENERAL CONDITIONS

- B.1 Definitions [326 IAC 2-7-1]
- 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)]
- B.3 Term of Conditions [326 IAC 2-1.1-9.5]
- B.4 Enforceability [326 IAC 2-7-7] [IC 13-17-12]
- B.5 Severability [326 IAC 2-7-5(5)]
- B.6 Property Rights or Exclusive Privilege [326 IAC 2-7-5(6)(D)]
- B.7 Duty to Provide Information [326 IAC 2-7-5(6)(E)]
- B.8 Certification [326 IAC 2-7-4(f)][326 IAC 2-7-6(1)][326 IAC 2-7-5(3)(C)]
- B.9 Annual Compliance Certification [326 IAC 2-7-6(5)]
- B.10 Preventive Maintenance Plan [326 IAC 2-7-5(12)][326 IAC 1-6-3]
- B.11 Emergency Provisions [326 IAC 2-7-16]
- B.12 Permit Shield [326 IAC 2-7-15][326 IAC 2-7-20][326 IAC 2-7-12]
- B.13 Prior Permits Superseded [326 IAC 2-1.1-9.5][326 IAC 2-7-10.5]
- B.14 Termination of Right to Operate [326 IAC 2-7-10][326 IAC 2-7-4(a)]
- B.15 Reserved
- B.16 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]
- B.17 Permit Renewal [326 IAC 2-7-3][326 IAC 2-7-4][326 IAC 2-7-8(e)]
- B.18 Permit Amendment or Modification [326 IAC 2-7-11][326 IAC 2-7-12]
- B.19 Permit Revision Under Economic Incentives and Other Programs [326 IAC 2-7-5(8)]
[326 IAC 2-7-12(b)(2)]
- B.20 Operational Flexibility [326 IAC 2-7-20][326 IAC 2-7-10.5]
- B.21 Source Modification Requirement [326 IAC 2-7-10.5]
- B.22 Inspection and Entry [326 IAC 2-7-6][IC 13-14-2-2][IC 13-30-3-1][IC 13-17-3-2]
- B.23 Transfer of Ownership or Operational Control [326 IAC 2-7-11]
- B.24 Annual Fee Payment [326 IAC 2-7-19] [326 IAC 2-7-5(7)][326 IAC 2-1.1-7]
- B.25 Credible Evidence [326 IAC 2-7-5(3)][326 IAC 2-7-6][62 FR 8314] [326 IAC 1-1-6]

C. SOURCE OPERATION CONDITIONS

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

- C.1 Opacity [326 IAC 5-1]
- C.2 Open Burning [326 IAC 4-1] [IC 13-17-9]
- C.3 Incineration [326 IAC 4-2] [326 IAC 9-1-2]
- C.4 Fugitive Dust Emissions [326 IAC 6-4]
- C.5 Fugitive Particulate Matter Emission Limitations [326 IAC 6-5]
- C.6 Asbestos Abatement Projects [326 IAC 14-10] [326 IAC 18] [40 CFR 61, Subpart M]

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

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

Compliance Requirements [326 IAC 2-1.1-11]

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

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)]

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

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

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

C.12 Response to Excursions or Exceedances [326 IAC 2-7-5] [326 IAC 2-7-6]

C.13 Actions Related to Noncompliance Demonstrated by a Stack Test [326 IAC 2-7-5]
[326 IAC 2-7-6]

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

C.14 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]

C.15 General Record Keeping Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-6]

C.16 General Reporting Requirements [326 IAC 2-7-5(3)(C)] [326 IAC 2-1.1-11]

Stratospheric Ozone Protection

C.17 Compliance with 40 CFR 82 and 326 IAC 22-1

D.1. EMISSIONS UNIT OPERATION CONDITIONS

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

D.1.1 Volatile Organic Liquid Storage [326 IAC 8-9]

E.1 FACILITY OPERATION CONDITIONS

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

E.1.1 General Provisions Relating to New Source Performance Standards (NSPS) [326 IAC 12-1] [40 CFR 60, Subpart A] [326 IAC 12]

E.1.2 New Source Performance Standards (NSPS) [326 IAC 12] [40 CFR 60, Subpart WWW]
[326 IAC 12]

E.2 FACILITY OPERATION CONDITIONS

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

E.2.1 General Provisions Relating to National Emission Standards for Hazardous Air Pollutants (NESHAP) [326 IAC 12-1] [40 CFR 63, Subpart A] [326 IAC 12]

E.2.2 National Emission Standards for Hazardous Air Pollutants (NESHAP) [326 IAC 12] [40 CFR 63, Subpart AAAA] [326 IAC 12]

Certification

Emergency Occurrence Report

Quarterly Deviation and Compliance Monitoring Report

Attachment A: 40 CFR 60, Subpart WWW—New Source Performance Standards (NSPS) for municipal solid waste landfills that commenced construction, reconstruction or modification on or after May 30, 1991

Attachment B: 40 CFR 63, Subpart AAAA—National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfill

Attachment C: Fugitive Dust Control Plan

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 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:	14304 S.R. 60, Borden, Indiana 47106
General Source Phone Number:	812-945-5976
SIC Code:	4953
County Location:	Clark
Source Location Status:	Nonattainment for PM2.5 standard Attainment for all other criteria pollutants
Source Status:	Part 70 Operating Permit Program Minor Source, under PSD Rules Minor Source, under Nonattainment NSR Rules Minor Source, Section 112 of the Clean Air Act Not 1 of 28 Source Categories

A.2 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) stationery municipal solid waste landfill with a design capacity of 8,780,694 Megagrams (Mg), constructed in 1970. [40 CFR 60, Subpart WWW] [40 CFR 63, Subpart AAAA]
- (b) One (1) flare rated at 1,700 standard cubic feet per minute to control landfill gas emissions, constructed in 1999. [40 CFR 60, Subpart WWW] [40 CFR 63, Subpart AAAA]

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

This stationary source does not currently have any insignificant activities, as defined in 326 IAC 2-7-1(21) that have applicable requirements.

- (a) A petroleum fuel, other than gasoline, dispensing facility, having a storage capacity of less than or equal to 10,500 gallons, and dispensing less than or equal to 230,000 gallons per month. [326 IAC 8-9-6]

A.4 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, T019-27744-00097, 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 April 15 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, or Southeast Regional Office 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
Southeast Regional Office phone: (812) 358-2027; fax: (812) 358-2058.

- (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 T019-27744-00097 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 Reserved

B.16 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.17 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). 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.18 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.19 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.20 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(36)) 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.21 Source Modification Requirement [326 IAC 2-7-10.5]

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

B.22 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.23 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.24 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.25 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 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 thirty percent (30%) 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.2 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.3 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.4 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.5 Fugitive Particulate Matter Emission Limitations [326 IAC 6-5]

Pursuant to 326 IAC 6-5 (Fugitive Particulate Matter Emission Limitations), fugitive particulate matter emissions shall be controlled according to the attached plan as in Attachment C. The provisions of 326 IAC 6-5 are 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)]

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 or of initial start-up, whichever is later, 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 or the date of initial startup, whichever is later, 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).

Unless otherwise specified in the approval for the new emission unit(s), compliance monitoring for new emission units or emission units added through a source modification shall be implemented when operation begins.

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.
- (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 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.12 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.13 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.14 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]

Pursuant to 326 IAC 2-6-3(b)(3), starting in 2006 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) ("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.15 General Record Keeping Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-6]

- (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:

- (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:

- (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.16 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.

Stratospheric Ozone Protection

C.17 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:

- (a) A petroleum fuel, other than gasoline, dispensing facility, having a storage capacity of less than or equal to 10,500 gallons, and dispensing less than or equal to 230,000 gallons per month.
[326 IAC 8-9-6]

(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 Liquid Storage [326 IAC 8-9]

Pursuant to 326 IAC 8-9-6 (Volatile Organic Liquid Storage Vessels), the Permittee of each vessel subject to this rule shall:

- (a) Keep all records required by 326 IAC 8-9-6 for three (3) years unless specified otherwise. Records required by 326 IAC 8-9-6(b) shall be maintained for the life of the vessel.
- (b) Maintain records containing the following information for each vessel:
- (1) The vessel identification number.
 - (2) The vessel dimensions.
 - (3) The vessel capacity.

SECTION E.1

FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)]:

- (a) One (1) stationery municipal solid waste landfill with a design capacity of 8,780,694 Megagrams (Mg), constructed in 1970. [40 CFR 60, Subpart WWW] [40 CFR 63, Subpart AAAA]
- (b) One (1) flare rated at 1,700 standard cubic feet per minute to control landfill gas emissions, constructed in 1999. [40 CFR 60, Subpart WWW] [40 CFR 63, Subpart AAAA]

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

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

E.1.1 General Provisions Relating to New Source Performance Standards (NSPS) [40 CFR 60, Subpart A] [326 IAC 12]

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

E.1.2 New Source Performance Standards (NSPS) [40 CFR 60, Subpart WWW] [326 IAC 12]

Pursuant to 40 CFR 60 Subpart WWW, the Permittee shall comply with the provisions of 40 CFR 60 Subpart WWW, which are incorporated as 326 IAC 12-1 for the municipal solid waste landfill and flare, as specified as follows:

- (1) 40 CFR 60.750;
- (2) 40 CFR 60.751;
- (3) 40 CFR 60.752;
- (4) 40 CFR 60.753;
- (5) 40 CFR 60.754;
- (6) 40 CFR 60.755;
- (7) 40 CFR 60.756;
- (8) 40 CFR 60.757;
- (9) 40 CFR 60.758; and
- (10) 40 CFR 60.759.

SECTION E.2

FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)]:

- (a) One (1) stationery municipal solid waste landfill with a design capacity of 8,780,694 Megagrams (Mg), constructed in 1970. [40 CFR 60, Subpart WWW] [40 CFR 63, Subpart AAAA]
- (b) One (1) flare rated at 1,700 standard cubic feet per minute to control landfill gas emissions, constructed in 1999. [40 CFR 60, Subpart WWW] [40 CFR 63, Subpart AAAA]

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

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

E.2.1 General Provisions Relating to National Emission Standards for Hazardous Air Pollutants (NESHAP) [40 CFR 63, Subpart A] [326 IAC 12]

The provisions of 40 CFR 63, Subpart A - General Provisions, which are incorporated by reference in 326 IAC 12-1, apply to the municipal solid waste landfill and flare except when otherwise specified in 40 CFR 63, Subpart AAAA (Attachment B).

E.2.2 National Emission Standards for Hazardous Air Pollutants (NESHAP) [40 CFR 63, Subpart AAAA] [326 IAC 12]

Pursuant to 40 CFR 63 Subpart AAAA, the Permittee shall comply with the provisions of 40 CFR 63 Subpart AAAA, which are incorporated as 326 IAC 12-1 for the municipal solid waste landfill and flare, as specified as follows:

- (1) 40 CFR 63.1930;
- (2) 40 CFR 63.1935;
- (3) 40 CFR 63.1940;
- (4) 40 CFR 63.1945;
- (5) 40 CFR 63.1947;
- (6) 40 CFR 63.1950;
- (7) 40 CFR 63.1952;
- (8) 40 CFR 63.1955;
- (9) 40 CFR 63.1960;
- (10) 40 CFR 63.1965;
- (11) 40 CFR 63.1975;
- (12) 40 CFR 63.1980;
- (13) 40 CFR 63.1985;
- (14) 40 CFR 63.1990; and
- (15) Table 1 to Subpart AAAA of Part 63.

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
PART 70 OPERATING PERMIT
CERTIFICATION**

Source Name: Clark-Floyd Landfill
Source Address: 14304 S.R. 60, Borden, Indiana 47106
Part 70 Permit No.: T019-27744-00097

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: Clark-Floyd Landfill
Source Address: 14304 S.R. 60, Borden, Indiana 47106
Part 70 Permit No.: T019-27744-00097

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) daytime 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 OPERATING PERMIT
QUARTERLY DEVIATION AND COMPLIANCE MONITORING REPORT**

Source Name: Clark-Floyd Landfill
Source Address: 14304 S.R. 60, Borden, Indiana 47106
Part 70 Permit No.: T019-27744-00097

Months: _____ to _____ Year: _____

Page 1 of 2

This report shall be submitted quarterly based on a calendar year. Any deviation from the requirements, 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: _____

Attachment A
Standards of Performance for Municipal Solid Waste Landfill
[40 CFR Part 60, Subpart WWW] [326 IAC 12]

Source Description and Location
--

Source Name:	Clark-Floyd Landfill
Source Location:	14304 S.R. 60, Borden, IN 47106
County:	Clark
SIC Code:	4953
Permit Renewal No.:	T019-27744-00097
Permit Reviewer:	Kimberley Malley

NSPS [40 CFR Part 60, Subpart WWW]

Subpart WWW—Standards of Performance for Municipal Solid Waste Landfills

Source: 61 FR 9919, Mar. 12, 1996, unless otherwise noted.

§ 60.750 Applicability, designation of affected facility, and delegation of authority.

(a) The provisions of this subpart apply to each municipal solid waste landfill that commenced construction, reconstruction or modification on or after May 30, 1991. Physical or operational changes made to an existing MSW landfill solely to comply with Subpart Cc of this part are not considered construction, reconstruction, or modification for the purposes of this section.

(b) The following authorities shall be retained by the Administrator and not transferred to the State: §60.754(a)(5).

(c) Activities required by or conducted pursuant to a CERCLA, RCRA, or State remedial action are not considered construction, reconstruction, or modification for purposes of this subpart.

[61 FR 9919, Mar. 12, 1996, as amended at 63 FR 32750, June 16, 1998]

§ 60.751 Definitions.

As used in this subpart, all terms not defined herein shall have the meaning given them in the Act or in subpart A of this part.

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

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

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

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

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

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

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

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

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

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

Flare means an open combustor without enclosure or shroud.

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

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

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

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

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

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

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

Municipal solid waste landfill or *MSW landfill* means an entire disposal facility in a contiguous geographical space where household waste is placed in or on land. An MSW landfill may also receive other types of RCRA Subtitle D

wastes (§257.2 of this title) such as commercial solid waste, nonhazardous sludge, conditionally exempt small quantity generator waste, and industrial solid waste. Portions of an MSW landfill may be separated by access roads. An MSW landfill may be publicly or privately owned. An MSW landfill may be a new MSW landfill, an existing MSW landfill, or a lateral expansion.

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

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

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

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

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

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

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

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

[61 FR 9919, Mar. 12, 1996, as amended at 63 FR 32750, June 16, 1998; 64 FR 9262, Feb. 24, 1999]

§ 60.752 Standards for air emissions from municipal solid waste landfills.

(a) Each owner or operator of an MSW landfill having a design capacity less than 2.5 million megagrams by mass or 2.5 million cubic meters by volume shall submit an initial design capacity report to the Administrator as provided in §60.757(a). The landfill may calculate design capacity in either megagrams or cubic meters for comparison with the exemption values. Any density conversions shall be documented and submitted with the report. Submittal of the initial design capacity report shall fulfill the requirements of this subpart except as provided for in paragraphs (a)(1) and (a)(2) of this section.

(1) The owner or operator shall submit to the Administrator an amended design capacity report, as provided for in §60.757(a)(3).

(2) When an increase in the maximum design capacity of a landfill exempted from the provisions of §60.752(b) through §60.759 of this subpart on the basis of the design capacity exemption in paragraph (a) of this section results in a revised maximum design capacity equal to or greater than 2.5 million megagrams and 2.5 million cubic meters, the owner or operator shall comply with the provision of paragraph (b) of this section.

(b) Each owner or operator of an MSW landfill having a design capacity equal to or greater than 2.5 million megagrams and 2.5 million cubic meters, shall either comply with paragraph (b)(2) of this section or calculate an NMOC emission rate for the landfill using the procedures specified in §60.754. The NMOC emission rate shall be

recalculated annually, except as provided in §60.757(b)(1)(ii) of this subpart. The owner or operator of an MSW landfill subject to this subpart with a design capacity greater than or equal to 2.5 million megagrams and 2.5 million cubic meters is subject to part 70 or 71 permitting requirements.

(1) If the calculated NMOC emission rate is less than 50 megagrams per year, the owner or operator shall:

(i) Submit an annual emission report to the Administrator, except as provided for in §60.757(b)(1)(ii); and

(ii) Recalculate the NMOC emission rate annually using the procedures specified in §60.754(a)(1) until such time as the calculated NMOC emission rate is equal to or greater than 50 megagrams per year, or the landfill is closed.

(A) If the NMOC emission rate, upon recalculation required in paragraph (b)(1)(ii) of this section, is equal to or greater than 50 megagrams per year, the owner or operator shall install a collection and control system in compliance with paragraph (b)(2) of this section.

(B) If the landfill is permanently closed, a closure notification shall be submitted to the Administrator as provided for in §60.757(d).

(2) If the calculated NMOC emission rate is equal to or greater than 50 megagrams per year, the owner or operator shall:

(i) Submit a collection and control system design plan prepared by a professional engineer to the Administrator within 1 year:

(A) The collection and control system as described in the plan shall meet the design requirements of paragraph (b)(2)(ii) of this section.

(B) The collection and control system design plan shall include any alternatives to the operational standards, test methods, procedures, compliance measures, monitoring, recordkeeping or reporting provisions of §§60.753 through 60.758 proposed by the owner or operator.

(C) The collection and control system design plan shall either conform with specifications for active collection systems in §60.759 or include a demonstration to the Administrator's satisfaction of the sufficiency of the alternative provisions to §60.759.

(D) The Administrator shall review the information submitted under paragraphs (b)(2)(i) (A), (B) and (C) of this section and either approve it, disapprove it, or request that additional information be submitted. Because of the many site-specific factors involved with landfill gas system design, alternative systems may be necessary. A wide variety of system designs are possible, such as vertical wells, combination horizontal and vertical collection systems, or horizontal trenches only, leachate collection components, and passive systems.

(ii) Install a collection and control system that captures the gas generated within the landfill as required by paragraphs (b)(2)(i)(A) or (B) and (b)(2)(iii) of this section within 30 months after the first annual report in which the emission rate equals or exceeds 50 megagrams per year, unless Tier 2 or Tier 3 sampling demonstrates that the emission rate is less than 50 megagrams per year, as specified in §60.757(c)(1) or (2).

(A) An active collection system shall:

(1) Be designed to handle the maximum expected gas flow rate from the entire area of the landfill that warrants control over the intended use period of the gas control or treatment system equipment;

(2) Collect gas from each area, cell, or group of cells in the landfill in which the initial solid waste has been placed for a period of:

(i) 5 years or more if active; or

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

(3) Collect gas at a sufficient extraction rate;

(4) Be designed to minimize off-site migration of subsurface gas.

(B) A passive collection system shall:

(1) Comply with the provisions specified in paragraphs (b)(2)(ii)(A)(1), (2), and (2)(ii)(A)(4) of this section.

(2) Be installed with liners on the bottom and all sides in all areas in which gas is to be collected. The liners shall be installed as required under §258.40.

(iii) Route all the collected gas to a control system that complies with the requirements in either paragraph (b)(2)(iii)(A), (B) or (C) of this section.

(A) An open flare designed and operated in accordance with §60.18 except as noted in §60.754(e);

(B) A control system designed and operated to reduce NMOC by 98 weight-percent, or, when an enclosed combustion device is used for control, to either reduce NMOC by 98 weight percent or reduce the outlet NMOC concentration to less than 20 parts per million by volume, dry basis as hexane at 3 percent oxygen. The reduction efficiency or parts per million by volume shall be established by an initial performance test to be completed no later than 180 days after the initial startup of the approved control system using the test methods specified in §60.754(d).

(1) If a boiler or process heater is used as the control device, the landfill gas stream shall be introduced into the flame zone.

(2) The control device shall be operated within the parameter ranges established during the initial or most recent performance test. The operating parameters to be monitored are specified in §60.756;

(C) Route the collected gas to a treatment system that processes the collected gas for subsequent sale or use. All emissions from any atmospheric vent from the gas treatment system shall be subject to the requirements of paragraph (b)(2)(iii)(A) or (B) of this section.

(iv) Operate the collection and control device installed to comply with this subpart in accordance with the provisions of §§60.753, 60.755 and 60.756.

(v) The collection and control system may be capped or removed provided that all the conditions of paragraphs (b)(2)(v)(A), (B), and (C) of this section are met:

(A) The landfill shall be a closed landfill as defined in §60.751 of this subpart. A closure report shall be submitted to the Administrator as provided in §60.757(d);

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

(C) Following the procedures specified in §60.754(b) of this subpart, the calculated NMOC gas produced by the landfill shall be less than 50 megagrams per year on three successive test dates. The test dates shall be no less than 90 days apart, and no more than 180 days apart.

(c) For purposes of obtaining an operating permit under title V of the Act, the owner or operator of a MSW landfill subject to this subpart with a design capacity less than 2.5 million megagrams or 2.5 million cubic meters is not subject to the requirement to obtain an operating permit for the landfill under part 70 or 71 of this chapter, unless the landfill is otherwise subject to either part 70 or 71. For purposes of submitting a timely application for an operating permit under part 70 or 71, the owner or operator of a MSW landfill subject to this subpart with a design capacity greater than or equal to 2.5 million megagrams and 2.5 million cubic meters, and not otherwise subject to either part

70 or 71, becomes subject to the requirements of §§70.5(a)(1)(i) or 71.5(a)(1)(i) of this chapter, regardless of when the design capacity report is actually submitted, no later than:

(1) June 10, 1996 for MSW landfills that commenced construction, modification, or reconstruction on or after May 30, 1991 but before March 12, 1996;

(2) Ninety days after the date of commenced construction, modification, or reconstruction for MSW landfills that commence construction, modification, or reconstruction on or after March 12, 1996.

(d) When a MSW landfill subject to this subpart is closed, the owner or operator is no longer subject to the requirement to maintain an operating permit under part 70 or 71 of this chapter for the landfill if the landfill is not otherwise subject to the requirements of either part 70 or 71 and if either of the following conditions are met:

(1) The landfill was never subject to the requirement for a control system under paragraph (b)(2) of this section; or

(2) The owner or operator meets the conditions for control system removal specified in paragraph (b)(2)(v) of this section.

[61 FR 9919, Mar. 12, 1996, as amended at 63 FR 32751, June 16, 1998; 65 FR 18908, Apr. 10, 2000; 71 FR 55127, Sept. 21, 2006]

§ 60.753 Operational standards for collection and control systems.

Each owner or operator of an MSW landfill with a gas collection and control system used to comply with the provisions of §60.752(b)(2)(ii) of this subpart shall:

(a) Operate the collection system such that gas is collected from each area, cell, or group of cells in the MSW landfill in which solid waste has been in place for:

(1) 5 years or more if active; or

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

(b) Operate the collection system with negative pressure at each wellhead except under the following conditions:

(1) A fire or increased well temperature. The owner or operator shall record instances when positive pressure occurs in efforts to avoid a fire. These records shall be submitted with the annual reports as provided in §60.757(f)(1);

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

(3) A decommissioned well. A well may experience a static positive pressure after shut down to accommodate for declining flows. All design changes shall be approved by the Administrator;

(c) Operate each interior wellhead in the collection system with a landfill gas temperature less than 55 °C and with either a nitrogen level less than 20 percent or an oxygen level less than 5 percent. The owner or operator may establish a higher operating temperature, nitrogen, or oxygen value at a particular well. A higher operating value demonstration shall show supporting data that the elevated parameter does not cause fires or significantly inhibit anaerobic decomposition by killing methanogens.

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

(2) Unless an alternative test method is established as allowed by §60.752(b)(2)(i) of this subpart, the oxygen shall be determined by an oxygen meter using Method 3A or 3C except that:

- (i) The span shall be set so that the regulatory limit is between 20 and 50 percent of the span;
- (ii) A data recorder is not required;
- (iii) Only two calibration gases are required, a zero and span, and ambient air may be used as the span;
- (iv) A calibration error check is not required;
- (v) The allowable sample bias, zero drift, and calibration drift are ± 10 percent.
- (d) Operate the collection system so that the methane concentration is less than 500 parts per million above background at the surface of the landfill. To determine if this level is exceeded, the owner or operator shall conduct surface testing around the perimeter of the collection area and along a pattern that traverses the landfill at 30 meter intervals and where visual observations indicate elevated concentrations of landfill gas, such as distressed vegetation and cracks or seeps in the cover. The owner or operator may establish an alternative traversing pattern that ensures equivalent coverage. A surface monitoring design plan shall be developed that includes a topographical map with the monitoring route and the rationale for any site-specific deviations from the 30 meter intervals. Areas with steep slopes or other dangerous areas may be excluded from the surface testing.
- (e) Operate the system such that all collected gases are vented to a control system designed and operated in compliance with §60.752(b)(2)(iii). In the event the collection or control system is inoperable, the gas mover system shall be shut down and all valves in the collection and control system contributing to venting of the gas to the atmosphere shall be closed within 1 hour; and
- (f) Operate the control or treatment system at all times when the collected gas is routed to the system.
- (g) If monitoring demonstrates that the operational requirements in paragraphs (b), (c), or (d) of this section are not met, corrective action shall be taken as specified in §60.755(a)(3) through (5) or §60.755(c) of this subpart. If corrective actions are taken as specified in §60.755, the monitored exceedance is not a violation of the operational requirements in this section.

[61 FR 9919, Mar. 12, 1996, as amended at 63 FR 32751, June 16, 1998; 65 FR 61778, Oct. 17, 2000]

§ 60.754 Test methods and procedures.

(a)(1) The landfill owner or operator shall calculate the NMOC emission rate using either the equation provided in paragraph (a)(1)(i) of this section or the equation provided in paragraph (a)(1)(ii) of this section. Both equations may be used if the actual year-to-year solid waste acceptance rate is known, as specified in paragraph (a)(1)(i), for part of the life of the landfill and the actual year-to-year solid waste acceptance rate is unknown, as specified in paragraph (a)(1)(ii), for part of the life of the landfill. The values to be used in both equations are 0.05 per year for k , 170 cubic meters per megagram for L_o , and 4,000 parts per million by volume as hexane for the C_{NMOC} . For landfills located in geographical areas with a thirty year annual average precipitation of less than 25 inches, as measured at the nearest representative official meteorologic site, the k value to be used is 0.02 per year.

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

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

where,

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

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

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

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

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

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

3.6×10^{-9} =conversion factor

The mass of nondegradable solid waste may be subtracted from the total mass of solid waste in a particular section of the landfill when calculating the value for M_i if documentation of the nature and amount of such wastes is maintained

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

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

Where:

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

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

R =average annual acceptance rate, megagrams per year

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

t = age of landfill, years

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

c =time since closure, years; for active landfill $c=0$ and $e^{-kc}=1$

3.6×10^{-9} =conversion factor

The mass of nondegradable solid waste may be subtracted from the total mass of solid waste in a particular section of the landfill when calculating the value of R , if documentation of the nature and amount of such wastes is maintained.

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

(i) If the NMOC emission rate calculated in paragraph (a)(1) of this section is less than 50 megagrams per year, then the landfill owner shall submit an emission rate report as provided in §60.757(b)(1), and shall recalculate the NMOC mass emission rate annually as required under §60.752(b)(1).

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

(3) *Tier 2.* The landfill owner or operator shall determine the NMOC concentration using the following sampling procedure. The landfill owner or operator shall install at least two sample probes per hectare of landfill surface that

has retained waste for at least 2 years. If the landfill is larger than 25 hectares in area, only 50 samples are required. The sample probes should be located to avoid known areas of nondegradable solid waste. The owner or operator shall collect and analyze one sample of landfill gas from each probe to determine the NMOC concentration using Method 25 or 25C of Appendix A of this part. Method 18 of Appendix A of this part may be used to analyze the samples collected by the Method 25 or 25C sampling procedure. Taking composite samples from different probes into a single cylinder is allowed; however, equal sample volumes must be taken from each probe. For each composite, the sampling rate, collection times, beginning and ending cylinder vacuums, or alternative volume measurements must be recorded to verify that composite volumes are equal. Composite sample volumes should not be less than one liter unless evidence can be provided to substantiate the accuracy of smaller volumes. Terminate compositing before the cylinder approaches ambient pressure where measurement accuracy diminishes. If using Method 18, the owner or operator must identify all compounds in the sample and, as a minimum, test for those compounds published in the most recent Compilation of Air Pollutant Emission Factors (AP-42), minus carbon monoxide, hydrogen sulfide, and mercury. As a minimum, the instrument must be calibrated for each of the compounds on the list. Convert the concentration of each Method 18 compound to $C_{NMOCas \text{ hexane}}$ by multiplying by the ratio of its carbon atoms divided by six. If more than the required number of samples are taken, all samples must be used in the analysis. The landfill owner or operator must divide the NMOC concentration from Method 25 or 25C of Appendix A of this part by six to convert from $C_{NMOCas \text{ carbon}}$ to $C_{NMOCas \text{ hexane}}$. If the landfill has an active or passive gas removal system in place, Method 25 or 25C samples may be collected from these systems instead of surface probes provided the removal system can be shown to provide sampling as representative as the two sampling probe per hectare requirement. For active collection systems, samples may be collected from the common header pipe before the gas moving or condensate removal equipment. For these systems, a minimum of three samples must be collected from the header pipe.

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

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

(iii) If the resulting NMOC mass emission rate is less than 50 megagrams per year, the owner or operator shall submit a periodic estimate of the emission rate report as provided in §60.757(b)(1) and retest the site-specific NMOC concentration every 5 years using the methods specified in this section.

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

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

(ii) If the NMOC mass emission rate is less than 50 megagrams per year, then the owner or operator shall submit a periodic emission rate report as provided in §60.757(b)(1) and shall recalculate the NMOC mass emission rate annually, as provided in §60.757(b)(1) using the equations in paragraph (a)(1) of this section and using the site-specific methane generation rate constant and NMOC concentration obtained in paragraph (a)(3) of this section. The calculation of the methane generation rate constant is performed only once, and the value obtained from this test shall be used in all subsequent annual NMOC emission rate calculations.

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

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

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

where,

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

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

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

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

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

(3) The owner or operator may use another method to determine landfill gas flow rate and NMOC concentration if the method has been approved by the Administrator.

(c) When calculating emissions for PSD purposes, the owner or operator of each MSW landfill subject to the provisions of this subpart shall estimate the NMOC emission rate for comparison to the PSD major source and significance levels in §§51.166 or 52.21 of this chapter using AP-42 or other approved measurement procedures.

(d) For the performance test required in §60.752(b)(2)(iii)(B), Method 25, 25C, or Method 18 of Appendix A of this part must be used to determine compliance with the 98 weight-percent efficiency or the 20 ppmv outlet concentration level, unless another method to demonstrate compliance has been approved by the Administrator as provided by §60.752(b)(2)(i)(B). Method 3 or 3A shall be used to determine oxygen for correcting the NMOC concentration as hexane to 3 percent. In cases where the outlet concentration is less than 50 ppm NMOC as carbon (8 ppm NMOC as hexane), Method 25A should be used in place of Method 25. If using Method 18 of appendix A of this part, the minimum list of compounds to be tested shall be those published in the most recent Compilation of Air Pollutant Emission Factors (AP-42). The following equation shall be used to calculate efficiency:

$$\text{Control Efficiency} = (\text{NMOC}_{\text{in}} - \text{NMOC}_{\text{out}}) / (\text{NMOC}_{\text{in}})$$

where,

NMOC_{in} = mass of NMOC entering control device

NMOC_{out} = mass of NMOC exiting control device

(e) For the performance test required in §60.752(b)(2)(iii)(A), the net heating value of the combusted landfill gas as determined in §60.18(f)(3) is calculated from the concentration of methane in the landfill gas as measured by Method 3C. A minimum of three 30-minute Method 3C samples are determined. The measurement of other organic components, hydrogen, and carbon monoxide is not applicable. Method 3C may be used to determine the landfill gas molecular weight for calculating the flare gas exit velocity under §60.18(f)(4).

[61 FR 9919, Mar. 12, 1996, as amended at 63 FR 32751, June 16, 1998; 65 FR 18908, Apr. 10, 2000; 65 FR 61778, Oct. 17, 2000; 71 FR 55127, Sept. 21, 2006]

§ 60.755 Compliance provisions.

(a) Except as provided in §60.752(b)(2)(i)(B), the specified methods in paragraphs (a)(1) through (a)(6) of this section shall be used to determine whether the gas collection system is in compliance with §60.752(b)(2)(ii).

(1) For the purposes of calculating the maximum expected gas generation flow rate from the landfill to determine compliance with §60.752(b)(2)(ii)(A)(1), one of the following equations shall be used. The k and L_0 kinetic factors should be those published in the most recent Compilation of Air Pollutant Emission Factors (AP-42) or other site specific values demonstrated to be appropriate and approved by the Administrator. If k has been determined as specified in §60.754(a)(4), the value of k determined from the test shall be used. A value of no more than 15 years shall be used for the intended use period of the gas mover equipment. The active life of the landfill is the age of the landfill plus the estimated number of years until closure.

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

$$Q_m = 2L_0R (e^{-kc} - e^{-kt})$$

where,

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

L_0 = methane generation potential, cubic meters per megagram solid waste

R = average annual acceptance rate, megagrams per year

k = methane generation rate constant, year⁻¹

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

c = time since closure, years (for an active landfill $c = 0$ and $e^{-kc} = 1$)

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

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

where,

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

k = methane generation rate constant, year⁻¹

L_0 = methane generation potential, cubic meters per megagram solid waste

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

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

(iii) If a collection and control system has been installed, actual flow data may be used to project the maximum expected gas generation flow rate instead of, or in conjunction with, the equations in paragraphs (a)(1) (i) and (ii) of this section. If the landfill is still accepting waste, the actual measured flow data will not equal the maximum expected gas generation rate, so calculations using the equations in paragraphs (a)(1) (i) or (ii) or other methods shall be used to predict the maximum expected gas generation rate over the intended period of use of the gas control system equipment.

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

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

(4) Owners or operators are not required to expand the system as required in paragraph (a)(3) of this section during the first 180 days after gas collection system startup.

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

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

(b) For purposes of compliance with §60.753(a), each owner or operator of a controlled landfill shall place each well or design component as specified in the approved design plan as provided in §60.752(b)(2)(i). Each well shall be installed no later than 60 days after the date on which the initial solid waste has been in place for a period of:

(1) 5 years or more if active; or

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

(c) The following procedures shall be used for compliance with the surface methane operational standard as provided in §60.753(d).

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

§ 60.756 Monitoring of operations.

Except as provided in §60.752(b)(2)(i)(B),

(a) Each owner or operator seeking to comply with §60.752(b)(2)(ii)(A) for an active gas collection system shall install a sampling port and a thermometer, other temperature measuring device, or an access port for temperature measurements at each wellhead and:

- (1) Measure the gauge pressure in the gas collection header on a monthly basis as provided in §60.755(a)(3); and
- (2) Monitor nitrogen or oxygen concentration in the landfill gas on a monthly basis as provided in §60.755(a)(5); and
- (3) Monitor temperature of the landfill gas on a monthly basis as provided in §60.755(a)(5).

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

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

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

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

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

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

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

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

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

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

(d) Each owner or operator seeking to demonstrate compliance with §60.752(b)(2)(iii) using a device other than an open flare or an enclosed combustor shall provide information satisfactory to the Administrator as provided in §60.752(b)(2)(i)(B) describing the operation of the control device, the operating parameters that would indicate proper performance, and appropriate monitoring procedures. The Administrator shall review the information and either approve it, or request that additional information be submitted. The Administrator may specify additional appropriate monitoring procedures.

(e) Each owner or operator seeking to install a collection system that does not meet the specifications in §60.759 or seeking to monitor alternative parameters to those required by §60.753 through §60.756 shall provide information satisfactory to the Administrator as provided in §60.752(b)(2)(i) (B) and (C) describing the design and operation of the

collection system, the operating parameters that would indicate proper performance, and appropriate monitoring procedures. The Administrator may specify additional appropriate monitoring procedures.

(f) Each owner or operator seeking to demonstrate compliance with §60.755(c), shall monitor surface concentrations of methane according to the instrument specifications and procedures provided in §60.755(d). Any closed landfill that has no monitored exceedances of the operational standard in three consecutive quarterly monitoring periods may skip to annual monitoring. Any methane reading of 500 ppm or more above background detected during the annual monitoring returns the frequency for that landfill to quarterly monitoring.

[61 FR 9919, Mar. 12, 1996, as amended at 63 FR 32752, June 16, 1998; 65 FR 18909, Apr. 10, 2000]

§ 60.757 Reporting requirements.

Except as provided in §60.752(b)(2)(i)(B),

(a) Each owner or operator subject to the requirements of this subpart shall submit an initial design capacity report to the Administrator.

(1) The initial design capacity report shall fulfill the requirements of the notification of the date construction is commenced as required by §60.7(a)(1) and shall be submitted no later than:

(i) June 10, 1996, for landfills that commenced construction, modification, or reconstruction on or after May 30, 1991 but before March 12, 1996 or

(ii) Ninety days after the date of commenced construction, modification, or reconstruction for landfills that commence construction, modification, or reconstruction on or after March 12, 1996.

(2) The initial design capacity report shall contain the following information:

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

(ii) The maximum design capacity of the landfill. Where the maximum design capacity is specified in the permit issued by the State, local, or tribal agency responsible for regulating the landfill, a copy of the permit specifying the maximum design capacity may be submitted as part of the report. If the maximum design capacity of the landfill is not specified in the permit, the maximum design capacity shall be calculated using good engineering practices. The calculations shall be provided, along with the relevant parameters as part of the report. The State, Tribal, local agency or Administrator may request other reasonable information as may be necessary to verify the maximum design capacity of the landfill.

(3) An amended design capacity report shall be submitted to the Administrator providing notification of an increase in the design capacity of the landfill, within 90 days of an increase in the maximum design capacity of the landfill to or above 2.5 million megagrams and 2.5 million cubic meters. This increase in design capacity may result from an increase in the permitted volume of the landfill or an increase in the density as documented in the annual recalculation required in §60.758(f).

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

(1) The NMOC emission rate report shall contain an annual or 5-year estimate of the NMOC emission rate calculated using the formula and procedures provided in §60.754(a) or (b), as applicable.

(i) The initial NMOC emission rate report may be combined with the initial design capacity report required in paragraph (a) of this section and shall be submitted no later than indicated in paragraphs (b)(1)(i)(A) and (B) of this section. Subsequent NMOC emission rate reports shall be submitted annually thereafter, except as provided for in paragraphs (b)(1)(ii) and (b)(3) of this section.

(A) June 10, 1996, for landfills that commenced construction, modification, or reconstruction on or after May 30, 1991, but before March 12, 1996, or

(B) Ninety days after the date of commenced construction, modification, or reconstruction for landfills that commence construction, modification, or reconstruction on or after March 12, 1996.

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

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

(3) Each owner or operator subject to the requirements of this subpart is exempted from the requirements of paragraphs (b)(1) and (2) of this section, after the installation of a collection and control system in compliance with §60.752(b)(2), during such time as the collection and control system is in operation and in compliance with §§60.753 and 60.755.

(c) Each owner or operator subject to the provisions of §60.752(b)(2)(i) shall submit a collection and control system design plan to the Administrator within 1 year of the first report required under paragraph (b) of this section in which the emission rate equals or exceeds 50 megagrams per year, except as follows:

(1) If the owner or operator elects to recalculate the NMOC emission rate after Tier 2 NMOC sampling and analysis as provided in §60.754(a)(3) and the resulting rate is less than 50 megagrams per year, annual periodic reporting shall be resumed, using the Tier 2 determined site-specific NMOC concentration, until the calculated emission rate is equal to or greater than 50 megagrams per year or the landfill is closed. The revised NMOC emission rate report, with the recalculated emission rate based on NMOC sampling and analysis, shall be submitted within 180 days of the first calculated exceedance of 50 megagrams per year.

(2) If the owner or operator elects to recalculate the NMOC emission rate after determining a site-specific methane generation rate constant (k), as provided in Tier 3 in §60.754(a)(4), and the resulting NMOC emission rate is less than 50 Mg/yr, annual periodic reporting shall be resumed. The resulting site-specific methane generation rate constant (k) shall be used in the emission rate calculation until such time as the emissions rate calculation results in an exceedance. The revised NMOC emission rate report based on the provisions of §60.754(a)(4) and the resulting site-specific methane generation rate constant (k) shall be submitted to the Administrator within 1 year of the first calculated emission rate exceeding 50 megagrams per year.

(d) Each owner or operator of a controlled landfill shall submit a closure report to the Administrator within 30 days of waste acceptance cessation. The Administrator may request additional information as may be necessary to verify that permanent closure has taken place in accordance with the requirements of 40 CFR 258.60. If a closure report has been submitted to the Administrator, no additional wastes may be placed into the landfill without filing a notification of modification as described under §60.7(a)(4).

(e) Each owner or operator of a controlled landfill shall submit an equipment removal report to the Administrator 30 days prior to removal or cessation of operation of the control equipment.

(1) The equipment removal report shall contain all of the following items:

- (i) A copy of the closure report submitted in accordance with paragraph (d) of this section;
 - (ii) A copy of the initial performance test report demonstrating that the 15 year minimum control period has expired; and
 - (iii) Dated copies of three successive NMOC emission rate reports demonstrating that the landfill is no longer producing 50 megagrams or greater of NMOC per year.
- (2) The Administrator may request such additional information as may be necessary to verify that all of the conditions for removal in §60.752(b)(2)(v) have been met.
- (f) Each owner or operator of a landfill seeking to comply with §60.752(b)(2) using an active collection system designed in accordance with §60.752(b)(2)(ii) shall submit to the Administrator annual reports of the recorded information in (f)(1) through (f)(6) of this paragraph. The initial annual report shall be submitted within 180 days of installation and start-up of the collection and control system, and shall include the initial performance test report required under §60.8. For enclosed combustion devices and flares, reportable exceedances are defined under §60.758(c).
- (1) Value and length of time for exceedance of applicable parameters monitored under §60.756(a), (b), (c), and (d).
 - (2) Description and duration of all periods when the gas stream is diverted from the control device through a bypass line or the indication of bypass flow as specified under §60.756.
 - (3) Description and duration of all periods when the control device was not operating for a period exceeding 1 hour and length of time the control device was not operating.
 - (4) All periods when the collection system was not operating in excess of 5 days.
 - (5) The location of each exceedance of the 500 parts per million methane concentration as provided in §60.753(d) and the concentration recorded at each location for which an exceedance was recorded in the previous month.
 - (6) The date of installation and the location of each well or collection system expansion added pursuant to paragraphs (a)(3), (b), and (c)(4) of §60.755.
- (g) Each owner or operator seeking to comply with §60.752(b)(2)(iii) shall include the following information with the initial performance test report required under §60.8:
- (1) A diagram of the collection system showing collection system positioning including all wells, horizontal collectors, surface collectors, or other gas extraction devices, including the locations of any areas excluded from collection and the proposed sites for the future collection system expansion;
 - (2) The data upon which the sufficient density of wells, horizontal collectors, surface collectors, or other gas extraction devices and the gas mover equipment sizing are based;
 - (3) The documentation of the presence of asbestos or nondegradable material for each area from which collection wells have been excluded based on the presence of asbestos or nondegradable material;
 - (4) The sum of the gas generation flow rates for all areas from which collection wells have been excluded based on nonproductivity and the calculations of gas generation flow rate for each excluded area; and
 - (5) The provisions for increasing gas mover equipment capacity with increased gas generation flow rate, if the present gas mover equipment is inadequate to move the maximum flow rate expected over the life of the landfill; and
 - (6) The provisions for the control of off-site migration.

§ 60.758 Recordkeeping requirements.

(a) Except as provided in §60.752(b)(2)(i)(B), each owner or operator of an MSW landfill subject to the provisions of §60.752(b) shall keep for at least 5 years up-to-date, readily accessible, on-site records of the design capacity report which triggered §60.752(b), the current amount of solid waste in-place, and the year-by-year waste acceptance rate. Off-site records may be maintained if they are retrievable within 4 hours. Either paper copy or electronic formats are acceptable.

(b) Except as provided in §60.752(b)(2)(i)(B), each owner or operator of a controlled landfill shall keep up-to-date, readily accessible records for the life of the control equipment of the data listed in paragraphs (b)(1) through (b)(4) of this section as measured during the initial performance test or compliance determination. Records of subsequent tests or monitoring shall be maintained for a minimum of 5 years. Records of the control device vendor specifications shall be maintained until removal.

(1) Where an owner or operator subject to the provisions of this subpart seeks to demonstrate compliance with §60.752(b)(2)(ii):

(i) The maximum expected gas generation flow rate as calculated in §60.755(a)(1). The owner or operator may use another method to determine the maximum gas generation flow rate, if the method has been approved by the Administrator.

(ii) The density of wells, horizontal collectors, surface collectors, or other gas extraction devices determined using the procedures specified in §60.759(a)(1).

(2) Where an owner or operator subject to the provisions of this subpart seeks to demonstrate compliance with §60.752(b)(2)(iii) through use of an enclosed combustion device other than a boiler or process heater with a design heat input capacity equal to or greater than 44 megawatts:

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

(ii) The percent reduction of NMOC determined as specified in §60.752(b)(2)(iii)(B) achieved by the control device.

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

(4) Where an owner or operator subject to the provisions of this subpart seeks to demonstrate compliance with §60.752(b)(2)(iii)(A) through use of an open flare, the flare type (i.e., steam-assisted, air-assisted, or nonassisted), all visible emission readings, heat content determination, flow rate or bypass flow rate measurements, and exit velocity determinations made during the performance test as specified in §60.18; continuous records of the flare pilot flame or flare flame monitoring and records of all periods of operations during which the pilot flame of the flare flame is absent.

(c) Except as provided in §60.752(b)(2)(i)(B), each owner or operator of a controlled landfill subject to the provisions of this subpart shall keep for 5 years up-to-date, readily accessible continuous records of the equipment operating parameters specified to be monitored in §60.756 as well as up-to-date, readily accessible records for periods of operation during which the parameter boundaries established during the most recent performance test are exceeded.

(1) The following constitute exceedances that shall be recorded and reported under §60.757(f):

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

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

(2) Each owner or operator subject to the provisions of this subpart shall keep up-to-date, readily accessible continuous records of the indication of flow to the control device or the indication of bypass flow or records of monthly inspections of car-seals or lock-and-key configurations used to seal bypass lines, specified under §60.756.

(3) Each owner or operator subject to the provisions of this subpart who uses a boiler or process heater with a design heat input capacity of 44 megawatts or greater to comply with §60.752(b)(2)(iii) shall keep an up-to-date, readily accessible record of all periods of operation of the boiler or process heater. (Examples of such records could include records of steam use, fuel use, or monitoring data collected pursuant to other State, local, Tribal, or Federal regulatory requirements.)

(4) Each owner or operator seeking to comply with the provisions of this subpart by use of an open flare shall keep up-to-date, readily accessible continuous records of the flame or flare pilot flame monitoring specified under §60.756(c), and up-to-date, readily accessible records of all periods of operation in which the flame or flare pilot flame is absent.

(d) Except as provided in §60.752(b)(2)(i)(B), each owner or operator subject to the provisions of this subpart shall keep for the life of the collection system an up-to-date, readily accessible plot map showing each existing and planned collector in the system and providing a unique identification location label for each collector.

(1) Each owner or operator subject to the provisions of this subpart shall keep up-to-date, readily accessible records of the installation date and location of all newly installed collectors as specified under §60.755(b).

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

(e) Except as provided in §60.752(b)(2)(i)(B), each owner or operator subject to the provisions of this subpart shall keep for at least 5 years up-to-date, readily accessible records of all collection and control system exceedances of the operational standards in §60.753, the reading in the subsequent month whether or not the second reading is an exceedance, and the location of each exceedance.

(f) Landfill owners or operators who convert design capacity from volume to mass or mass to volume to demonstrate that landfill design capacity is less than 2.5 million megagrams or 2.5 million cubic meters, as provided in the definition of "design capacity", shall keep readily accessible, on-site records of the annual recalculation of site-specific density, design capacity, and the supporting documentation. Off-site records may be maintained if they are retrievable within 4 hours. Either paper copy or electronic formats are acceptable.

[61 FR 9919, Mar. 12, 1996, as amended at 63 FR 32752, June 16, 1998; 65 FR 18909, Apr. 10, 2000]

§ 60.759 Specifications for active collection systems.

(a) Each owner or operator seeking to comply with §60.752(b)(2)(i) shall site active collection wells, horizontal collectors, surface collectors, or other extraction devices at a sufficient density throughout all gas producing areas using the following procedures unless alternative procedures have been approved by the Administrator as provided in §60.752(b)(2)(i)(C) and (D):

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

(2) The sufficient density of gas collection devices determined in paragraph (a)(1) of this section shall address landfill gas migration issues and augmentation of the collection system through the use of active or passive systems at the landfill perimeter or exterior.

(3) The placement of gas collection devices determined in paragraph (a)(1) of this section shall control all gas producing areas, except as provided by paragraphs (a)(3)(i) and (a)(3)(ii) of this section.

(i) Any segregated area of asbestos or nondegradable material may be excluded from collection if documented as provided under §60.758(d). The documentation shall provide the nature, date of deposition, location and amount of asbestos or nondegradable material deposited in the area, and shall be provided to the Administrator upon request.

(ii) Any nonproductive area of the landfill may be excluded from control, provided that the total of all excluded areas can be shown to contribute less than 1 percent of the total amount of NMOC emissions from the landfill. The amount, location, and age of the material shall be documented and provided to the Administrator upon request. A separate NMOC emissions estimate shall be made for each section proposed for exclusion, and the sum of all such sections shall be compared to the NMOC emissions estimate for the entire landfill. Emissions from each section shall be computed using the following equation:

$$Q_i = 2 k L_o M_i (e^{-kt_i}) (C_{NMOC}) (3.6 \times 10^{-9})$$

where,

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

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

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

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

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

C_{NMOC} = concentration of nonmethane organic compounds, parts per million by volume

3.6×10^{-9} = conversion factor

(iii) The values for k and C_{NMOC} determined in field testing shall be used if field testing has been performed in determining the NMOC emission rate or the radii of influence (this distance from the well center to a point in the landfill where the pressure gradient applied by the blower or compressor approaches zero). If field testing has not been performed, the default values for k , L_o and C_{NMOC} provided in §60.754(a)(1) or the alternative values from §60.754(a)(5) shall be used. The mass of nondegradable solid waste contained within the given section may be subtracted from the total mass of the section when estimating emissions provided the nature, location, age, and amount of the nondegradable material is documented as provided in paragraph (a)(3)(i) of this section.

(b) Each owner or operator seeking to comply with §60.752(b)(2)(i)(A) shall construct the gas collection devices using the following equipment or procedures:

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

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

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

(c) Each owner or operator seeking to comply with §60.752(b)(2)(i)(A) shall convey the landfill gas to a control system in compliance with §60.752(b)(2)(iii) through the collection header pipe(s). The gas mover equipment shall be sized to handle the maximum gas generation flow rate expected over the intended use period of the gas moving equipment using the following procedures:

(1) For existing collection systems, the flow data shall be used to project the maximum flow rate. If no flow data exists, the procedures in paragraph (c)(2) of this section shall be used.

(2) For new collection systems, the maximum flow rate shall be in accordance with §60.755(a)(1).

[61 FR 9919, Mar. 12, 1996, as amended at 63 FR 32753, June 16, 1998; 64 FR 9262, Feb. 24, 1999; 65 FR 18909, Apr. 10, 2000]

Attachment B
National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste
Landfill [40 CFR Part 63, Subpart AAAA] [326 IAC 20]

Source Description and Location
--

Source Name:	Clark-Floyd Landfill
Source Location:	14304 S.R. 60, Borden, IN 47106
County:	Clark
SIC Code:	4953
Permit Renewal No.:	T019-27744-00097
Permit Reviewer:	Kimberley Malley

NESHAP [40 CFR Part 63, Subpart AAAA]
--

40 CFR 63, Subpart AAAA—National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste landfill:

Source: 68 FR 2238, Jan. 16, 2003, unless otherwise noted.

What This Subpart Covers

§ 63.1930 What is the purpose of this subpart?

This subpart establishes national emission standards for hazardous air pollutants for existing and new municipal solid waste (MSW) landfills. This subpart requires all landfills described in §63.1935 to meet the requirements of 40 CFR part 60, subpart Cc or WWW and requires timely control of bioreactors. This subpart also requires such landfills to meet the startup, shutdown, and malfunction (SSM) requirements of the general provisions of this part and provides that compliance with the operating conditions shall be demonstrated by parameter monitoring results that are within the specified ranges. It also includes additional reporting requirements.

§ 63.1935 Am I subject to this subpart?

You are subject to this subpart if you meet the criteria in paragraph (a) or (b) of this section.

(a) You are subject to this subpart if you own or operate a MSW landfill that has accepted waste since November 8, 1987 or has additional capacity for waste deposition and meets any one of the three criteria in paragraphs (a)(1) through (3) of this section:

(1) Your MSW landfill is a major source as defined in 40 CFR 63.2 of subpart A.

(2) Your MSW landfill is collocated with a major source as defined in 40 CFR 63.2 of subpart A.

(3) Your MSW landfill is an area source landfill that has a design capacity equal to or greater than 2.5 million megagrams (Mg) and 2.5 million cubic meters (m³) and has estimated uncontrolled emissions equal to or greater than 50 megagrams per year (Mg/yr) NMOC as calculated according to §60.754(a) of the MSW landfills new source performance standards in 40 CFR part 60, subpart WWW, the Federal plan, or an EPA approved and effective State or tribal plan that applies to your landfill.

(b) You are subject to this subpart if you own or operate a MSW landfill that has accepted waste since November 8, 1987 or has additional capacity for waste deposition, that includes a bioreactor, as defined in §63.1990, and that meets any one of the criteria in paragraphs (b)(1) through (3) of this section:

- (1) Your MSW landfill is a major source as defined in 40 CFR 63.2 of subpart A.
- (2) Your MSW landfill is collocated with a major source as defined in 40 CFR 63.2 of subpart A.
- (3) Your MSW landfill is an area source landfill that has a design capacity equal to or greater than 2.5 million Mg and 2.5 million m³ and that is not permanently closed as of January 16, 2003.

§ 63.1940 What is the affected source of this subpart?

- (a) An affected source of this subpart is a MSW landfill, as defined in §63.1990, that meets the criteria in §63.1935(a) or (b). The affected source includes the entire disposal facility in a contiguous geographic space where household waste is placed in or on land, including any portion of the MSW landfill operated as a bioreactor.
- (b) A new affected source of this subpart is an affected source that commenced construction or reconstruction after November 7, 2000. An affected source is reconstructed if it meets the definition of reconstruction in 40 CFR 63.2 of subpart A.
- (c) An affected source of this subpart is existing if it is not new.

§ 63.1945 When do I have to comply with this subpart?

- (a) If your landfill is a new affected source, you must comply with this subpart by January 16, 2003 or at the time you begin operating, whichever is last.
- (b) If your landfill is an existing affected source, you must comply with this subpart by January 16, 2004.
- (c) If your landfill is a new affected source and is a major source or is collocated with a major source, you must comply with the requirements in §§63.1955(b) and 63.1960 through 63.1980 by the date your landfill is required to install a collection and control system by 40 CFR 60.752(b)(2) of subpart WWW.
- (d) If your landfill is an existing affected source and is a major source or is collocated with a major source, you must comply with the requirements in §§63.1955(b) and 63.1960 through 63.1980 by the date your landfill is required to install a collection and control system by 40 CFR 60.752(b)(2) of subpart WWW, the Federal plan, or EPA approved and effective State or tribal plan that applies to your landfill or by January 13, 2004, whichever occurs later.
- (e) If your landfill is a new affected source and is an area source meeting the criteria in §63.1935(a)(3), you must comply with the requirements of §§63.1955(b) and 63.1960 through 63.1980 by the date your landfill is required to install a collection and control system by 40 CFR 60.752(b)(2) of subpart WWW.
- (f) If your landfill is an existing affected source and is an area source meeting the criteria in §63.1935(a)(3), you must comply with the requirements in §§63.1955(b) and 63.1960 through 63.1980 by the date your landfill is required to install a collection and control system by 40 CFR 60.752(b)(2) of subpart WWW, the Federal plan, or EPA approved and effective State or tribal plan that applies to your landfill or by January 16, 2004, whichever occurs later.

§ 63.1947 When do I have to comply with this subpart if I own or operate a bioreactor?

You must comply with this subpart by the dates specified in §63.1945(a) or (b) of this subpart. If you own or operate a bioreactor located at a landfill that is not permanently closed as of January 16, 2003 and has a design capacity equal to or greater than 2.5 million Mg and 2.5 million m³, then you must install and operate a collection and control system that meets the criteria in 40 CFR 60.752(b)(2)(v) of part 60, subpart WWW, the Federal plan, or EPA approved and effective State plan according to the schedule specified in paragraph (a), (b), or (c) of this section.

- (a) If your bioreactor is at a new affected source, then you must meet the requirements in paragraphs (a)(1) and (2) of this section:

(1) Install the gas collection and control system for the bioreactor before initiating liquids addition.

(2) Begin operating the gas collection and control system within 180 days after initiating liquids addition or within 180 days after achieving a moisture content of 40 percent by weight, whichever is later. If you choose to begin gas collection and control system operation 180 days after achieving a 40 percent moisture content instead of 180 days after liquids addition, use the procedures in §63.1980(g) and (h) to determine when the bioreactor moisture content reaches 40 percent.

(b) If your bioreactor is at an existing affected source, then you must install and begin operating the gas collection and control system for the bioreactor by January 17, 2006 or by the date your bioreactor is required to install a gas collection and control system under 40 CFR part 60, subpart WWW, the Federal plan, or EPA approved and effective State plan or tribal plan that applies to your landfill, whichever is earlier.

(c) If your bioreactor is at an existing affected source and you do not initiate liquids addition to your bioreactor until later than January 17, 2006, then you must meet the requirements in paragraphs (c)(1) and (2) of this section:

(1) Install the gas collection and control system for the bioreactor before initiating liquids addition.

(2) Begin operating the gas collection and control system within 180 days after initiating liquids addition or within 180 days after achieving a moisture content of 40 percent by weight, whichever is later. If you choose to begin gas collection and control system operation 180 days after achieving a 40 percent moisture content instead of 180 days after liquids addition, use the procedures in §63.1980(g) and (h) to determine when the bioreactor moisture content reaches 40 percent.

§ 63.1950 When am I no longer required to comply with this subpart?

You are no longer required to comply with the requirements of this subpart when you are no longer required to apply controls as specified in 40 CFR 60.752(b)(2)(v) of subpart WWW, or the Federal plan or EPA approved and effective State plan or tribal plan that implements 40 CFR part 60, subpart Cc, whichever applies to your landfill.

§ 63.1952 When am I no longer required to comply with the requirements of this subpart if I own or operate a bioreactor?

If you own or operate a landfill that includes a bioreactor, you are no longer required to comply with the requirements of this subpart for the bioreactor provided you meet the conditions of either paragraphs (a) or (b).

(a) Your affected source meets the control system removal criteria in 40 CFR 60.752(b)(2)(v) of part 60, subpart WWW or the bioreactor meets the criteria for a nonproductive area of the landfill in 40 CFR 60.759(a)(3)(ii) of part 60, subpart WWW.

(b) The bioreactor portion of the landfill is a closed landfill as defined in 40 CFR 60.751, subpart WWW, you have permanently ceased adding liquids to the bioreactor, and you have not added liquids to the bioreactor for at least 1 year. A closure report for the bioreactor must be submitted to the Administrator as provided in 40 CFR 60.757(d) of subpart WWW.

(c) Compliance with the bioreactor control removal provisions in this section constitutes compliance with 40 CFR part 60, subpart WWW or the Federal plan, whichever applies to your bioreactor.

Standards

§ 63.1955 What requirements must I meet?

(a) You must fulfill one of the requirements in paragraph (a)(1) or (2) of this section, whichever is applicable:

(1) Comply with the requirements of 40 CFR part 60, subpart WWW.

(2) Comply with the requirements of the Federal plan or EPA approved and effective State plan or tribal plan that implements 40 CFR part 60, subpart Cc.

(b) If you are required by 40 CFR 60.752(b)(2) of subpart WWW, the Federal plan, or an EPA approved and effective State or tribal plan to install a collection and control system, you must comply with the requirements in §§63.1960 through 63.1985 and with the general provisions of this part specified in table 1 of this subpart.

(c) For approval of collection and control systems that include any alternatives to the operational standards, test methods, procedures, compliance measures, monitoring, recordkeeping or reporting provisions, you must follow the procedures in 40 CFR 60.752(b)(2). If alternatives have already been approved under 40 CFR part 60 subpart WWW or the Federal plan, or EPA approved and effective State or tribal plan, these alternatives can be used to comply with this subpart, except that all affected sources must comply with the SSM requirements in Subpart A of this part as specified in Table 1 of this subpart and all affected sources must submit compliance reports every 6 months as specified in §63.1980(a) and (b), including information on all deviations that occurred during the 6-month reporting period. Deviations for continuous emission monitors or numerical continuous parameter monitors must be determined using a 3 hour monitoring block average.

(d) If you own or operate a bioreactor that is located at a MSW landfill that is not permanently closed and has a design capacity equal to or greater than 2.5 million Mg and 2.5 million m³, then you must meet the requirements of paragraph (a) and the additional requirements in paragraphs (d)(1) and (2) of this section.

(1) You must comply with the general provisions specified in Table 1 of this subpart and §§63.1960 through 63.1985 starting on the date you are required to install the gas collection and control system.

(2) You must extend the collection and control system into each new cell or area of the bioreactor prior to initiating liquids addition in that area, instead of the schedule in 40 CFR 60.752(b)(2)(ii)(A)(2).

General and Continuing Compliance Requirements

§ 63.1960 How is compliance determined?

Compliance is determined in the same way it is determined for 40 CFR part 60, subpart WWW, including performance testing, monitoring of the collection system, continuous parameter monitoring, and other credible evidence. In addition, continuous parameter monitoring data, collected under 40 CFR 60.756(b)(1), (c)(1), and (d) of subpart WWW, are used to demonstrate compliance with the operating conditions for control systems. If a deviation occurs, you have failed to meet the control device operating conditions described in this subpart and have deviated from the requirements of this subpart. Finally, you must develop a written SSM plan according to the provisions in 40 CFR 63.6(e)(3). A copy of the SSM plan must be maintained on site. Failure to write or maintain a copy of the SSM plan is a deviation from the requirements of this subpart.

[68 FR 2238, Jan. 16, 2003, as amended at 71 FR 20462, Apr. 20, 2006]

§ 63.1965 What is a deviation?

A deviation is defined in §63.1990. For the purposes of the landfill monitoring and SSM plan requirements, deviations include the items in paragraphs (a) through (c) of this section.

(a) A deviation occurs when the control device operating parameter boundaries described in 40 CFR 60.758(c)(1) of subpart WWW are exceeded.

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

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

[68 FR 2238, Jan. 16, 2003, as amended at 71 FR 20462, Apr. 20, 2006]

§ 63.1975 How do I calculate the 3-hour block average used to demonstrate compliance?

Averages are calculated in the same way as they are calculated in 40 CFR part 60, subpart WWW, except that the data collected during the events listed in paragraphs (a), (b), (c), and (d) of this section are not to be included in any average computed under this subpart:

- (a) Monitoring system breakdowns, repairs, calibration checks, and zero (low-level) and high-level adjustments.
- (b) Startups.
- (c) Shutdowns.
- (d) Malfunctions.

Notifications, Records, and Reports

§ 63.1980 What records and reports must I keep and submit?

(a) Keep records and reports as specified in 40 CFR part 60, subpart WWW, or in the Federal plan, EPA approved State plan or tribal plan that implements 40 CFR part 60, subpart Cc, whichever applies to your landfill, with one exception: You must submit the annual report described in 40 CFR 60.757(f) every 6 months.

(b) You must also keep records and reports as specified in the general provisions of 40 CFR part 60 and this part as shown in Table 1 of this subpart. Applicable records in the general provisions include items such as SSM plans and the SSM plan reports.

(c) For bioreactors at new affected sources you must submit the initial semiannual compliance report and performance test results described in 40 CFR 60.757(f) within 180 days after the date you are required to begin operating the gas collection and control system by §63.1947(a)(2) of this subpart.

(d) For bioreactors at existing affected sources, you must submit the initial semiannual compliance report and performance test results described in 40 CFR 60.757(f) within 180 days after the compliance date specified in §63.1947(b) of this subpart, unless you have previously submitted a compliance report for the bioreactor required by 40 CFR part 60, subpart WWW, the Federal plan, or an EPA approved and effective State plan or tribal plan.

(e) For bioreactors that are located at existing affected sources, but do not initiate liquids addition until later than the compliance date in §63.1947(b) of this subpart, you must submit the initial semiannual compliance report and performance test results described in 40 CFR 60.757(f) within 180 days after the date you are required to begin operating the gas collection and control system by §63.1947(c) of this subpart.

(f) If you must submit a semiannual compliance report for a bioreactor as well as a semiannual compliance report for a conventional portion of the same landfill, you may delay submittal of a subsequent semiannual compliance report for the bioreactor according to paragraphs (f)(1) through (3) of this section so that the reports may be submitted on the same schedule.

(1) After submittal of your initial semiannual compliance report and performance test results for the bioreactor, you may delay submittal of the subsequent semiannual compliance report for the bioreactor until the date the initial or subsequent semiannual compliance report is due for the conventional portion of your landfill.

(2) You may delay submittal of your subsequent semiannual compliance report by no more than 12 months after the due date for submitting the initial semiannual compliance report and performance test results described in 40 CFR

60.757(f) for the bioreactor. The report shall cover the time period since the previous semiannual report for the bioreactor, which would be a period of at least 6 months and no more than 12 months.

(3) After the delayed semiannual report, all subsequent semiannual reports for the bioreactor must be submitted every 6 months on the same date the semiannual report for the conventional portion of the landfill is due.

(g) If you add any liquids other than leachate in a controlled fashion to the waste mass and do not comply with the bioreactor requirements in §§63.1947, 63.1955(c) and 63.1980(c) through (f) of this subpart, you must keep a record of calculations showing that the percent moisture by weight expected in the waste mass to which liquid is added is less than 40 percent. The calculation must consider the waste mass, moisture content of the incoming waste, mass of water added to the waste including leachate recirculation and other liquids addition and precipitation, and the mass of water removed through leachate or other water losses. Moisture level sampling or mass balances calculations can be used. You must document the calculations and the basis of any assumptions. Keep the record of the calculations until you cease liquids addition.

(h) If you calculate moisture content to establish the date your bioreactor is required to begin operating the collection and control system under §63.1947(a)(2) or (c)(2), keep a record of the calculations including the information specified in paragraph (g) of this section for 5 years. Within 90 days after the bioreactor achieves 40 percent moisture content, report the results of the calculation, the date the bioreactor achieved 40 percent moisture content by weight, and the date you plan to begin collection and control system operation.

Other Requirements and Information

§ 63.1985 Who enforces this subpart?

(a) This subpart can be implemented and enforced by the U.S. EPA, or a delegated authority such as the applicable State, local, or tribal agency. If the EPA Administrator has delegated authority to a State, local, or tribal agency, then that agency as well as the U.S. EPA has the authority to implement and enforce this subpart. Contact the applicable EPA Regional Office to find out if this subpart is delegated to a State, local, or tribal agency.

(b) In delegating implementation and enforcement authority of this subpart to a State, local, or tribal agency under subpart E of this part, the authorities contained in paragraph (c) of this section are retained by the EPA Administrator and are not transferred to the State, local, or tribal agency.

(c) The authorities that will not be delegated to State, local, or tribal agencies are as follows. Approval of alternatives to the standards in §63.1955. Where these standards reference another subpart, the cited provisions will be delegated according to the delegation provisions of the referenced subpart.

§ 63.1990 What definitions apply to this subpart?

Terms used in this subpart are defined in the Clean Air Act, 40 CFR part 60, subparts A, Cc, and WWW; 40 CFR part 62, subpart GGG, and subpart A of this part, and this section that follows:

Bioreactor means a MSW landfill or portion of a MSW landfill where any liquid other than leachate (leachate includes landfill gas condensate) is added in a controlled fashion into the waste mass (often in combination with recirculating leachate) to reach a minimum average moisture content of at least 40 percent by weight to accelerate or enhance the anaerobic (without oxygen) biodegradation of the waste.

Deviation means any instance in which an affected source subject to this subpart, or an owner or operator of such a source:

(1) Fails to meet any requirement or obligation established by this subpart, including, but not limited to, any emissions limitation (including any operating limit) or work practice standard;

(2) Fails to meet any term or condition that is adopted to implement an applicable requirement in this subpart and that is included in the operating permit for any affected source required to obtain such a permit; or

(3) Fails to meet any emission limitation, (including any operating limit), or work practice standard in this subpart during SSM, regardless of whether or not such failure is permitted by this subpart.

Emissions limitation means any emission limit, opacity limit, operating limit, or visible emissions limit.

EPA approved State plan means a State plan that EPA has approved based on the requirements in 40 CFR part 60, subpart B to implement and enforce 40 CFR part 60, subpart Cc. An approved State plan becomes effective on the date specified in the notice published in the Federal Register announcing EPA's approval.

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

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

Tribal plan means a plan submitted by a tribal authority pursuant to 40 CFR parts 9, 35, 49, 50, and 81 to implement and enforce 40 CFR part 60, subpart Cc.

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

As stated in §§63.1955 and 63.1980, you must meet each requirement in the following table that applies to you.

Table 1 to Subpart AAAA of Part 63—Applicability of NESHAP General Provisions to Subpart AAAA

Part 63 Citation	Description	Explanation
63.1(a)	Applicability: general applicability of NESHAP in this part	Affected sources are already subject to the provisions of paragraphs (a)(10)–(12) through the same provisions under 40 CFR, part 60 subpart A.
63.1(b)	Applicability determination for stationary sources	
63.1(e)	Title V permitting	
63.2	Definitions	
63.4	Prohibited activities and circumvention	Affected sources are already subject to the provisions of paragraph (b) through the same provisions under 40 CFR, part 60 subpart A.

63.5(b)	Requirements for existing, newly constructed, and reconstructed sources	
63.6(e)	Operation and maintenance requirements, startup, shutdown and malfunction plan provisions	
63.6(f)	Compliance with nonopacity emission standards	Affected sources are already subject to the provisions of paragraphs (f)(1) and (2)(i) through the same provisions under 40 CFR, part 60 subpart A.
63.10(b)(2)(i)–(b)(2)(v)	General recordkeeping requirements	
63.10(d)(5)	If actions taken during a startup, shutdown and malfunction plan are consistent with the procedures in the startup, shutdown and malfunction plan, this information shall be included in a semi-annual startup, shutdown and malfunction plan report. Any time an action taken during a startup, shutdown and malfunction plan is not consistent with the startup, shutdown and malfunction plan, the source shall report actions taken within 2 working days after commencing such actions, followed by a letter 7 days after the event	
63.12(a)	These provisions do not preclude the State from adopting and enforcing any standard, limitation, etc., requiring permits, or requiring emissions reductions in excess of those specified	
63.15	Availability of information and confidentiality	

Attachment C
Fugitive Dust Control Plan

Source Description and Location
--

Source Name:	Clark-Floyd Landfill
Source Location:	14304 S.R. 60, Borden, IN 47106
County:	Clark
SIC Code:	4953
Permit Renewal No.:	T019-27744-00097
Permit Reviewer:	David Matousek

Fugitive Dust Control Plan

**FUGITIVE PARTICULATE MATTER EMISSION CONTROL PLAN
FOR LANDFILL AND RELATED FACILITIES**

Clark-Floyd Landfill, LLC
14304 State Road 60
Borden, Indiana 47106

Operating Permit Renewal No.: T019-27744-00097

Fugitive Particulate Matter Emission Control Plan

FUGITIVE PARTICULATE MATTER EMISSION CONTROL PLAN FOR LANDFILL AND RELATED FACILITIES

INTRODUCTION

The Clark-Floyd Landfill is subject to the requirements of 326 IAC 6-5-1(b), and is submitting this Fugitive Particulate Matter Emission Control Plan in conformance to the requirements of 326 IAC 6-5-5.

CONTROL PLAN CONTENTS

(1) Name and address of the source.

Clark-Floyd Landfill
14304 State Road 60
Borden, Indiana 47106

(2) Name and address of the owner or operator(s) responsible for the execution of the control plan.

Clark-Floyd Landfill, LLC
14304 State Road 60
Borden, Indiana 47106

(3) Identification of all processes, operations, and areas which have the potential to emit fugitive particulate matter in accordance with 326 IAC 6-5-4.

Clark-Floyd Landfill currently accepts a total of approximately 700 tons per day of municipal solid waste (MSW) and construction and demolition debris (C&D). The potential to emit fugitive particulate matter results from the equipment/traffic associated with hauling and dumping this waste at the active waste face and then return to off site. A round trip from the entrance to the facility to the active waste face and return is approximately 2.4 miles. Approximately 1.8 miles of the total round trip is over a paved asphalt road and 0.6 miles is over a compacted shale roadway.

Typical equipment includes the use of commercial garbage trucks (6 wheels, 34.5 tons gross weight, 17 tons tare weight) and pick-up trucks (4 wheels, 5.5 tons gross weight, 3 tons tare weight). Speeds are limited to no more than 20 mph at the facility.

(4) A map of the source showing aggregate pile areas, access areas around the aggregate pile, unpaved roads, paved roads, parking lots and location of conveyor and transfer points, etc.

Refer to the attached Map Sheet 1 where the applicable areas are identified.

Fugitive Particulate Matter Emission Control Plan

Page 3 of 6

(5) The number and mix of vehicular activity occurring on paved roads, unpaved roads, and parking lots.

Based on 2011 historical records approximately 96% of the daily tonnage originated from garbage trucks and the remaining 4% came from pick-up trucks. The average daily number of garbage truck trips per day was 102 and the average daily number of pick-up trucks was 22. The average weight of waste per garbage truck was 6.6 tons and for pick-up truck was 1.4 tons.

(6) Type and quantity of material handled.

Clark-Floyd Landfill currently accepts a total of approximately 700 tons per day of municipal solid waste (MSW) and construction and demolition debris (C&D).

(7) Equipment used to maintain aggregate piles.

Dozers, Loaders, Roadgrader, Scraper, Water Truck, etc.

(8) A description of the measures to be implemented to control fugitive particulate matter emissions resulting from emission points identified in subdivision (3).

Refer to "CONTROL MEASURES" on page 4.

(9) A specification of the dust suppressant material, such as oil or chemical including the estimated frequency of application rates and concentrations.

Refer to "CONTROL MEASURES" on page 4.

(10) A specification of the particulate matter collection equipment used as a fugitive particulate matter emission control measure.

Refer to "CONTROL MEASURES" on page 4.

(11) A schedule of compliance with the provisions of the control plan. Such schedule shall specify the amount of time the source requires to award any necessary contracts, commence and complete construction, installation, or modification of the fugitive particulate matter emission control measures.

Refer to "CONTROL MEASURES" on page 4.

NOTE: Records shall be kept and maintained which document all control measures and activities to be implemented in accordance with the approved control plan. Said records shall be available upon the request of the commissioner, and shall be retained for three (3) years.

Fugitive Particulate Matter Emission Control Plan

Page 4 of 6

EXCEPTIONS

The following conditions will be considered as primary exceptions to this control plan and therefore constitute an excursion of the fugitive dust control program.

- Fugitive dust from construction or demolition where every reasonable precaution has been taken in minimizing fugitive dust emissions.
- Fugitive dust from a source caused by adverse meteorological conditions.

TERMS

Terms used in this control plan are defined as set forth in this section.

"As needed basis" means the frequency of application necessary to minimize visible particulate matter emissions as defined in the control plan.

"Fugitive particulate matter emissions" means particulate matter which is emitted from any source by means other than a stack.

"Paved road" means any asphalt or concrete surfaced thoroughfare or right-of-way designed or used for vehicular traffic and located on the property of, or owned by, an individual or company.

"Potential emissions" means fugitive particulate matter emissions calculated after the application of air pollution control measures or air pollution control equipment.

"Unpaved roads" means any surfaced thoroughfare or right-of-way, other than a paved road as defined above, which is designed or used for vehicular traffic located on the property of, or owned by an individual or company.

CONTROL MEASURES

Fugitive particulate matter emissions resulting from the emission points specified in this section shall be controlled unless exempted pursuant to 326 IAC 6-5-7(d). All control measures specified in this section shall be considered reasonably available control measures (RCM).

- (A) **Paved roads, unpaved roads, and parking lots. Fugitive particulate matter emissions resulting from paved roads, unpaved roads, and parking lots shall be controlled unless exempted pursuant to 326 IAC 6-5-7(d).**

CFL may use one or more of the following measures, as needed:

- (1) **Paved roads and parking lots:**
 - (A) Cleaning by sweeping (watering before sweeping).
 - (B) Flushing.
 - (C) An equivalent alternate measure.
- (2) **Unpaved roads and parking lots:**
 - (A) Paving with a material such as asphalt or concrete.

Fugitive Particulate Matter Emission Control Plan

- (B) Treating with a suitable and effective oil or chemical dust suppressant approved by the commissioner. The frequency of application shall be on an as needed basis.
- (C) Spraying with water, the frequency of application shall be on an as needed basis.
- (D) Double chip and seal the road surface and maintain on an as needed basis.
- (E) An equivalent alternate measure.

(B) Open aggregate piles, as needed:

- (1) Measures to control fugitive particulate matter emissions shall be required for open aggregate piles consisting of material such as, but not limited to, sand, gravel, stone, grain, and coal and which material is finer than two hundred (200) mesh size equal to or greater than one percent (1%) by weight. Open aggregate material mesh size shall be determined by the "American Association of State Highway and Transportation Officials Test Method T27-74," or other equivalent procedures acceptable to the commissioner.
- (2) Fugitive particulate matter emissions resulting from open aggregate piles consisting of such material as, but not limited to, sand, gravel, stone, grain, and coal shall be controlled unless exempted pursuant to 326 IAC 6-5-7(d).

CFL may use one or more of the following measures, as needed:

- (A) Cleaning the area around the perimeter of the aggregate piles.
- (B) Application of suitable and effective oil or other dust suppressant on an as needed basis.
- (C) An equivalent alternate measure.

(C) Fugitive particulate matter emissions resulting from the transferring of aggregate material shall be controlled unless exempted pursuant to 326 IAC 6-5-7(d).

CFL may use one or more of the following measures, as needed:

- (1) Minimizing the vehicular distance between the transfer points.
- (2) Enclosing the transfer points and if needed exhausting emissions to particulate control equipment during the operation of the transferring system.
- (3) Application of water or suitable and effective chemical dust suppressant as needed to minimize visible emissions.
- (4) An equivalent alternate measure.

(D) Fugitive particulate matter emissions resulting from transportation of aggregate material by truck, front-end loaders, or similar vehicles shall be controlled unless exempted pursuant to 326 IAC 6-5-7(d).

CFL may use one or more of the following measures, as needed:

- (1) Use of completely enclosed vehicles.
- (2) Tarping the vehicle.
- (3) Maintaining the vehicle body in such a condition that prevents any leaks of aggregate material.
- (4) Spraying the materials in the vehicle with a suitable and effective dust suppressant.
- (5) An alternate measure.

Fugitive Particulate Matter Emission Control Plan

Page 6 of 6

- (E) ***Fugitive particulate matter emissions resulting from the loading and unloading operations of the material from storage facilities such as bins, hoppers, and silos, onto or out of vehicles, shall be controlled unless exempted pursuant to 326 IAC 6-5-7(d).***

CFL may use one or more of the following measures, as needed:

- (1) Enclosure of the material loading/unloading area.
- (2) Total or partial enclosure of the facility and exhausting of emissions to particulate collection equipment. Such equipment shall be approved by the board.
- (3) Spraying with water or suitable and effective chemical dust suppressant as needed to minimize visible emissions.
- (4) Reduction of free fall distance.
- (5) An equivalent alternate measure.

- (F) ***Solid waste handling. Fugitive particulate matter emission resulting from activities involving solid waste (as defined in IC 13-7-1-2(10)) disposal shall be controlled unless exempted pursuant to 326 IAC 6-7(d).***

CFL may use one or more of the following measures, as needed:

- (1) **Hauling:**
 - (A) Wet suppression of the material being transported.
 - (B) Hauling the material enclosed or covered.
 - (C) Minimizing the free fall distance when unloading from the particulate collection equipment and/or process equipment onto the hauling vehicle.
 - (D) An equivalent alternate measure.
- (2) **Dumping:**
 - (A) Applying water or suitable and effective chemical dust suppressant on an as needed basis to minimize visible emissions.
 - (B) Minimizing the free fall distance of the material.
 - (C) An equivalent alternate measure.

- (G) ***Fugitive particulate matter emissions resulting from material handling operations such as crushing, grinding, screening, and mixing shall be controlled unless exempted by 326 IAC 6-5-7(d).***

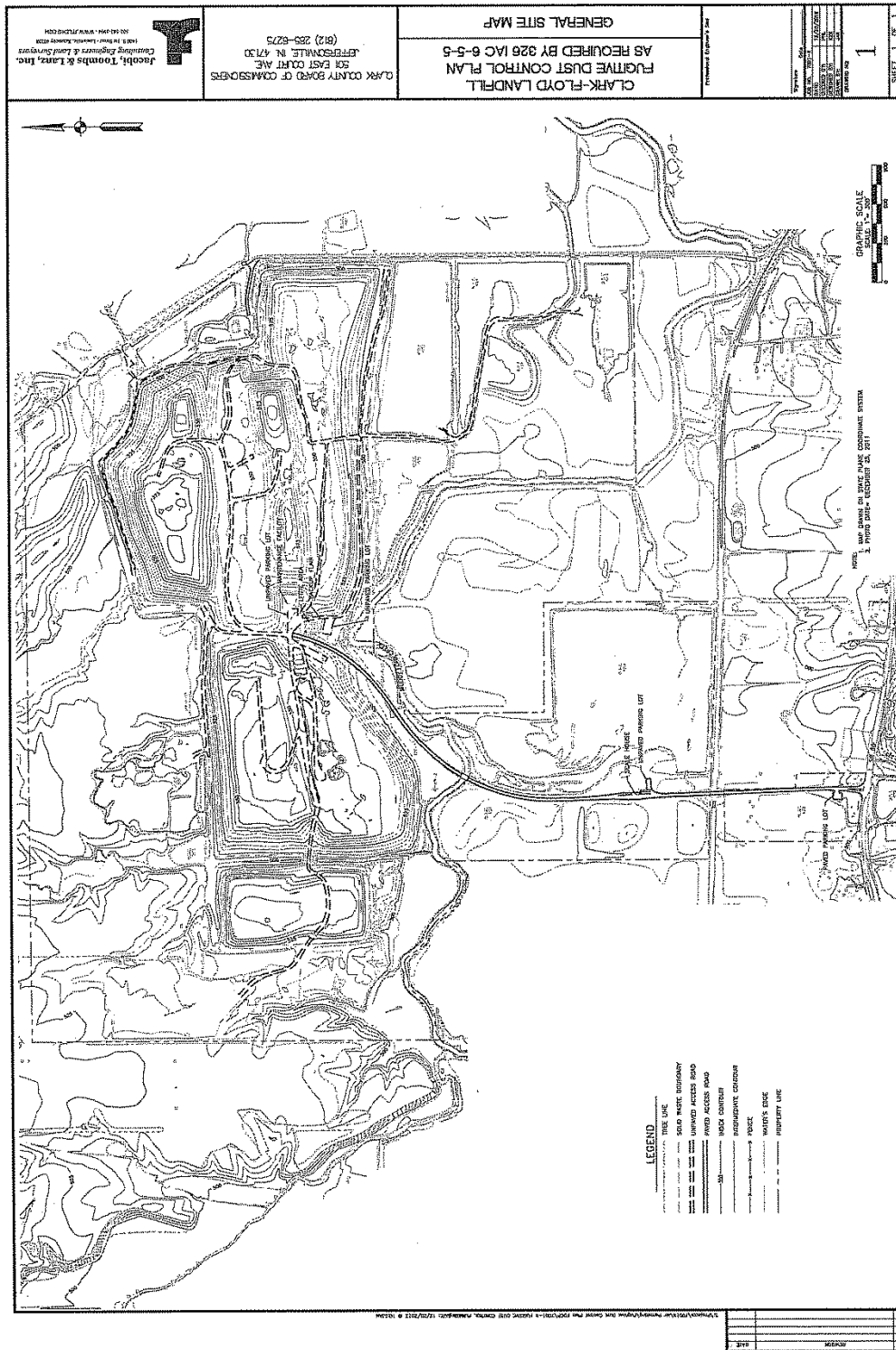
CFL may use one or more of the following measures, as needed:

- (1) Wet suppression.
- (2) An equivalent alternate measure.

COMMENCEMENT OF PLANS

The control plan is being implemented consistent with existing operations, as expeditiously as possible.

For new sources or facilities, the control measures will be implemented the date operations commence.



**Indiana Department of Environmental Management
Office of Air Quality**

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

Source Description and Location
--

Source Name:	Clark-Floyd Landfill
Source Location:	14304 SR 60, Borden, Indiana 47106
County:	Clark
SIC Code:	4953
Operation Permit No.:	T 019-27744-00097
Operation Permit Issuance Date:	August 19, 2009
Significant Permit Modification No.:	019-31708-00097
Permit Reviewer:	David Matousek

Source Definition

This Source Definition from the Administrative Part 70 Operating Permit was incorporated into this permit as follows:

This source consists of a municipal solid waste landfill with a collocated landfill gas generation station:

- (a) Clark-Floyd Landfill (Source ID # 019-00097), the primary operation, is located at 14304 State Road 60, Borden, Indiana, and
- (b) Clark-Floyd Landfill Gas Generating Station (Source ID # 019-00124), the supporting operation, is located at 14304 State Road 60, Borden, Indiana.

IDEM has determined that Clark-Floyd Landfill and Clark-Floyd Landfill Gas Generating Station are located on contiguous properties, have the same two-digit SIC code (Major Group 49: Electric, Gas, And Sanitary Services), and the Clark-Floyd Landfill Gas Generating Station is dependent wholly upon the output (landfill gas) of the Clark-Floyd Landfill for its operation. Therefore, Clark-Floyd Landfill Gas Generating Station and Clark-Floyd Landfill will be considered as one source, as defined by 326 IAC 2-7-1(22), based on this business relationship.

Separate Part 70 Operating Permits will be issued to the Clark-Floyd Landfill and the Clark-Floyd Landfill Gas Generating Station solely for administrative purposes. This conclusion was initially determined under Administrative Part 70 Operating Permit T 019-24153-00124 on July 20, 2007.

Existing Approvals

The source was issued Part 70 Operating Permit No. T019-27744-00097 on August 19, 2009. The source has not received any approvals since issuance of the Part 70 Operating Permit Renewal.

County Attainment Status

The source is located in Clark County, Carr Township.

Pollutant	Designation
SO ₂	Better than national standards.
CO	Unclassifiable or attainment effective November 15, 1990.
O ₃	Attainment effective July 19, 2007, for the 8-hour ozone standard. ¹
PM ₁₀	Unclassifiable effective November 15, 1990.
NO ₂	Cannot be classified or better than national standards.
Pb	Not designated.
¹ Attainment effective October 23, 2001, for the 1-hour ozone standard for the Louisville area, including Clark County, and is a maintenance area for the 1-hour ozone National Ambient Air Quality Standard (NAAQS) for purposes of 40 CFR Part 51, Subpart X*. The 1-hour standard was revoked effective June 15, 2005. Basic nonattainment designation effective federally April 5, 2005, for PM _{2.5} .	

(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. Clark 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}

Clark County has been classified as nonattainment for PM_{2.5} in 70 FR 943 dated January 5, 2005. On May 8, 2008, U.S. EPA promulgated specific New Source Review rules for PM_{2.5} emissions. These rules became effective on July 15, 2008. Therefore, direct PM_{2.5}, SO₂, and NO_x emissions were reviewed pursuant to the requirements of Nonattainment New Source Review, 326 IAC 2-1.1-5. See the State Rule Applicability – Entire Source section.

(c) Other Criteria Pollutants

Clark County has been classified as attainment or unclassifiable in Indiana for SO₂, CO, PM₁₀, NO₂ 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.

Description of Proposed Modification

The Office of Air Quality (OAQ) has reviewed a modification application, submitted by Clark-Floyd Landfill on April 9, 2012, relating to a revision Part 70 compliance monitoring, compliance determination, record keeping and reporting requirements. The landfill is also expanding capacity from 5,036,629 megagrams (Mg) to 8,780,694 Mg.

Enforcement Issues

There are no pending enforcement actions.

Emission Calculations

See Appendices A, B and C of this Technical Support Document for detailed emission calculations and the associated Landfill Gas Emission Model (LandGEM) summary Reports and Emission Inventory tables.

Permit Level Determination – Part 70

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.

PTE Change of the Modified Process			
Pollutant	PTE Before Modification (ton/yr)	PTE After Modification (ton/yr)	Increase from Modification (ton/yr)
PM	0.00	0.00	0.00
PM ₁₀	0.00	0.00	0.00
PM _{2.5}	0.00	0.00	0.00
SO ₂	0.00	0.00	0.00
VOC	14.93	20.71	5.78
CO	1.45	4.03	2.58
NO _x	0.00	0.00	0.00
Single HAP	1.32	3.66	2.34
Total HAP	3.85	10.73	6.88

This modification is not subject to the source modification requirements under 326 IAC 2-7-10.5. The changes will be incorporated into the permit as a Significant Permit Modification under 326 IAC 2-7-12(d), because the modification includes significant changes in compliance monitoring

conditions and reporting conditions.

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 permit modification, and only to the extent that the effect of the control equipment is made practically enforceable in the permit.

Process / Emission Unit	Potential to Emit (ton/yr)							
	PM	PM ₁₀	PM _{2.5} *	SO ₂	VOC	CO	NO _x	GHGs
Project Emissions	0.00	0.00	0.00	0.00	0.11	2.59	0.00	48
Sourcewide PTE before Modification	9.66	9.66	9.66	5.91	51.14	178.30	53.86	374
Sourcewide PTE after Modification	9.66	9.66	9.66	5.91	51.25	180.89	53.86	422
PSD Major Source Thresholds	250	250	250	250	250	250	250	100,000 CO _{2e}

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

This modification to an existing minor stationary source is not major because the emissions increase is less than the PSD major source thresholds. Therefore, pursuant to 326 IAC 2-2, the PSD requirements do not apply.

Federal Rule Applicability Determination

NSPS:

- (a) There are no New Source Performance Standards (NSPS)(326 IAC 12 and 40 CFR Part 60) included in this permit modification.

NESHAP:

- (b) There are no National Emission Standards for Hazardous Air Pollutants (NESHAPs) (326 IAC 14, 326 IAC 20 and 40 CFR Part 63) included in this permit modification.

State Rule Applicability Determination

There are no additional state rules applicable to this source as a result of this modification.

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.

There are no additional compliance determination requirements applicable to this modification other than NSPS and NESHAP requirements.

There are no additional compliance monitoring requirements applicable to this modification other than NSPS and NESHAP requirements.

Proposed Changes

The changes listed below have been made to Part 70 Operating Permit No. T019-27744-00097. Deleted language appears as ~~strike throughs~~ and new language appears in **bold**:

Proposed Modifications to Section B and Section C Conditions

- (a) 326 IAC 2-7 requires that "a responsible official" perform certain actions. 326 IAC 2-7-1(34) allows for multiple people to meet the definition of "responsible official." Therefore, IDEM, OAQ is revising all instances of "the responsible official" to read "a responsible official." The following original conditions have been revised to reflect this change:

Section B – Duty to Provide Information
Section B – Annual Compliance Certification
Section B – Preventive Maintenance Plan
Section B – Emergency Provisions
Section B – Permit Modification, Reopening, Revocation and Reissuance, or Termination
Section B – Permit Renewal
Section B – Permit Amendment or Modification
Section B – Operational Flexibility
Section B – Transfer of Ownership or Operational Control
Section C – Asbestos Abatement Projects
Section C – Performance Testing
Section C – Compliance Monitoring
Section C – Actions Related to Noncompliance Demonstrated by a Stack Test
Section C – Emission Statement

- (b) To clarify that Section B – Certification only states what a certification must be; IDEM OAQ has revised the condition.
- (c) IDEM, OAQ has revised Section B – Duty to Provide Information.
- (d) IDEM, OAQ has added a new paragraph (b) to Section B – Preventive Maintenance Plan to handle a future situation where the Permittee adds units that need preventive maintenance plans developed. IDEM, OAQ has clarified other aspects of Section B – Preventive Maintenance Plans.
- (e) IDEM, OAQ has added contact information for the local IDEM Regional Office to Section B – Emergency Provisions.

- (f) IDEM updated the rule reference in paragraph (e) of Section B – Emergency Provisions. IDEM is removing paragraph (h) of Section B – Emergency Provisions because 326 IAC 2-7-5(3)(C)(ii) allows that deviations reported under an independent requirement do not have to be included in the Quarterly Deviation and Compliance Monitoring Report.
- (g) IDEM, OAQ has decided that having a separate condition for the reporting of deviations is unnecessary. Therefore, IDEM is removing Section B – Deviation from Permit Requirements and Conditions.
- (h) Original Section B – Permit Renewal has been renumbered. IDEM, OAQ has decided to state which rule establishes the authority to set a deadline for the Permittee to submit additional information. Therefore, paragraph (c) has been revised to include the rule citation.
- (i) IDEM, OAQ has revised Section B – Permit Revision Under Economic Incentives and Other Programs to state that no notice is required for approved changes.
- (j) On October 27, 2010, the Indiana Air Pollution Control Board issued revisions to 326 IAC 2. These revisions resulted in changes to the rule sites listed in the permit. IDEM has updated these rule sites in the following conditions:
 - Section B – Preventive Maintenance Plan
 - Section B – Emergency Provisions
 - Section B – Operational Flexibility
- (k) IDEM, OAQ has added 326 IAC 5-1-1 to the exception clause of Section C – Opacity, since 326 IAC 5-1-1 does not list exceptions.
- (l) IDEM, OAQ is removing Section C - Particulate Emission Limitations For Processes with Process Weight Rates Less Than One Hundred (100) Pounds per Hour [326 IAC 6-3-2]; because, the source is subject to 326 IAC 6.5.
- (m) IDEM, OAQ revised Section C – Incineration to more closely reflect the two underlying rules.
- (n) IDEM, OAQ has removed the first paragraph of Section C – Performance Testing due to the fact that specific conditions elsewhere in the permit will specify the timeline and procedures.
- (o) IDEM, OAQ has revised Section C – Compliance Monitoring. The reference to record keeping has been removed due to the fact that other conditions already address record keeping. The voice of the condition has been changed to clearly indicate that it is the Permittee that must follow the requirements of the condition.
- (p) IDEM, OAQ has decided that the phrases “no later than” and “not later than” are clearer than “within” in relation to the end of a timeline. Therefore, all timelines have been switched to “no later than” or “not later than” except if the underlying rule states “within.” The following conditions have been revised as a result of this change:

- Section C – Compliance Monitoring
- Section C – Actions Related to Noncompliance Demonstrated by a Stack Test
- Section C – General Record Keeping Requirements
- Section C – General Reporting Requirements

- (q) IDEM, OAQ is removing Section C – Monitoring Methods. IDEM, OAQ. The conditions that require the monitoring or testing, if required state what methods shall be used.
- (r) IDEM, OAQ has revised Section C – Response to Excursions or Exceedances. An introduction sentence has been added to clarify that it is only when an excursion or exceedance is detected that the requirements of this condition need to be followed. The word “excess” was added to the last sentence of paragraph (a) because the Permittee only has to minimize excess emissions. The middle of paragraph (b) has been deleted as it was duplicative of paragraph (a). The phrase “or are returning” was added to subparagraph (b)(2) as this is an acceptable response assuming the operation or emission unit does return to normal or its usual manner of operation. The phrase “within the indicator range, designated condition, or below the applicable emission limitation or standard, as applicable” was replaced with “normal or usual manner of operation” because the first phrase is just a limited list of the second phrase. The record keeping required by paragraph (e) was changed to require only records of the response because the previously listed items are required to be recorded elsewhere in the permit.
- (s) IDEM, OAQ has revised Section C – Actions Related to Noncompliance Demonstrated by a Stack Test. The requirement to take response steps and minimize excess emissions have been removed because Section C – Response to Excursions or Exceedances already requires response steps related to exceedances and excess emissions minimization. The start of the timelines was switched from “the receipt of the test results” to “the date of the test.” There was confusion if the “receipt” was by IDEM, OAQ, the Permittee, or someone else. Since the start of the timelines has been moved up, the length of the timelines was increased. The new timelines require action within a comparable timeline; and, the new timelines still ensure that the Permittee will return to compliance within a reasonable timeframe.
- (t) IDEM, OAQ has revised Section C – Emission Statement. IDEM, OAQ has removed paragraph (b) of Section C – Emission Statement. It was duplicative of the requirement in Section C – General Reporting Requirements.
- (u) IDEM, OAQ has revised Section C – General Record Keeping Requirements. IDEM, OAQ has clarified the Permittee’s responsibility with regards to record keeping.
- (v) IDEM, OAQ has revised Section C – General Reporting Requirements. IDEM, OAQ has added the requirements for reporting deviations originally contained in Section B – Deviation from Permit Requirements and Conditions. Paragraph (d) was deleted because IDEM, OAQ already states the timeline and certification needs of each report in the condition requiring the report.
- (w) IDEM, OAQ is simplifying Section C – Compliance with 40 CFR 82 and 326 IAC 22-1.
- (x) IDEM, OAQ has updated the numbering of current conditions in Section C to reflect the addition and deletion of conditions.
- (y) The rule citation for the definition of the responsible official has been updated to reflect the most recent update of 326 IAC 2. 326 IAC 2-7-1(34) has been changed to 326 IAC 2-7-1(35).
- (z) Condition C.5 of the permit has been revised to indicate that a fugitive dust control plan is now attached to the permit as Attachment C.
- (aa) The company name throughout the permit has been revised from Clark-Floyd Landfill LLC to Clark-Floyd Landfill.

Modified Cover Page and Section B and Section C Conditions as a Result of the Above Changes

Cover Page:

Source Name: Clark-Floyd Landfill-LLC

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. ~~The submittal by the Permittee does require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).~~ Upon request, the Permittee shall also furnish to IDEM, OAQ copies of records required to be kept by this permit.
- (b) *****

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

- (a) ~~Where specifically designated by this permit or required by an applicable requirement, any application form, report, or compliance certification submitted shall contain certification by the "responsible official" of truth, accuracy, and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.~~ **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) ~~One (1) certification shall be included, using the attached Certification Form, with each submittal requiring certification. One (1) certification may cover multiple forms in one (1) submittal.~~ **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(~~34~~**35**).

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

- (a) *****
- (c) *****
- (1) *****
 - (2) *****
 - (3) *****
 - (4) *****
 - (5) *****

~~The submittal by the Permittee does require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).~~ **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(1),(3) and (13)]~~**[326 IAC 2-7-6(1) and (6)]**~~[326 IAC 1-6-3]~~ **[326 IAC 2-7-5(12)]**~~[326 IAC 1-6-3]~~

- (a) ~~If required by specific condition(s) in Section D of this permit, the Permittee shall maintain and implement Preventive Maintenance Plans (PMPs) 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.~~
- (b) ~~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 or potential to emit. The PMPs do not require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).~~
- (c) ~~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.~~
- (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) *****

(b) *****

(1) *****

(2) *****

(3) *****

(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 Compliance and Enforcement Branch)
Facsimile Number: 317-233-6865~~

For each emergency lasting one (1) hour or more, the Permittee notified IDEM, OAQ, or Southeast Regional Office 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
Southeast Regional Office phone: (812) 358-2027; fax: (812) 358-2058.**

(5) *****

~~The notification which shall be submitted by the Permittee does not require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).~~ **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) *****

(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)(98) be revised in response to an emergency.

(f) *****

~~(h) The Permittee shall include all emergencies in the Quarterly Deviation and Compliance Monitoring Report.~~

B.15 ~~Reserved~~ **Deviations from Permit Requirements and Conditions [326 IAC 2-7-5(3)(C)(ii)]**

~~(a) Deviations from any permit requirements (for emergencies see Section B – Emergency Provisions), the probable cause of such deviations, and any response steps or preventive measures taken shall be reported 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

~~using the attached Quarterly Deviation and Compliance Monitoring Report, or its equivalent. 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.~~

~~The Quarterly Deviation and Compliance Monitoring Report does require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).~~

~~(b) A deviation is an exceedance of a permit limitation or a failure to comply with a requirement of the permit.~~

B.16 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 the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).~~ **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) *****

B.17 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). ~~The renewal application does require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).~~ **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) *****

- (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.18 Permit Amendment or Modification [326 IAC 2-7-11][326 IAC 2-7-12]

(a) *****

- (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 shall be certified by the "responsible official" as defined by 326 IAC 2-7-1(34).~~ **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) *****

**B.19 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.20 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), (c), or (e) without a prior permit revision, if each of the following conditions is met:~~ **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), (c), or (e) **(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), ~~(c)(1), and (e)(2)~~ **(b)(1) and (c)(1)**.

(b) *****

~~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 the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).~~

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) *****

B.23 Transfer of Ownership or Operational Control [326 IAC 2-7-11]

(a) *****

(b) *****

~~The application which shall be submitted by the Permittee does require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).~~ **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) *****

C.1 ~~Particulate Matter Limitations for 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.12 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 thirty percent (30%) 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.23 Open Burning [326 IAC 4-1] [IC 13-17-9]

C.34 Incineration [326 IAC 4-2] [326 IAC 9-1-2]

~~The Permittee shall not operate an incinerator or incinerate any waste or refuse except as provided in 326 IAC 4-2 and 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.45 Fugitive Dust Emissions [326 IAC 6-4]

C.56 Fugitive Particulate Matter Emission Limitations [326 IAC 6-5]

Pursuant to 326 IAC 6-5 (Fugitive Particulate Matter Emission Limitations), fugitive particulate matter emissions shall be controlled according to the attached plan as in Attachment AC. The provisions of 326 IAC 6-5 are not federally enforceable.

C.67 Asbestos Abatement Projects [326 IAC 14-10] [326 IAC 18] [40 CFR 61, Subpart M]

(a) *****

(d) *****

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 by the "responsible official" as defined by 326 IAC 2-7-1(34).~~ **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) *****

C.78 Performance Testing [326 IAC 3-6]

(a) ~~All testing shall be performed according to the provisions of 326 IAC 3-6 (Source Sampling Procedures), except as provided elsewhere in this permit, utilizing any applicable procedures and analysis methods specified in 40 CFR 51, 40 CFR 60, 40 CFR 61, 40 CFR 63, 40 CFR 75, or other procedures approved by IDEM, OAQ.~~

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 46204-2254

~~no later than thirty five (35) days prior to the intended test date. The protocol submitted by the Permittee does not require certification by the "responsible official" as defined by 326 IAC 2-7-1(34).~~

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 certification by the "responsible official" as defined by 326 IAC 2-7-1(34).~~ **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) *****

C.89 Compliance Requirements [326 IAC 2-1.1-11]

C.940 Compliance Monitoring [326 IAC 2-7-5(3)][326 IAC 2-7-6(1)]

~~Unless otherwise specified in this permit, all monitoring and record keeping requirements not already legally required shall be implemented within ninety (90) days of permit issuance or ninety (90) days of initial start-up, whichever is later. If required by Section D, the Permittee shall be responsible for installing any necessary equipment and initiating any required monitoring related to that equipment. If due to circumstances beyond its control, that equipment cannot be installed and operated within ninety (90) days, the Permittee may extend the compliance schedule related to the equipment for an additional ninety (90) days provided the Permittee notifies:~~ **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 or of initial start-up, whichever is later, 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 or the date of initial startup, whichever is later, the Permittee may extend the compliance schedule related to the equipment for an additional ninety (90) days provided the Permittee notifies:**

~~The notification which shall be submitted by the Permittee does require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).~~ **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.11 Monitoring Methods [326 IAC 3] [40 CFR 60] [40 CFR 63]~~

~~Any monitoring or testing required by Section D of this permit shall be performed according to the provisions of 326 IAC 3, 40 CFR 60, Appendix A, 40 CFR 60, Appendix B, 40 CFR 63, or other approved methods as specified in this permit.~~

C.102 Instrument Specifications [326 IAC 2-1.1-11] [326 IAC 2-7-5(3)] [326 IAC 2-7-6(1)]

C.113 Risk Management Plan [326 IAC 2-7-5(12)] [40 CFR 68]

C.124 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) ~~Upon detecting an excursion or exceedance, the Permittee shall 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 emissions. 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 and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an excursion or exceedance (other than those caused by excused startup or shutdown conditions). Corrective actions may include, but are not limited to, the following:~~

- ~~(1) initial inspection and evaluation;~~
- ~~(2) recording that operations returned 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 within the indicator range, designated condition, or below the applicable emission limitation or standard, as applicable.~~

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) *****

- (e) **The Permittee shall record the reasonable response steps taken.**~~The Permittee shall maintain the following records:~~

- (1) ~~monitoring data;~~
(2) ~~monitor performance data, if applicable; and~~
(3) ~~corrective actions taken.~~

C.135 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 take appropriate response actions. The Permittee shall submit a description of these response actions to IDEM, OAQ, within thirty (30) days of receipt of the test results. The Permittee shall take appropriate action to minimize excess emissions from the affected facility while the response actions are being implemented.~~ **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 within one hundred twenty (120) days of receipt of the original test results. Should the Permittee demonstrate to IDEM, OAQ that retesting in one hundred twenty (120) days is not practicable, IDEM, OAQ may extend the retesting deadline.~~ **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) *********

~~The response action documents submitted pursuant to this condition do require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).~~ **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).**

C.146 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]

- (a) ~~Pursuant to 326 IAC 2-6-3(b)(3), starting in 2006 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:~~

~~The emission statement does require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).~~ **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).**

- (b) ~~The emission statement 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.157 General Record Keeping Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-6]

- ~~(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. 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, all record keeping requirements not already legally required shall be implemented within ninety (90) days of permit issuance or ninety (90) days of initial start-up, whichever is later.~~
- (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:**

- (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:

- (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.168 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. Any deviation from permit requirements, the date(s) of each deviation, the cause of the deviation, and the response steps taken must be reported. This report shall be submitted within thirty (30) days of the end of the reporting period. The Quarterly Deviation and Compliance Monitoring Report shall include the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).~~ **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 report required in (a) of this condition and reports required by conditions in Section D of this permit shall be submitted to:~~**The address for report submittal is:**
- ~~*****~~
- (c) ~~*****~~
- (d) ~~Unless otherwise specified in this permit, all reports required in Section D of this permit shall be submitted within thirty (30) days of the end of the reporting period. All reports do require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).~~
- (e) ~~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.~~

C.179 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 the **applicable** standards for recycling and emissions reduction:

- (a) ~~Persons opening appliances for maintenance, service, repair, or disposal must comply with the required practices pursuant to 40 CFR 82.156.~~
- (b) ~~Equipment used during the maintenance, service, repair, or disposal of appliances must comply with the standards for recycling and recovery equipment pursuant to 40 CFR 82.158.~~
- (c) ~~Persons performing maintenance, service, repair, or disposal of appliances must be certified by an approved technician certification program pursuant to 40 CFR 82.161.~~

Modified Section A, Section D, Section E Conditions and Reporting Forms

Modification No. 1:

Source Status

IDEM, OAQ is updating the source status contained in Section A.1 to match Administrative T019-31022-00124 for the Clark-Floyd Landfill Gas Generating Station issued on June 27, 2012. Also, the mailing address is no longer shown in Section A.1 or the reporting forms. All references to the source mailing address were removed from the permit.

A.1 General Information [326 IAC 2-7-4(c)][326 IAC 2-7-5(145)][326 IAC 2-7-1(22)]

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

Source Address:	14304 S.R. 60, Borden, Indiana 47106
Mailing Address:	P.O. Box 2128, Clarksville, IN 47131
General Source Phone Number:	812-945-5976
SIC Code:	4953
County Location:	Clark
Source Location Status:	Nonattainment for PM2.5 standard Attainment for all other criteria pollutants
Source Status:	Part 70 Operating Permit Program Minor Source, under PSD Rules Minor Source, under and Nonattainment NSR Rules Major Minor Source, Section 112 of the Clean Air Act Not 1 of 28 Source Categories

Modification No. 2:

Emission Unit Rule Citations

IDEM, OAQ is updating the rule citations in Section A.2 to indicate the NSPS/NESHAP that applies to each emission unit.

A.2 Emission Units and Pollution Control Equipment Summary [326 IAC 2-7-4(c)(3)][326 IAC 2-7-5(145)]

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

- (a) One (1) stationery municipal solid waste landfill with a design capacity of ~~5,036,629~~**8,780,694** Megagrams (Mg), constructed in 1970. **[40 CFR 60, Subpart WWW]**
[40 CFR 63, Subpart AAAA]
- (b) One (1) flare rated at 1,700 standard cubic feet per minute to control landfill gas emissions, constructed in 1999. **[40 CFR 60, Subpart WWW]**
[40 CFR 63, Subpart AAAA]

Modification No. 3:

Rule Citations

IDEM, OAQ is updating the rule citations in Section A.3.

A.3 Specifically Regulated Insignificant Activities [326 IAC 2-7-1(21)][326 IAC 2-7-4(c)] [326 IAC 2-7-5(154)]

Modification No. 4:

Compliance Determination, Compliance Monitoring and Record Keeping Relaxation

IDEM, OAQ is removing Section D.1 in its entirety. The compliance determination, compliance monitoring and record keeping requirements in the Subpart WWW and Subpart AAAA are adequate.

SECTION D.1 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

- (a) One (1) stationery municipal solid waste landfill with a design capacity of 5,036,629 Megagrams (Mg), constructed in 1970.
- (b) One (1) flare rated at 1,700 standard cubic feet per minute to control landfill gas emissions, constructed in 1999.

(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 Municipal Solid Waste Landfills Located in Clark, Floyd, Lake and Porter Counties [326 IAC 8-8]
Pursuant to 326 IAC 8-8 (Municipal Solid Waste Landfills) the municipal solid waste landfill shall comply with the requirements of 60.751, 60.752, 60.753, 60.754, 60.755, 60.756, 60.757, 60.758, and 60.759, of 40 CFR 60, Subpart WWW, Standards of Performance for Municipal Solid Waste Landfills.

D.1.2 Preventive Maintenance Plan [326 IAC 2-7-5(13)]
A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for this facility and its control device.

Compliance Determination Requirements

D.1.3 Compliance Requirements [326 IAC 2-1.1-11]
The flare for landfill gas control and destruction shall be in operation at all times when the content of the landfill gas is greater than 50 Megagrams of non-methane organic compounds (NMOC) per year.

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

D.1.4 Flare Temperature
The Permittee shall record the operating temperature of the flame at least once per day. When for any one reading, the flare temperature is below 1520 degrees F, the Permittee shall take reasonable response steps in accordance with Section C - Response to Excursions or Exceedances. A temperature reading that is below the above mentioned temperature is not a deviation from this permit. Failure to take response steps in accordance with Section C - Response to Excursions or Exceedances shall be considered a deviation from this permit.

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

D.1.5 Record Keeping Requirements
(a) To document compliance with Condition D.1.4, the Permittee shall maintain records of temperature of the flare.
(b) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

Modification No. 5:

Renumbering of Section D.2

IDEM, OAQ is revising original Section D.2 to D.1 to account for the removal of existing Section D.1. Also, the reporting requirement was removed because it is no longer necessary.

SECTION D.1-2 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

- (a) A petroleum fuel, other than gasoline, dispensing facility, having a storage capacity of less than or equal to 10,500 gallons, and dispensing less than or equal to 230,000 gallons per month. [326 IAC 8-9-6]

(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.21.1 Volatile Organic Liquid Storage [326 IAC 8-9]

Pursuant to 326 IAC 8-9-6 (Volatile Organic Liquid Storage Vessels), the Permittee of each vessel subject to this rule shall:

- (a) Keep all records required by 326 IAC 8-9-6 for three (3) years unless specified otherwise. Records required by 326 IAC 8-9-6(b) shall be maintained for the life of the vessel.
- (b) Maintain ~~records a record and submit to the department a report~~ containing the following information for each vessel:
- (1) The vessel identification number.
 - (2) The vessel dimensions.
 - (3) The vessel capacity.

Modification No. 6:

NSPS and NESHAP Rule Citations

IDEM, OAQ is correcting Section E.1 and E.2 to indicate both the flare and landfill are subject to 40 CFR 60, Subpart WWW and 40 CFR 63, Subpart AAAA.

SECTION E.1 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)]:

- ~~(a) One (1) stationery municipal solid waste landfill with a design capacity of 5,036,629 Megagrams (Mg), constructed in 1970.~~
- (a) **One (1) stationery municipal solid waste landfill with a design capacity of 8,780,694 Megagrams (Mg), constructed in 1970. [40 CFR 60, Subpart WWW] [40 CFR 63, Subpart AAAA]**
- (b) **One (1) flare rated at 1,700 standard cubic feet per minute to control landfill gas emissions, constructed in 1999. [40 CFR 60, Subpart WWW][40 CFR 63, Subpart AAAA]**

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

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

E.1.1 General Provisions Relating to New Source Performance Standards (NSPS) [40 CFR 60, Subpart A] [326 IAC 12]

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

E.1.2 New Source Performance Standards (NSPS) [40 CFR 60, Subpart WWW] [326 IAC 12]

Pursuant to 40 CFR 60 Subpart WWW, the Permittee shall comply with the provisions of 40 CFR 60 Subpart WWW, which are incorporated as 326 IAC 12-1 for the municipal solid waste landfill **and flare**, as specified as follows: *****

SECTION E.2

FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)]:

- ~~(a) One (1) stationery municipal solid waste landfill with a design capacity of 5,036,629 Megagrams (Mg), constructed in 1970.~~
- (a) One (1) stationery municipal solid waste landfill with a design capacity of 8,780,694 Megagrams (Mg), constructed in 1970. [40 CFR 60, Subpart WWW]
[40 CFR 63, Subpart AAAA]**
- (b) One (1) flare rated at 1,700 standard cubic feet per minute to control landfill gas emissions, constructed in 1999. [40 CFR 60, Subpart WWW][40 CFR 63, Subpart AAAA]**

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

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

E.2.1 General Provisions Relating to National Emission Standards for Hazardous Air Pollutants (NESHAP) [40 CFR 63, Subpart A] [326 IAC 12]

The provisions of 40 CFR 63, Subpart A - General Provisions, which are incorporated by reference in 326 IAC 12-1, apply to the municipal solid waste landfill **and flare** except when otherwise specified in 40 CFR 63, Subpart AAAA (Attachment B).

E.2.2 National Emission Standards for Hazardous Air Pollutants (NESHAP) [40 CFR 63, Subpart AAAA] [326 IAC 12]

Pursuant to 40 CFR 63 Subpart AAAA, the Permittee shall comply with the provisions of 40 CFR 63 Subpart AAAA, which are incorporated as 326 IAC 12-1 for the municipal solid waste landfill **and flare**, as specified as follows: *****

Modification No. 7:

Reporting Forms

IDEM, OAQ is removing the reporting requirement to show compliance with 326 IAC 8-9-6. After the reporting require was removed in Modification No. 5, the reporting form is no longer needed and was removed. Also, IDEM is removing the statement indicating if a signed certification form is required in all of the reporting forms. The individual conditions state if a certification is needed. Finally, company name on all the forms has been revised from Clark-Floyd Landfill LLC to Clark-Floyd Landfill.

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

Part 70 Semi-Annual Report

Source Name: Clark-Floyd Landfill LLC
Source Address: 14304 S.R. 60, Borden, Indiana 47106
Part 70 Permit No.: T019-27744-00097
Facility: One (1) petroleum dispensing facility
Parameter: Storage vessel identification, capacity, and dimensions
Limit: Storage capacity of under 39,000 gallons

Month	Vessel Identification No.	Vessel Dimensions	Vessel Capacity (gallons)

All Reporting Forms:

Source Name: Clark-Floyd Landfill-LLC

Attach a signed certification to complete this report.

Conclusion and Recommendation

The construction of this proposed modification shall be subject to the conditions of the attached proposed Part 70 Significant Permit Modification number 019-31708-00097. The staff recommends to the Commissioner that this Part 70 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's Guide for Citizen Participation and Permit Guide on the Internet at: www.idem.in.gov.

Technical Support Document - Appendix A - Sourcewide Summary **Potential to Emit after Issuance**

Company Name: Clark-Floyd Landfill
Address: 14304 SR 60, Borden, Indiana 47106
Permit Number: T 019-31708-00097
Reviewer: David J. Matousek
Date: October 19, 2012

Controlled Potential to Emit (ton/yr)											
Emission Unit	PM	PM10	PM2.5	SO ₂	VOC	CO	NOx	Biogenic GHG as CO ₂ e	Non-CO ₂ GHG as CO ₂ e	Toluene	Total HAPs
Clark-Floyd Landfill											
Landfill	0.00	0.00	0.00	0.00	0.41	4.03	0.00	22,466	172	0.07	0.21
Flare	3.53	3.53	3.53	3.44	36.06	95.29	17.51	29,563	150	0.00	1.75
Total Landfill	3.53	3.53	3.53	3.44	36.47	99.32	17.51	52,029	322	0.07	1.96
Clark-Floyd Generator Station											
LFG Engine - EU-1	1.99	1.99	1.99	0.68	5.07	19.52	10.38	4,922	25	0.00	0.34
LFG Engine - EU-2	1.99	1.99	1.99	0.68	5.07	19.52	10.38	4,922	25	0.00	0.34
LFG Engine - EU-3	2.15	2.15	2.15	1.12	4.64	42.53	15.59	9,553	50	0.00	0.56
Total Generator Station	6.13	6.13	6.13	2.48	14.78	81.57	36.35	19,397	100	0.00	1.25
Source-Wide Total	9.66	9.66	9.66	5.91	51.25	180.89	53.86	422		0.07	3.21
Title V Major Source Threshold	---	100	100	100	100	100	100	100,000		10	25
PSD Major Source Threshold	250	250	250	250	250	250	250	100,000		---	---

Potential to Emit (ton/yr)											
Emission Unit	PM	PM10	PM2.5	SO ₂	VOC	CO	NOx	Biogenic GHG as CO ₂ e	Non-CO ₂ GHG as CO ₂ e	Toluene	Total HAPs
Clark-Floyd Landfill											
Landfill	0.00	0.00	0.00	0.00	20.71	4.03	0.00	22,466	171,948	3.66	10.73
Flare	3.53	3.53	3.53	3.44	36.06	95.29	17.51	29,563	150	0.00	1.75
Total Landfill	3.53	3.53	3.53	3.44	56.77	99.32	17.51	52,029	172,098	3.66	12.48
Clark-Floyd Generator Station											
LFG Engine - EU-1	1.99	1.99	1.99	0.68	5.07	19.52	10.38	4,922	25	0.00	0.34
LFG Engine - EU-2	1.99	1.99	1.99	0.68	5.07	19.52	10.38	4,922	25	0.00	0.34
LFG Engine - EU-3	2.15	2.15	2.15	1.12	4.64	42.53	15.59	9,553	50	0.00	0.56
Total Generator Station	6.13	6.13	6.13	2.48	14.78	81.57	36.35	19,397	100	0.00	1.25
Source-Wide Total	9.66	9.66	9.66	5.91	71.55	180.89	53.86	71,426	172,198	3.66	13.73

**Technical Support Document - Appendix A - VOC Emissions from Landfill
Landfill Expansion 2031**

**Company Name: Clark-Floyd Landfill
Address: 14304 SR 60, Borden, Indiana 47106
Permit Number: T 019-31708-00097
Reviewer: David J. Matousek
Date: October 19, 2012**

Potential to Emit

NMOC Emissions

IDEM completed a computer simulation of the potential emissions from the landfill using US EPA LandGEM. This model indicated the highest emission rate of landfill gas will be reached in the year 2031. The potential to emit NMOC in 2031 is estimated at:

70.83 TPY

VOC Emissions

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

NMOC in Landfill Gas	595 ppmv	(AP-42, Chapter 2.4, Table 2.4-2, November 1998)
NMOC Emission Rate	70.83 TPY	
% VOC	39.00%	(AP-42, Chapter 2.4, Table 2.4-2, Note c, November 1998)
VOC Emission Rate	27.62 TPY	

Limited Potential to Emit

VOC Emissions

AP-42, Chapter 2.4, paragraph 2.4.4.2 - Controlled Emissions, October 2008 indicates approximately 75% of the VOC is captured, 25% is fugitive.

Landfill Collection Efficiency 75.00%

Landfill PTE from LandGEM 27.62 TPY

Fugitive VOC Emissions	= Landfill PTE from LandGEM x (1 - collection eff.)	6.91 TPY
VOC Emissions to Control Devices	= Landfill PTE from LandGEM - Fugitive VOC	20.71 TPY
Destruction Efficiency (NSPS Requirement)		98%
VOC Emissions after Control	= VOC to Control Device x (1 - Dest. Efficiency)	0.41 TPY

Technical Support Document - Appendix A - Emission Calculation Sheet - Landfill Expansion - 2031 Potential to Emit - Landfill HAP and CO

Company Name: Clark-Floyd Landfill
Address: 14304 SR 60, Borden, Indiana 47106
Permit Number: T 019-31708-00097
Reviewer: David J. Matousek
Date: October 19, 2012

Temperature	536.67 °R
Atmospheric Pressure	1.00 atm
Maximum LandGEM LFG	2,028 SCFM
Maximum Captured LFG	1,521 SCFM

PTE of CO				
Pollutant	Molecular Weight	Concentration (ppmv)	Average Pollutant Flow (SCFM)	Landfill Emission (TPY)
CO at 1521 SCFM	28.01	141.00	0.2145	4.03

PTE of Hazardous Air Pollutants - LandGEM - AP-42, Chapter 2.4, November 1998						
Pollutant	Concentration (ppmv)	Molecular Weight	Avg. Pollutant Flow (SCFM)	Landfill PTE (TPY)	Control Efficiency	Controlled PTE (TPY)
1,1,1-Trichloroethane	0.48	133.41	0.00070	0.06264	98%	1.25E-03
1,2,2,2-Tetrachloroethane	1.10	167.85	1.67E-03	1.88E-01	98%	3.77E-03
1,1-Dichloroethane	2.40	98.97	0.00370	0.24564	98%	4.91E-03
1,1-Dichloroethene	0.20	96.94	0.00030	0.01951	98%	3.90E-04
1,2-Dichloroethane	0.41	98.96	0.00060	0.03983	98%	7.97E-04
1,2-Dichloropropane	0.18	112.99	0.00027	0.02075	98%	4.15E-04
Acrylonitrile	6.30	53.06	0.00958	0.34106	98%	0.007
Benzene (1.9 or 11)	1.90	78.11	0.00290	0.15195	98%	3.04E-03
Carbon Disulfide	0.58	76.13	0.00090	0.04596	98%	9.19E-04
Carbon Tetrachloride	0.004	153.84	0.00000	0.00000	98%	0
Carbonyl Sulfide	0.49	60.07	0.00075	0.03003	98%	6.01E-04
Chlorobenzene	0.25	112.56	0.00040	0.03020	98%	6.04E-04
Chloroethane	1.30	64.52	0.00200	0.08656	98%	1.73E-03
Chloroform	0.03	119.39	0.00000	0.00000	98%	0.00E+00
Dichlorobenzene	0.21	147.00	0.00030	0.02958	98%	5.92E-04
Dichloromethane	14.00	84.94	0.02130	1.21363	98%	0.024
Ethylbenzene	4.60	106.16	0.00700	0.49849	98%	0.010
Ethylene Dibromide	0.001	187.88	0.00000	0.00000	98%	0
Hexane	6.60	86.18	0.01000	0.57810	98%	0.012
Mercury	2.90E-04	200.61	0.00000	0.00000	0%	0
Methyl Ethyl Ketone	7.10	72.11	0.01080	0.52237	98%	0.010
Methyl Isobutyl Ketone	1.90	100.16	0.00290	0.19484	98%	3.90E-03
Perchloroethylene	3.70	165.83	0.00560	0.62294	98%	0.012
Toluene (39 or 170)	39.00	92.13	0.05930	3.66481	98%	0.073
Trichloroethylene	2.80	131.40	0.00430	0.37902	98%	0.008
Vinyl Chloride	7.30	62.50	0.01110	0.46537	98%	0.009
Xylene	12.00	106.17	0.01830	1.30331	98%	0.026
				3.66	Highest	0.07
				10.73	Total	0.21

Methodology:

- 1) Average Flow (SCFM) = [Maximum Landfill Flow (SCFM)] x [ppmv pollutant / 1,000,000]
- 2) PTE (tons/yr) = $\frac{360 \times \text{Average Flow (SCFM)} \times \text{MW (lb/lb mole)} \times \text{P (atm)}}{T (R)}$

Technical Support Document - Appendix A - Landfill Expansion - 2031 Potential to Emit - Flare

Company Name: Clark-Floyd Landfill
Address: 14304 SR 60, Borden, Indiana 47106
Permit Number: T 019-31708-00097
Reviewer: David J. Matousek
Date: October 19, 2012

Input Data					
Flare Heat Input Capacity	58.80	MMBtu/hr	Molecular Weight (S)	32.07	lb/lb mole
Heating Value of Landfill Gas	575.00	Btu/CF	Molecular Weight (SO ₂)	64.06	lb/lb mole
Calculated Landfill Gas	1,704	SCFM	Molecular Weight (HCL)	36.458	lb/lb mole
Inlet Gas Temperature	536.67	R	Weight % Water in LFG	7.0%	
Inlet Gas Pressure	1	atm			
Maximum LGF Rate	1,700	SCFM			

Landfill Gas Flow Rate (Wet Basis)	Landfill Gas Flow Rate (Dry Basis)	% Methane	Methane Flow Rate (Dry Basis)	
1,700 SCFM	1,581 DSCFM	50.00%	791 SCFM	or 416 MMSCF/yr

Potential to Emit Calculations - Flare						
Pollutant	Concentration (ppmv)	Pollutant Flow (SCFM)	Throughput (SCFM or MMBtu/hr)	Emission Factor	PTE (TPY)	Notes
PM			791	17.0 lb/MMCF CH ₄ , dry basis	3.53	AP-42, Chapter 2.4, Table 2.4-5, 11/1998
PM ₁₀			791	17.0 lb/MMCF CH ₄ , dry basis	3.53	Assumed the same as PM
PM _{2.5}			791	17.0 lb/MMCF CH ₄ , dry basis	3.53	Assumed the same as PM
S	46.9	0.08			1.72	AP-42, Chapter 2.4, page 2.4-8, 11/1998
SO ₂					3.44	PTE (SO ₂) = PTE (S) x MW (SO ₂) / MW (S)
VOC			58.80	0.140 lb/MMBtu	36.06	AP-42, Chapter 13.5, Table 13.5-1, 09/91
CO			58.80	0.370 lb/MMBtu	95.29	T019-18098-00097
NO _x			58.80	0.068 lb/MMBtu	17.51	T019-18098-00097
HCL	42	0.071			1.75	AP-42, Chapter 2.4, page 2.4-9, 11/1998
CO ₂			58.8	114.79 lb/MMBtu	29,563	40 CFR 98, Subpart C, Table C-1 (Biogas - 52.07 Kg/MMBtu)
CH ₄			58.8	7.10E-03 lb/MMBtu	1.83	40 CFR 98, Subpart C, Table C-2 (Biogas - 3.2e-3 Kg/MMBtu)
N ₂ O			58.8	1.40E-03 lb/MMBtu	0.36	40 CFR 98, Subpart C, Table C-2 (Biogas - 6.3e-4 Kg/MMBtu)
Biogenic GHG as CO ₂ e					29,563	All CO ₂ is biogenic
Non-Biogenic GHG as CO ₂ e					150	CH ₄ and N ₂ O are nonbiogenic

Methodology:

- 1) Methane Flow Rate = Flare Gas Flow Rate x (% Methane)
- 2) AP-42 does not include emission factors for PM₁₀ or PM_{2.5}. They are assumed identical to PM.
- 3) DSCFM = SCFM (1 - % Water)
- 4) Pollutant Flow (SCFM) = [Total Landfill Flow (SCFM)] x [ppmv pollutant / 1,000,000]
- 5) PTE (TPY) = Flow (CFM) x Emission Factor (lb/MMCF) x [MMCF/1,000,000 CF] x [60 min/hr] x [8,760 hr/yr] x [ton/2,000 lb]
- 6) PTE (TPY) = Heat Input (MMBtu/hr) x Emission Factor (lb/MMBtu) x [8,760 hr/yr] x [ton/2,000 lb]
- 7) CO₂e = [TPY CO₂] + 21 x [TPY CH₄] + 310 x [TPY N₂O]
- 8) PTE (tons/yr) = $\frac{360 \times Q_{\text{pollutant}} (\text{CFM}) \times \text{MW} (\text{lb/lb mole}) \times P (\text{atm})}{T (^{\circ}\text{R})}$ (AP-42, Chapter 2.4, Eq. 4 - converted to US units)

Technical Support Document - Appendix A - Landfill Expansion - 2031 Landfill Greenhouse Gas Emissions

Company Name: Clark-Floyd Landfill
Address: 14304 SR 60, Borden, Indiana 47106
Permit Number: T 019-31708-00097
Reviewer: David J. Matousek
Date: October 19, 2012

Landfill Greenhouse Gas Emissions

Landfill Collection Efficiency 75%
Landfill Gas Temperature 536.67 Rankine

					Potential to Emit			Controlled Potential to Emit	
Pollutant	LandGEM GHG Emissions (SCFM)	Non-Fugitive GHG Emissions (SCFM)	Non-Fugitive GHG Emissions (TPY)	PTE as CO ₂ e (TPY)	Biogenic GHG (TPY as CO ₂ e)	Non-Biogenic GHG (TPY as CO ₂ e)	Control Efficiency	Biogenic GHG (TPY as CO ₂ e)	Non-Biogenic GHG (TPY as CO ₂ e)
CO ₂	1,014	761	22,466	22,466	22,466	0	0.00%	22,466	0
CH ₄	1,014	761	8,188	171,948	0	171,948	99.90%	0	172
N ₂ O	0	0	0	0	0	0	0.00%	0	0
Greenhouse Gas Emissions Totals					22,466	171,948		22,466	172

Notes:

- On July 20, 2011, the U.S. EPA issued a final rule for the deferral for CO₂ emissions from bioenergy and other biogenic sources under the Prevention of Significant Deterioration (PSD) and Title V programs. According to this rule, the mass calculation of the greenhouse gas carbon dioxide shall not include carbon dioxide emissions resulting from the combustion or decomposition of non-fossilized and biodegradable organic material originating from plants, animals or microorganisms. CO₂ emissions from biogenic sources at the landfill are not included in determining Title V or PSD applicability until July 21, 2014. Fugitive and biogas combustion emissions of CH₄ and N₂O are considered in Title V or PSD applicability.
- IDEM assumed a control efficiency for methane of 99.9% to represent near complete combustion in the control flare and engines.
- Controlled Emissions (TPY) = Uncontrolled Emissions (TPY) x (1 - control efficiency)
- $$PTE \text{ (tons/yr)} = \frac{360 \times \text{Average Flow (SCFM)} \times MW \text{ (lb/lb mole)} \times P \text{ (atm)}}{T \text{ (R)}}$$

**Technical Support Document - Appendix A - Landfill Expansion - 2031
Potential to Emit - Two (2) LFG Fired Engine Sets - 4-Stroke Lean Burn (EU-1/2)**

Company Name: Clark-Floyd Landfill
Address: 14304 SR 60, Borden, Indiana 47106
Permit Number: T 019-31708-00097
Reviewer: David J. Matousek
Date: October 19, 2012

Input Data - Each Engine

Engine bHp - Output	1,468 bHp (Output)	Molecular Weight (S)	32.07 lb/lb mole
Break Specific Fuel Consumption	6,683 Btu Input/Hp.Hr Output	Molecular Weight (SO ₂)	64.060 lb/lb mole
Heat Input Required	9.81 MMBtu Input/hr	Molecular Weight (HCL)	36.458 lb/lb mole
Heating Value of Landfill Gas	575 Btu/CF	Weight % Water in LFG	7.0%
Estimated LFG Flow	338 SCFM	Inlet Gas Temperature	536.67 R
		Inlet Gas Pressure	1 atm

Landfill Gas Flow Rate (Wet Basis)	Landfill Gas Flow Rate (Dry Basis)	% Methane	Methane Flow Rate (Dry Basis)
338 SCFM	315 DSCFM	50.00%	158 SCFM or 84 MMSCF/yr

Potential to Emit Calculations - Methane Combustion - Each Engine

Pollutant	Concentration (ppmv)	Pollutant Flow (SCFM)	Throughput (SCFM or MMBtu/hr)	Emission Factor	PTE (TPY)	Notes
PM			158.0	48.00 lb/MMCF, dry	1.99	AP-42, Chapter 2.4, Table 2.4-5, 11/1998
PM10			158.0	48.00 lb/MMCF, dry	1.99	Assumed the same as PM
PM2.5			158.0	48.00 lb/MMCF, dry	1.99	Assumed the same as PM
S	46.9	0.016			0.34	AP-42, Chapter 2.4, page 2.4-8, 11/1998
SO ₂					0.68	PTE (SO ₂) = PTE (H ₂ S) x MW (SO ₂) / MW (H ₂ S)
VOC			9.81	0.118 lb/MMBtu input	5.07	AP-42, Chapter 3.2, Table 3.2-2, 7/2000
CO			158.0	470 lb/dMMCF CH ₄	19.52	AP-42, Chapter 2.4, Table 2.4-5, 11/1998
NO _x			158.0	250 lb/dMMCF CH ₄	10.38	AP-42, Chapter 2.4, Table 2.4-5, 11/1998
HCL	42.0	0.014			0.34	AP-42, Chapter 2.4, page 2.4-9, 11/1998, 42 ppm as CL
CO ₂			9.81	114.55 lb/MMBtu input	4,922	40 CFR 98, Subpart C, Table C-1 (Biogas - 52.07 Kg/MMBtu)
CH ₄			9.81	7.10E-03 lb/MMBtu input	0.31	40 CFR 98, Subpart C, Table C-2 (3.2e-3 kg/MMBtu)
N ₂ O			9.81	1.40E-03 lb/MMBtu input	0.06	40 CFR 98, Subpart C, Table C-2 (6.3e-4 kg/MMBtu)
Biogenic GHG as CO ₂ e					4,922	All CO ₂ is biogenic
Non-Biogenic GHG as CO ₂ e					25	CH ₄ and N ₂ O Emissions

Methodology:

- 1) Methane Flow Rate = Flare Gas Flow Rate x (% Methane)
- 2) AP-42 does not include emission factors for PM10 or PM2.5. They are assumed identical to PM.
- 3) DSCFM = SCFM (1 - % Water)
- 4) Pollutant Flow (SCFM) = [Total Landfill Flow (SCFM)] x [ppmv pollutant / 1,000,000]
- 5) PTE (TPY) = Flow (CFM) x Emission Factor (lb/MMCF) x [MMCF/1,000,000 CF] x [60 min/hr] x [8,760 hr/yr] x [ton/2,000 lb]
- 6) PTE (TPY) = Heat Input (MMBtu/hr) x Emission Factor (lb/MMBtu) x [8,760 hr/yr] x [ton/2,000 lb]
- 7) CO₂e = [TPY CO₂] + 21 x [TPY CH₄] + 310 x [TPY N₂O]
- 8) PTE (tons/yr) = $\frac{360 \times Q_{\text{pollutant}} (\text{CFM}) \times \text{MW} (\text{lb/lb mole}) \times P (\text{atm})}{T (^{\circ}\text{R})}$ (AP-42, Chapter 2.4, Eq. 4 - converted to US units)

Technical Support Document - Appendix A - Landfill Expansion - 2031 Potential to Emit - One (1) LFG Fired Engine Set - 4-Stroke Lean Burn (EU-3)

Company Name: Clark-Floyd Landfill
Address: 14304 SR 60, Borden, Indiana 47106
Permit Number: T 019-31708-00097
Reviewer: David J. Matousek
Date: October 19, 2012

Input Data			
Engine bHp - Output	1,966 bHp (Output)	Molecular Weight (S)	32.07 lb/lb mole
Break Specific Fuel Consumption	9,664 Btu Input/Hp.Hr Output	Molecular Weight (SO ₂)	64.060 lb/lb mole
Heat Input Required	19.00 MMBtu Input/hr	Molecular Weight (HCL)	36.458 lb/lb mole
Heating Value of Landfill Gas	575 Btu/CF	Weight % Water in LFG	7.0%
Estimated LFG Flow	551.23 SCFM	Inlet Gas Temperature	536.67 R
		Inlet Gas Pressure	1 atm

Landfill Gas Flow Rate (Wet Basis)	Landfill Gas Flow Rate (Dry Basis)	% Methane	Methane Flow Rate (Dry Basis)
551.23 SCFM	513 DSCFM	50.00%	257 SCFM or 136 MMSCF/yr

Potential to Emit Calculations - Methane Combustion - Each Engine

Pollutant	Concentration (ppmv)	Pollutant Flow (SCFM)	Throughput (SCFM or MMBtu/hr)	Emission Factor	PTE (TPY)	Notes
PM				0.49 lb/hr	2.15	Vendor Guarantee
PM10				0.49 lb/hr	2.15	Vendor Guarantee
PM2.5				0.49 lb/hr	2.15	Vendor Guarantee
S	46.9	0.026			0.56	AP-42, Chapter 2.4, page 2.4-8, 11/1998
SO ₂					1.12	PTE (SO ₂) = PTE (H ₂ S) x MW (SO ₂) / MW (H ₂ S)
VOC				1.06 lb/hr	4.64	Vendor Guarantee
CO				9.71 lb/hr	42.53	Vendor Guarantee
NO _x				3.56 lb/hr	15.59	Vendor Guarantee
HCL	42.0	0.023			0.56	AP-42, Chapter 2.4, page 2.4-8, 11/1998
CO ₂			19.0	114.79 lb/MMBtu input	9,553	40 CFR 98, Subpart C, Table C-1 (52.07 kg/MMbtu)
CH ₄			19.0	7.10E-03 lb/MMBtu input	0.59	40 CFR 98, Subpart C, Table C-2 (3.2e-3 kg/MMbtu)
N ₂ O			19.0	1.40E-03 lb/MMBtu input	0.12	40 CFR 98, Subpart C, Table C-2 (6.3e-4 kg/MMbtu)
Biogenic GHG as CO ₂ e					9,553	All CO ₂ is biogenic
Non-Biogenic GHG as CO ₂ e					50	CH ₄ and N ₂ O Emissions

Methodology:

- 1) Methane Flow Rate = Flare Gas Flow Rate x (% Methane)
- 2) AP-42 does not include emission factors for PM10 or PM2.5. They are assumed identical to PM.
- 3) DSCFM = SCFM (1 - % Water)
- 4) Pollutant Flow (SCFM) = [Total Landfill Flow (SCFM)] x [ppmv pollutant / 1,000,000]
- 5) PTE (TPY) = Flow (CFM) x Emission Factor (lb/MMCF) x [MMCF/1,000,000 CF] x [60 min/hr] x [8,760 hr/yr] x [ton/2,000 lb]
- 6) PTE (TPY) = Heat Input (MMBtu/hr) x Emission Factor (lb/MMBtu) x [8,760 hr/yr] x [ton/2,000 lb]
- 7) CO₂e = [TPY CO₂] + 21 x [TPY CH₄] + 310 x [TPY N₂O]
- 8) PTE (tons/yr) = $\frac{360 \times Q_{\text{pollutant}} \text{ (CFM)} \times \text{MW (lb/lb mole)} \times P \text{ (atm)}}{T \text{ (°R)}}$ (AP-42, Chapter 2.4, Eq. 4 - converted to US units)

Technical Support Document - Appendix B - Sourcewide Summary Potential to Emit - Current Landfill

Company Name: Clark-Floyd Landfill
Address: 14304 SR 60, Borden, Indiana 47106
Permit Number: T 019-31708-00097
Reviewer: David J. Matousek
Date: October 19, 2012

Controlled Potential to Emit (ton/yr)											
Emission Unit	PM	PM10	PM2.5	SO ₂	VOC	CO	NOx	Biogenic GHG as CO ₂ e	Non-CO ₂ GHG as CO ₂ e	Toluene	Total HAPs
Clark-Floyd Landfill											
Landfill	0.00	0.00	0.00	0.00	0.30	1.45	0.00	16,178	124	0.03	0.08
Flare	3.53	3.53	3.53	3.44	36.06	95.29	17.51	29,563	150	0.00	1.75
Total Landfill	3.53	3.53	3.53	3.44	36.36	96.74	17.51	45,741	274	0.03	1.83
Clark-Floyd Generator Station											
LFG Engine - EU-1	1.99	1.99	1.99	0.68	5.07	19.52	10.38	4,922	25	0.00	0.34
LFG Engine - EU-2	1.99	1.99	1.99	0.68	5.07	19.52	10.38	4,922	25	0.00	0.34
LFG Engine - EU-3	2.15	2.15	2.15	1.12	4.64	42.53	15.59	9,553	50	0.00	0.56
Total Generator Station	6.13	6.13	6.13	2.48	14.78	81.57	36.35	19,397	100	0.00	1.25
Source-Wide Total	9.66	9.66	9.66	5.91	51.14	178.31	53.86	374		0.03	3.08
Title V Major Source Threshold	---	100	100	100	100	100	100	100,000		10	25
PSD Major Source Threshold	250	250	250	250	250	250	250	100,000		---	---

Potential to Emit (ton/yr)											
Emission Unit	PM	PM10	PM2.5	SO ₂	VOC	CO	NOx	Biogenic GHG as CO ₂ e	Non-CO ₂ GHG as CO ₂ e	Toluene	Total HAPs
Clark-Floyd Landfill											
Landfill	0.00	0.00	0.00	0.00	14.93	1.45	0.00	16,178	123,816	1.32	3.85
Flare	3.53	3.53	3.53	3.44	36.06	95.29	17.51	29,563	150	0.00	1.75
Total Landfill	3.53	3.53	3.53	3.44	50.99	96.74	17.51	45,741	123,966	1.32	5.60
Clark-Floyd Generator Station											
LFG Engine - EU-1	1.99	1.99	1.99	0.68	5.07	19.52	10.38	4,922	25	0.00	0.34
LFG Engine - EU-2	1.99	1.99	1.99	0.68	5.07	19.52	10.38	4,922	25	0.00	0.34
LFG Engine - EU-3	2.15	2.15	2.15	1.12	4.64	42.53	15.59	9,553	50	0.00	0.56
Total Generator Station	6.13	6.13	6.13	2.48	14.78	81.57	36.35	19,397	100	0.00	1.25
Source-Wide Total	9.66	9.66	9.66	5.91	65.77	178.31	53.86	65,138	124,066	1.32	6.85

Technical Support Document - Appendix B - VOC Emissions Existing Landfill

Company Name: Clark-Floyd Landfill
Address: 14304 SR 60, Borden, Indiana 47106
Permit Number: T 019-31708-00097
Reviewer: David J. Matousek
Date: October 19, 2012

Potential to Emit

NMOC Emissions

IDEM completed a computer simulation of the potential emissions from the landfill using US EPA LandGEM. This model indicated the highest emission rate of landfill gas will be reached in the year 2031. The potential to emit NMOC in 2031 is estimated at:

51.04 TPY

VOC Emissions

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

NMOC in Landfill Gas	595 ppmv	(AP-42, Chapter 2.4, Table 2.4-2, November 1998)
NMOC Emission Rate	51.04 TPY	
% VOC	39.00%	(AP-42, Chapter 2.4, Table 2.4-2, Note c, November 1998)
VOC Emission Rate	19.91 TPY	

Limited Potential to Emit

VOC Emissions

AP-42, Chapter 2.4, paragraph 2.4.4.2 - Controlled Emissions, October 2008 indicates approximately 75% of the VOC is captured, 25% is fugitive.

Landfill Collection Efficiency 75.00%

Landfill PTE from LandGEM 19.91 TPY

Fugitive VOC Emissions	= Landfill PTE from LandGEM x (1 - collection eff.)	4.98 TPY
VOC Emissions to Control Devices	= Landfill PTE from LandGEM - Fugitive VOC	14.93 TPY
Destruction Efficiency (NSPS Requirement)		98%
VOC Emissions after Control	= VOC to Control Device x (1 - Dest. Efficiency)	0.3 TPY

Technical Support Document - Appendix B - Emission Calculation Sheet - Existing Landfill Potential to Emit - Landfill HAP and CO

Company Name: Clark-Floyd Landfill
Address: 14304 SR 60, Borden, Indiana 47106
Permit Number: T 019-31708-00097
Reviewer: David J. Matousek
Date: October 19, 2012

Temperature
 Atmospheric Pressure
 Maximum LandGEM LFG
 Maximum Captured LFG

536.67 °R
 1.00 atm
 731 SCFM
 548 SCFM

PTE of CO				
Pollutant	Molecular Weight	Concentration (ppmv)	Average Pollutant Flow (SCFM)	Landfill Emission (TPY)
CO at 548 SCFM	28.01	141.00	0.0773	1.45

PTE of Hazardous Air Pollutants - LandGEM - AP-42, Chapter 2.4, November 1998						
Pollutant	Concentration (ppmv)	Molecular Weight	Avg. Pollutant Flow (SCFM)	Landfill PTE (TPY)	Control Efficiency	Controlled PTE (TPY)
1,1,1-Trichloroethane	0.48	133.41	0.00030	0.02685	98%	5.37E-04
1,2,2,2-Tetrachloroethane	1.10	167.85	6.03E-04	6.79E-02	98%	1.36E-03
1,1-Dichloroethane	2.40	98.97	0.00130	0.08631	98%	1.73E-03
1,1-Dichloroethene	0.20	96.94	0.00010	0.00650	98%	1.30E-04
1,2-Dichloroethane	0.41	98.96	0.00020	0.01328	98%	2.66E-04
1,2-Dichloropropane	0.18	112.99	0.00010	0.00748	98%	1.50E-04
Acrylonitrile	6.30	53.06	0.00345	0.12288	98%	0.002
Benzene (1.9 or 11)	1.90	78.11	0.00100	0.05240	98%	1.05E-03
Carbon Disulfide	0.58	76.13	0.00030	0.01532	98%	3.06E-04
Carbon Tetrachloride	0.004	153.84	0.00000	0.00000	98%	0
Carbonyl Sulfide	0.49	60.07	0.00027	0.01082	98%	2.16E-04
Chlorobenzene	0.25	112.56	0.00010	0.00755	98%	1.51E-04
Chloroethane	1.30	64.52	0.00070	0.03030	98%	6.06E-04
Chloroform	0.03	119.39	0.00000	0.00000	98%	0.00E+00
Dichlorobenzene	0.21	147.00	0.00010	0.00986	98%	1.97E-04
Dichloromethane	14.00	84.94	0.00770	0.43873	98%	0.009
Ethylbenzene	4.60	106.16	0.00250	0.17803	98%	0.004
Ethylene Dibromide	0.001	187.88	0.00000	0.00000	98%	0
Hexane	6.60	86.18	0.00360	0.20812	98%	0.004
Mercury	2.90E-04	200.61	0.00000	0.00000	0%	0
Methyl Ethyl Ketone	7.10	72.11	0.00389	0.18820	98%	0.004
Methyl Isobutyl Ketone	1.90	100.16	0.00100	0.06719	98%	1.34E-03
Perchloroethylene	3.70	165.83	0.00200	0.22248	98%	0.004
Toluene (39 or 170)	39.00	92.13	0.02140	1.32254	98%	0.026
Trichloroethylene	2.80	131.40	0.00150	0.13222	98%	0.003
Vinyl Chloride	7.30	62.50	0.00400	0.16770	98%	0.003
Xylene	12.00	106.17	0.00660	0.47005	98%	0.009

Methodology:

- 1) Average Flow (SCFM) = [Maximum Landfill Flow (SCFM)] x [ppmv pollutant / 1,000,000]
- 2) PTE (tons/yr) = $\frac{360 \times \text{Average Flow (SCFM)} \times \text{MW (lb/lb mole)} \times \text{P (atm)}}{T (R)}$

1.32
3.85

Highest
 Total

0.03
0.08

Technical Support Document - Appendix B - Existing Landfill Potential to Emit - Flare

Company Name: Clark-Floyd Landfill
Address: 14304 SR 60, Borden, Indiana 47106
Permit Number: T 019-31708-00097
Reviewer: David J. Matousek
Date: October 19, 2012

Input Data					
Flare Heat Input Capacity	58.80	MMBtu/hr	Molecular Weight (S)	32.07	lb/lb mole
Heating Value of Landfill Gas	575.00	Btu/CF	Molecular Weight (SO ₂)	64.06	lb/lb mole
Calculated Landfill Gas	1,704	SCFM	Molecular Weight (HCL)	36.458	lb/lb mole
Inlet Gas Temperature	536.67	R	Weight % Water in LFG	7.0%	
Inlet Gas Pressure	1	atm			
Maximum LGF Rate	1,700	SCFM			

Landfill Gas Flow Rate (Wet Basis)		Landfill Gas Flow Rate (Dry Basis)		% Methane	Methane Flow Rate (Dry Basis)	
1,700	SCFM	1,581	DSCFM	50.00%	791 SCFM	or 416 MMSCF/yr

Potential to Emit Calculations - Flare						
Pollutant	Concentration (ppmv)	Pollutant Flow (SCFM)	Throughput (SCFM or MMBtu/hr)	Emission Factor	PTE (TPY)	Notes
PM			791	17.0 lb/MMCF CH ₄ , dry basis	3.53	AP-42, Chapter 2.4, Table 2.4-5, 11/1998
PM ₁₀			791	17.0 lb/MMCF CH ₄ , dry basis	3.53	Assumed the same as PM
PM _{2.5}			791	17.0 lb/MMCF CH ₄ , dry basis	3.53	Assumed the same as PM
S	46.9	0.08			1.72	AP-42, Chapter 2.4, page 2.4-8, 11/1998
SO ₂					3.44	PTE (SO ₂) = PTE (S) x MW (SO ₂) / MW (S)
VOC			58.80	0.140 lb/MMBtu	36.06	AP-42, Chapter 13.5, Table 13.5-1, 09/91
CO			58.80	0.370 lb/MMBtu	95.29	T019-18098-00097
NO _x			58.80	0.068 lb/MMBtu	17.51	T019-18098-00097
HCL	42	0.071			1.75	AP-42, Chapter 2.4, page 2.4-9, 11/1998
CO ₂			58.8	114.79 lb/MMBtu	29,563	40 CFR 98, Subpart C, Table C-1 (Biogas - 52.07 Kg/MMBtu)
CH ₄			58.8	7.10E-03 lb/MMBtu	1.83	40 CFR 98, Subpart C, Table C-2 (Biogas - 3.2e-3 Kg/MMBtu)
N ₂ O			58.8	1.40E-03 lb/MMBtu	0.36	40 CFR 98, Subpart C, Table C-2 (Biogas - 6.3e-4 Kg/MMBtu)
Biogenic GHG as CO ₂ e					29,563	All CO ₂ is biogenic
Non-Biogenic GHG as CO ₂ e					150	CH ₄ and N ₂ O are nonbiogenic

Methodology:

- 1) Methane Flow Rate = Flare Gas Flow Rate x (% Methane)
- 2) AP-42 does not include emission factors for PM₁₀ or PM_{2.5}. They are assumed identical to PM.
- 3) DSCFM = SCFM (1 - % Water)
- 4) Pollutant Flow (SCFM) = [Total Landfill Flow (SCFM)] x [ppmv pollutant / 1,000,000]
- 5) PTE (TPY) = Flow (CFM) x Emission Factor (lb/MMCF) x [MMCF/1,000,000 CF] x [60 min/hr] x [8,760 hr/yr] x [ton/2,000 lb]
- 6) PTE (TPY) = Heat Input (MMBtu/hr) x Emission Factor (lb/MMBtu) x [8,760 hr/yr] x [ton/2,000 lb]
- 7) CO₂e = [TPY CO₂] + 21 x [TPY CH₄] + 310 x [TPY N₂O]
- 8) PTE (tons/yr) = $\frac{360 \times Q_{\text{pollutant}} (\text{CFM}) \times \text{MW} (\text{lb/lb mole}) \times P (\text{atm})}{T(^{\circ}\text{R})}$ (AP-42, Chapter 2.4, Eq. 4 - converted to US units)

Technical Support Document - Appendix B - Existing Landfill Landfill Greenhouse Gas Emissions

Company Name: Clark-Floyd Landfill
Address: 14304 SR 60, Borden, Indiana 47106
Permit Number: T 019-31708-00097
Reviewer: David J. Matousek
Date: October 19, 2012

Landfill Greenhouse Gas Emissions

Landfill Collection Efficiency 75%
Landfill Gas Temperature 536.67 Rankine

					Potential to Emit			Controlled Potential to Emit	
Pollutant	LandGEM GHG Emissions (SCFM)	Non-Fugitive GHG Emissions (SCFM)	Non-Fugitive GHG Emissions (TPY)	PTE as CO ₂ e (TPY)	Biogenic GHG (TPY as CO ₂ e)	Non-Biogenic GHG (TPY as CO ₂ e)	Control Efficiency	Biogenic GHG (TPY as CO ₂ e)	Non-Biogenic GHG (TPY as CO ₂ e)
CO ₂	731	548	16,178	16,178	16,178	0	0.00%	16,178	0
CH ₄	731	548	5,896	123,816	0	123,816	99.90%	0	124
N ₂ O	0	0	0	0	0	0	0.00%	0	0
Greenhouse Gas Emissions Totals					16,178	123,816		16,178	124

Notes:

- On July 20, 2011, the U.S. EPA issued a final rule for the deferral for CO₂ emissions from bioenergy and other biogenic sources under the Prevention of Significant Deterioration (PSD) and Title V programs. According to this rule, the mass calculation of the greenhouse gas carbon dioxide shall not include carbon dioxide emissions resulting from the combustion or decomposition of non-fossilized and biodegradable organic material originating from plants, animals or microorganisms. CO₂ emissions from biogenic sources at the landfill are not included in determining Title V or PSD applicability until July 21, 2014. Fugitive and biogas combustion emissions of CH₄ and N₂O are considered in Title V or PSD applicability.
- IDEM assumed a control efficiency for methane of 99.9% to represent near complete combustion in the control flare and engines.
- Controlled Emissions (TPY) = Uncontrolled Emissions (TPY) x (1 - control efficiency)
- $$PTE \text{ (tons/yr)} = \frac{360 \times \text{Average Flow (SCFM)} \times MW \text{ (lb/lb mole)} \times P \text{ (atm)}}{T \text{ (R)}}$$

Technical Support Document - Appendix B - Existing Landfill Potential to Emit - Two (2) LFG Fired Engine Sets - 4-Stroke Lean Burn (EU-1/2)

Company Name: Clark-Floyd Landfill
Address: 14304 SR 60, Borden, Indiana 47106
Permit Number: T 019-31708-00097
Reviewer: David J. Matousek
Date: October 19, 2012

Input Data - Each Engine

Engine bHp - Output	1,468 bHp (Output)	Molecular Weight (S)	32.07 lb/lb mole
Break Specific Fuel Consumption	6,683 Btu Input/Hp.Hr Output	Molecular Weight (SO ₂)	64.060 lb/lb mole
Heat Input Required	9.81 MMBtu Input/hr	Molecular Weight (HCL)	36.458 lb/lb mole
Heating Value of Landfill Gas	575 Btu/CF	Weight % Water in LFG	7.0%
Estimated LFG Flow	338 SCFM	Inlet Gas Temperature	536.67 R
		Inlet Gas Pressure	1 atm

Landfill Gas Flow Rate (Wet Basis)	Landfill Gas Flow Rate (Dry Basis)	% Methane	Methane Flow Rate (Dry Basis)
338 SCFM	315 DSCFM	50.00%	158 SCFM or 84 MMSCF/yr

Potential to Emit Calculations - Methane Combustion - Each Engine

Pollutant	Concentration (ppmv)	Pollutant Flow (SCFM)	Throughput (SCFM or MMBtu/hr)	Emission Factor	PTE (TPY)	Notes
PM			158.0	48.00 lb/MMCF, dry	1.99	AP-42, Chapter 2.4, Table 2.4-5, 11/1998
PM10			158.0	48.00 lb/MMCF, dry	1.99	Assumed the same as PM
PM2.5			158.0	48.00 lb/MMCF, dry	1.99	Assumed the same as PM
S	46.9	0.016			0.34	AP-42, Chapter 2.4, page 2.4-8, 11/1998
SO ₂					0.68	PTE (SO ₂) = PTE (H ₂ S) x MW (SO ₂) / MW (H ₂ S)
VOC			9.81	0.118 lb/MMBtu input	5.07	AP-42, Chapter 3.2, Table 3.2-2, 7/2000
CO			158.0	470 lb/dMMCF CH ₄	19.52	AP-42, Chapter 2.4, Table 2.4-5, 11/1998
NO _x			158.0	250 lb/dMMCF CH ₄	10.38	AP-42, Chapter 2.4, Table 2.4-5, 11/1998
HCL	42.0	0.014			0.34	AP-42, Chapter 2.4, page 2.4-9, 11/1998, 42 ppm as CL
CO ₂			9.81	114.55 lb/MMBtu input	4,922	40 CFR 98, Subpart C, Table C-1 (Biogas - 52.07 Kg/MMBtu)
CH ₄			9.81	7.10E-03 lb/MMBtu input	0.31	40 CFR 98, Subpart C, Table C-2 (3.2e-3 kg/MMBtu)
N ₂ O			9.81	1.40E-03 lb/MMBtu input	0.06	40 CFR 98, Subpart C, Table C-2 (6.3e-4 kg/MMBtu)
Biogenic GHG as CO ₂ e					4,922	All CO ₂ is biogenic
Non-Biogenic GHG as CO ₂ e					25	CH ₄ and N ₂ O Emissions

Methodology:

- 1) Methane Flow Rate = Flare Gas Flow Rate x (% Methane)
- 2) AP-42 does not include emission factors for PM10 or PM2.5. They are assumed identical to PM.
- 3) DSCFM = SCFM (1 - % Water)
- 4) Pollutant Flow (SCFM) = [Total Landfill Flow (SCFM)] x [ppmv pollutant / 1,000,000]
- 5) PTE (TPY) = Flow (CFM) x Emission Factor (lb/MMCF) x [MMCF/1,000,000 CF] x [60 min/hr] x [8,760 hr/yr] x [ton/2,000 lb]
- 6) PTE (TPY) = Heat Input (MMBtu/hr) x Emission Factor (lb/MMBtu) x [8,760 hr/yr] x [ton/2,000 lb]
- 7) CO₂e = [TPY CO₂] + 21 x [TPY CH₄] + 310 x [TPY N₂O]
- 8) PTE (tons/yr) = $\frac{360 \times Q_{\text{pollutant}} \text{ (CFM)} \times \text{MW (lb/lb mole)} \times P \text{ (atm)}}{T \text{ (°R)}}$ (AP-42, Chapter 2.4, Eq. 4 - converted to US units)

Technical Support Document - Appendix B - Existing Landfill Potential to Emit - One (1) LFG Fired Engine Set - 4-Stroke Lean Burn (EU-3)

Company Name: Clark-Floyd Landfill
Address: 14304 SR 60, Borden, Indiana 47106
Permit Number: T 019-31708-00097
Reviewer: David J. Matousek
Date: October 19, 2012

Input Data			
Engine bHp - Output	1,966 bHp (Output)	Molecular Weight (S)	32.07 lb/lb mole
Break Specific Fuel Consumption	9,664 Btu Input/Hp.Hr Output	Molecular Weight (SO ₂)	64.060 lb/lb mole
Heat Input Required	19.00 MMBtu Input/hr	Molecular Weight (HCL)	36.458 lb/lb mole
Heating Value of Landfill Gas	575 Btu/CF	Weight % Water in LFG	7.0%
Estimated LFG Flow	551.23 SCFM	Inlet Gas Temperature	536.67 R
		Inlet Gas Pressure	1 atm

Landfill Gas Flow Rate (Wet Basis)	Landfill Gas Flow Rate (Dry Basis)	% Methane	Methane Flow Rate (Dry Basis)	
551.23 SCFM	513 DSCFM	50.00%	257 SCFM or	136 MMSCF/yr

Potential to Emit Calculations - Methane Combustion - Each Engine

Pollutant	Concentration (ppmv)	Pollutant Flow (SCFM)	Throughput (SCFM or MMBtu/hr)	Emission Factor	PTE (TPY)	Notes
PM				0.49 lb/hr	2.15	Vendor Guarantee
PM10				0.49 lb/hr	2.15	Vendor Guarantee
PM2.5				0.49 lb/hr	2.15	Vendor Guarantee
S	46.9	0.026			0.56	AP-42, Chapter 2.4, page 2.4-8, 11/1998
SO ₂					1.12	PTE (SO ₂) = PTE (H ₂ S) x MW (SO ₂) / MW (H ₂ S)
VOC				1.06 lb/hr	4.64	Vendor Guarantee
CO				9.71 lb/hr	42.53	Vendor Guarantee
NO _x				3.56 lb/hr	15.59	Vendor Guarantee
HCL	42.0	0.023			0.56	AP-42, Chapter 2.4, page 2.4-8, 11/1998
CO ₂			19.0	114.79 lb/MMBtu input	9,553	40 CFR 98, Subpart C, Table C-1 (52.07 kg/MMbtu)
CH ₄			19.0	7.10E-03 lb/MMBtu input	0.59	40 CFR 98, Subpart C, Table C-2 (3.2e-3 kg/MMbtu)
N ₂ O			19.0	1.40E-03 lb/MMBtu input	0.12	40 CFR 98, Subpart C, Table C-2 (6.3e-4 kg/MMbtu)
Biogenic GHG as CO ₂ e					9,553	All CO ₂ is biogenic
Non-Biogenic GHG as CO ₂ e					50	CH ₄ and N ₂ O Emissions

Methodology:

- 1) Methane Flow Rate = Flare Gas Flow Rate x (% Methane)
- 2) AP-42 does not include emission factors for PM10 or PM2.5. They are assumed identical to PM.
- 3) DSCFM = SCFM (1 - % Water)
- 4) Pollutant Flow (SCFM) = [Total Landfill Flow (SCFM)] x [ppmv pollutant / 1,000,000]
- 5) PTE (TPY) = Flow (CFM) x Emission Factor (lb/MMCF) x [MMCF/1,000,000 CF] x [60 min/hr] x [8,760 hr/yr] x [ton/2,000 lb]
- 6) PTE (TPY) = Heat Input (MMBtu/hr) x Emission Factor (lb/MMBtu) x [8,760 hr/yr] x [ton/2,000 lb]
- 7) CO₂e = [TPY CO₂] + 21 x [TPY CH₄] + 310 x [TPY N₂O]
- 8) PTE (tons/yr) = $\frac{360 \times Q_{\text{pollutant}} (\text{CFM}) \times \text{MW} (\text{lb/lb mole}) \times P (\text{atm})}{T (^{\circ}\text{R})}$ (AP-42, Chapter 2.4, Eq. 4 - converted to US units)

Technical Support Document - Appendix C
326 IAC 2-7-10.5 Determination

Company Name: Clark-Floyd Landfill
Address: 14304 SR 60, Borden, Indiana 47106
Permit Number: SPM 019-31708-00097
Reviewer: David J. Matousek
Date: October 19, 2012

Pollutant	Existing Landfill PTE (TPY)	Modified Landfill (TPY)	Net Change in PTE (TPY)
VOC	14.93	20.71	5.78
CO	1.45	4.03	2.58
Single HAP	1.32	3.66	2.34
Total HAP	3.85	10.73	6.88
Non-Biogenic CO ₂	123,816	171,948	48,132



Summary Report

Landfill Name or Identifier: Clark-Floyd Landfill - Proposed Expansion

Date: Tuesday, November 20, 2012

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/Ma)

M_i = mass of waste accepted in the i^{th} year (Ma)

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 conventional 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 **1971**
 Landfill Closure Year (with 80-year limit) **2030**
 Actual Closure Year (without limit) **2030**
 Have Model Calculate Closure Year? **Yes**
 Waste Design Capacity **8,780,694** *megagrams*

MODEL PARAMETERS

Methane Generation Rate, k **0.040** *year⁻¹*
 Potential Methane Generation Capacity, L₀ **100** *m³/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)
1971	87,518	96,270	0	0
1972	87,518	96,270	87,518	96,270
1973	87,518	96,270	175,036	192,540
1974	87,518	96,270	262,554	288,809
1975	87,518	96,270	350,072	385,079
1976	87,518	96,270	437,590	481,349
1977	87,518	96,270	525,108	577,619
1978	87,518	96,270	612,626	673,889
1979	87,518	96,270	700,144	770,158
1980	87,518	96,270	787,662	866,428
1981	87,518	96,270	875,180	962,698
1982	87,518	96,270	962,698	1,058,968
1983	87,518	96,270	1,050,216	1,155,238
1984	87,518	96,270	1,137,734	1,251,507
1985	87,518	96,270	1,225,252	1,347,777
1986	140,282	154,310	1,312,770	1,444,047
1987	151,985	167,184	1,453,052	1,598,357
1988	153,026	168,329	1,605,037	1,765,541
1989	161,603	177,763	1,758,063	1,933,869
1990	186,511	205,162	1,919,666	2,111,633
1991	184,735	203,209	2,106,177	2,316,795
1992	166,456	183,102	2,290,912	2,520,003
1993	152,480	167,728	2,457,368	2,703,105
1994	152,101	167,311	2,609,848	2,870,833
1995	150,212	165,233	2,761,949	3,038,144
1996	145,875	160,463	2,912,161	3,203,377
1997	137,170	150,887	3,058,036	3,363,840
1998	131,502	144,652	3,195,206	3,514,727
1999	130,591	143,650	3,326,708	3,659,379
2000	126,105	138,716	3,457,299	3,803,029
2001	130,156	143,172	3,583,404	3,941,744
2002	99,943	109,937	3,713,560	4,084,916
2003	93,885	103,274	3,813,503	4,194,853
2004	143,391	157,730	3,907,388	4,298,127
2005	168,598	185,458	4,050,779	4,455,857
2006	164,271	180,698	4,219,377	4,641,315
2007	184,892	203,381	4,383,648	4,822,013
2008	186,711	205,382	4,568,540	5,025,394
2009	181,808	199,989	4,755,251	5,230,776
2010	194,763	214,239	4,937,059	5,430,765

WASTE ACCEPTANCE RATES (Continued)

Year	Waste Accepted		Waste-In-Place	
	(Mg/year)	(short tons/year)	(Mg)	(short tons)
2011	194,330	213,763	5,131,822	5,645,004
2012	181,818	200,000	5,326,152	5,858,767
2013	181,818	200,000	5,507,970	6,058,767
2014	181,818	200,000	5,689,788	6,258,767
2015	181,818	200,000	5,871,606	6,458,767
2016	181,818	200,000	6,053,424	6,658,766
2017	181,818	200,000	6,235,242	6,858,766
2018	181,818	200,000	6,417,060	7,058,766
2019	181,818	200,000	6,598,878	7,258,766
2020	181,818	200,000	6,780,696	7,458,766
2021	181,818	200,000	6,962,514	7,658,765
2022	181,818	200,000	7,144,332	7,858,765
2023	181,818	200,000	7,326,150	8,058,765
2024	181,818	200,000	7,507,968	8,258,765
2025	181,818	200,000	7,689,786	8,458,765
2026	181,818	200,000	7,871,604	8,658,764
2027	181,818	200,000	8,053,422	8,858,764
2028	181,818	200,000	8,235,240	9,058,764
2029	181,818	200,000	8,417,058	9,258,764
2030	181,818	200,000	8,598,876	9,458,764
2031	0	0	8,780,694	9,658,763
2032	0	0	8,780,694	9,658,763
2033	0	0	8,780,694	9,658,763
2034	0	0	8,780,694	9,658,763
2035	0	0	8,780,694	9,658,763
2036	0	0	8,780,694	9,658,763
2037	0	0	8,780,694	9,658,763
2038	0	0	8,780,694	9,658,763
2039	0	0	8,780,694	9,658,763
2040	0	0	8,780,694	9,658,763
2041	0	0	8,780,694	9,658,763
2042	0	0	8,780,694	9,658,763
2043	0	0	8,780,694	9,658,763
2044	0	0	8,780,694	9,658,763
2045	0	0	8,780,694	9,658,763
2046	0	0	8,780,694	9,658,763
2047	0	0	8,780,694	9,658,763
2048	0	0	8,780,694	9,658,763
2049	0	0	8,780,694	9,658,763
2050	0	0	8,780,694	9,658,763

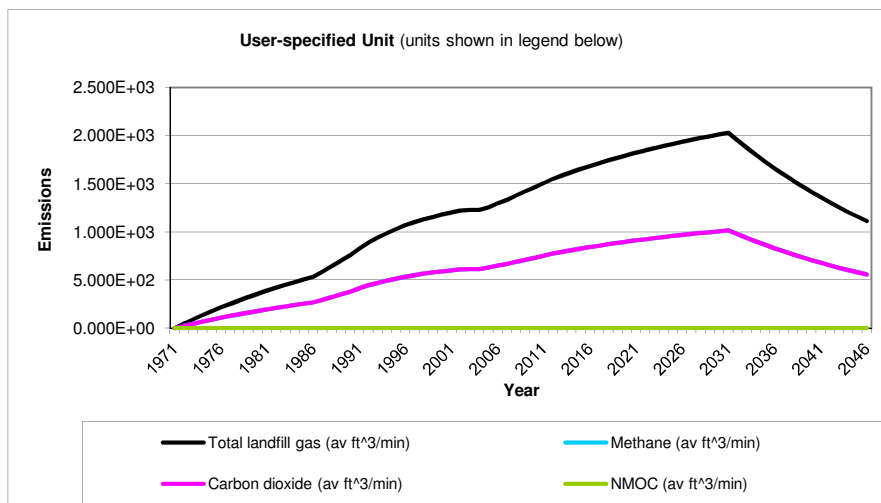
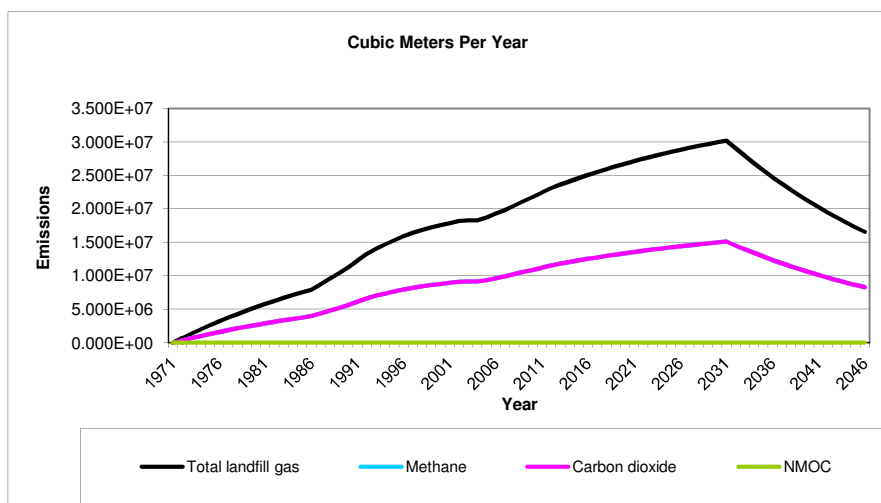
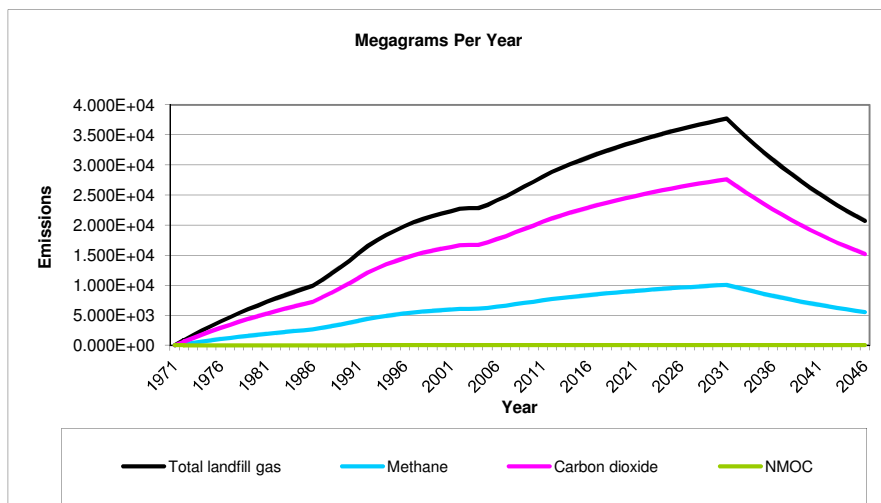
Pollutant Parameters

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		
	1,1,1,2,2-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)

<i>Gas / Pollutant Default Parameters:</i>				<i>User-specified Pollutant Parameters:</i>	
	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



Results

Year	Total landfill gas			Methane		
	(Mg/year)	(m ³ /year)	(av ft ³ /min)	(Mg/year)	(m ³ /year)	(av ft ³ /min)
1971	0	0	0	0	0	0
1972	8.588E+02	6.877E+05	4.621E+01	2.294E+02	3.438E+05	2.310E+01
1973	1.684E+03	1.348E+06	9.060E+01	4.498E+02	6.742E+05	4.530E+01
1974	2.477E+03	1.983E+06	1.333E+02	6.616E+02	9.916E+05	6.663E+01
1975	3.238E+03	2.593E+06	1.742E+02	8.650E+02	1.297E+06	8.712E+01
1976	3.970E+03	3.179E+06	2.136E+02	1.061E+03	1.590E+06	1.068E+02
1977	4.673E+03	3.742E+06	2.514E+02	1.248E+03	1.871E+06	1.257E+02
1978	5.349E+03	4.283E+06	2.878E+02	1.429E+03	2.142E+06	1.439E+02
1979	5.998E+03	4.803E+06	3.227E+02	1.602E+03	2.401E+06	1.614E+02
1980	6.622E+03	5.302E+06	3.563E+02	1.769E+03	2.651E+06	1.781E+02
1981	7.221E+03	5.782E+06	3.885E+02	1.929E+03	2.891E+06	1.943E+02
1982	7.797E+03	6.243E+06	4.195E+02	2.083E+03	3.122E+06	2.097E+02
1983	8.350E+03	6.686E+06	4.492E+02	2.230E+03	3.343E+06	2.246E+02
1984	8.881E+03	7.112E+06	4.778E+02	2.372E+03	3.556E+06	2.389E+02
1985	9.392E+03	7.520E+06	5.053E+02	2.509E+03	3.760E+06	2.526E+02
1986	9.882E+03	7.913E+06	5.317E+02	2.640E+03	3.957E+06	2.658E+02
1987	1.087E+04	8.705E+06	5.849E+02	2.904E+03	4.353E+06	2.925E+02
1988	1.194E+04	9.558E+06	6.422E+02	3.188E+03	4.779E+06	3.211E+02
1989	1.297E+04	1.039E+07	6.978E+02	3.464E+03	5.193E+06	3.489E+02
1990	1.405E+04	1.125E+07	7.558E+02	3.752E+03	5.624E+06	3.779E+02
1991	1.533E+04	1.227E+07	8.246E+02	4.094E+03	6.136E+06	4.123E+02
1992	1.654E+04	1.324E+07	8.898E+02	4.418E+03	6.622E+06	4.449E+02
1993	1.752E+04	1.403E+07	9.428E+02	4.681E+03	7.016E+06	4.714E+02
1994	1.833E+04	1.468E+07	9.863E+02	4.897E+03	7.340E+06	4.932E+02
1995	1.911E+04	1.530E+07	1.028E+03	5.104E+03	7.650E+06	5.140E+02
1996	1.983E+04	1.588E+07	1.067E+03	5.297E+03	7.940E+06	5.335E+02
1997	2.049E+04	1.640E+07	1.102E+03	5.472E+03	8.202E+06	5.511E+02
1998	2.103E+04	1.684E+07	1.131E+03	5.617E+03	8.419E+06	5.657E+02
1999	2.149E+04	1.721E+07	1.156E+03	5.741E+03	8.606E+06	5.782E+02
2000	2.193E+04	1.756E+07	1.180E+03	5.858E+03	8.781E+06	5.900E+02
2001	2.231E+04	1.786E+07	1.200E+03	5.959E+03	8.932E+06	6.002E+02
2002	2.271E+04	1.819E+07	1.222E+03	6.067E+03	9.094E+06	6.110E+02
2003	2.280E+04	1.826E+07	1.227E+03	6.091E+03	9.130E+06	6.134E+02
2004	2.283E+04	1.828E+07	1.228E+03	6.098E+03	9.141E+06	6.142E+02
2005	2.334E+04	1.869E+07	1.256E+03	6.235E+03	9.346E+06	6.279E+02
2006	2.408E+04	1.928E+07	1.296E+03	6.432E+03	9.641E+06	6.478E+02
2007	2.475E+04	1.982E+07	1.332E+03	6.611E+03	9.909E+06	6.658E+02
2008	2.559E+04	2.049E+07	1.377E+03	6.836E+03	1.025E+07	6.885E+02
2009	2.642E+04	2.116E+07	1.422E+03	7.057E+03	1.058E+07	7.108E+02
2010	2.717E+04	2.176E+07	1.462E+03	7.257E+03	1.088E+07	7.309E+02
2011	2.802E+04	2.243E+07	1.507E+03	7.483E+03	1.122E+07	7.536E+02
2012	2.882E+04	2.308E+07	1.551E+03	7.699E+03	1.154E+07	7.754E+02
2013	2.948E+04	2.360E+07	1.586E+03	7.874E+03	1.180E+07	7.930E+02
2014	3.011E+04	2.411E+07	1.620E+03	8.042E+03	1.205E+07	8.099E+02
2015	3.071E+04	2.459E+07	1.652E+03	8.203E+03	1.230E+07	8.261E+02
2016	3.129E+04	2.506E+07	1.683E+03	8.358E+03	1.253E+07	8.417E+02
2017	3.185E+04	2.550E+07	1.713E+03	8.507E+03	1.275E+07	8.567E+02
2018	3.238E+04	2.593E+07	1.742E+03	8.650E+03	1.297E+07	8.711E+02
2019	3.290E+04	2.634E+07	1.770E+03	8.787E+03	1.317E+07	8.850E+02
2020	3.339E+04	2.674E+07	1.797E+03	8.919E+03	1.337E+07	8.983E+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)
2021	3.387E+04	2.712E+07	1.822E+03	9.046E+03	1.356E+07	9.110E+02
2022	3.432E+04	2.748E+07	1.847E+03	9.168E+03	1.374E+07	9.233E+02
2023	3.476E+04	2.783E+07	1.870E+03	9.285E+03	1.392E+07	9.351E+02
2024	3.518E+04	2.817E+07	1.893E+03	9.398E+03	1.409E+07	9.464E+02
2025	3.559E+04	2.850E+07	1.915E+03	9.506E+03	1.425E+07	9.573E+02
2026	3.598E+04	2.881E+07	1.936E+03	9.609E+03	1.440E+07	9.678E+02
2027	3.635E+04	2.911E+07	1.956E+03	9.709E+03	1.455E+07	9.778E+02
2028	3.671E+04	2.939E+07	1.975E+03	9.805E+03	1.470E+07	9.875E+02
2029	3.705E+04	2.967E+07	1.994E+03	9.897E+03	1.484E+07	9.968E+02
2030	3.738E+04	2.994E+07	2.011E+03	9.986E+03	1.497E+07	1.006E+03
2031	3.770E+04	3.019E+07	2.028E+03	1.007E+04	1.510E+07	1.014E+03
2032	3.622E+04	2.901E+07	1.949E+03	9.676E+03	1.450E+07	9.745E+02
2033	3.480E+04	2.787E+07	1.873E+03	9.296E+03	1.393E+07	9.363E+02
2034	3.344E+04	2.678E+07	1.799E+03	8.932E+03	1.339E+07	8.996E+02
2035	3.213E+04	2.573E+07	1.729E+03	8.582E+03	1.286E+07	8.643E+02
2036	3.087E+04	2.472E+07	1.661E+03	8.245E+03	1.236E+07	8.304E+02
2037	2.966E+04	2.375E+07	1.596E+03	7.922E+03	1.187E+07	7.978E+02
2038	2.849E+04	2.282E+07	1.533E+03	7.611E+03	1.141E+07	7.666E+02
2039	2.738E+04	2.192E+07	1.473E+03	7.313E+03	1.096E+07	7.365E+02
2040	2.630E+04	2.106E+07	1.415E+03	7.026E+03	1.053E+07	7.076E+02
2041	2.527E+04	2.024E+07	1.360E+03	6.751E+03	1.012E+07	6.799E+02
2042	2.428E+04	1.944E+07	1.306E+03	6.486E+03	9.722E+06	6.532E+02
2043	2.333E+04	1.868E+07	1.255E+03	6.232E+03	9.341E+06	6.276E+02
2044	2.241E+04	1.795E+07	1.206E+03	5.987E+03	8.974E+06	6.030E+02
2045	2.154E+04	1.725E+07	1.159E+03	5.753E+03	8.623E+06	5.793E+02
2046	2.069E+04	1.657E+07	1.113E+03	5.527E+03	8.284E+06	5.566E+02
2047	1.988E+04	1.592E+07	1.070E+03	5.310E+03	7.960E+06	5.348E+02
2048	1.910E+04	1.529E+07	1.028E+03	5.102E+03	7.647E+06	5.138E+02
2049	1.835E+04	1.470E+07	9.874E+02	4.902E+03	7.348E+06	4.937E+02
2050	1.763E+04	1.412E+07	9.487E+02	4.710E+03	7.060E+06	4.743E+02
2051	1.694E+04	1.357E+07	9.115E+02	4.525E+03	6.783E+06	4.557E+02
2052	1.628E+04	1.303E+07	8.757E+02	4.348E+03	6.517E+06	4.379E+02
2053	1.564E+04	1.252E+07	8.414E+02	4.177E+03	6.261E+06	4.207E+02
2054	1.503E+04	1.203E+07	8.084E+02	4.013E+03	6.016E+06	4.042E+02
2055	1.444E+04	1.156E+07	7.767E+02	3.856E+03	5.780E+06	3.883E+02
2056	1.387E+04	1.111E+07	7.462E+02	3.705E+03	5.553E+06	3.731E+02
2057	1.333E+04	1.067E+07	7.170E+02	3.560E+03	5.335E+06	3.585E+02
2058	1.280E+04	1.025E+07	6.889E+02	3.420E+03	5.126E+06	3.444E+02
2059	1.230E+04	9.851E+06	6.619E+02	3.286E+03	4.925E+06	3.309E+02
2060	1.182E+04	9.464E+06	6.359E+02	3.157E+03	4.732E+06	3.180E+02
2061	1.136E+04	9.093E+06	6.110E+02	3.033E+03	4.547E+06	3.055E+02
2062	1.091E+04	8.737E+06	5.870E+02	2.914E+03	4.368E+06	2.935E+02
2063	1.048E+04	8.394E+06	5.640E+02	2.800E+03	4.197E+06	2.820E+02
2064	1.007E+04	8.065E+06	5.419E+02	2.690E+03	4.032E+06	2.709E+02
2065	9.677E+03	7.749E+06	5.206E+02	2.585E+03	3.874E+06	2.603E+02
2066	9.297E+03	7.445E+06	5.002E+02	2.483E+03	3.722E+06	2.501E+02
2067	8.933E+03	7.153E+06	4.806E+02	2.386E+03	3.576E+06	2.403E+02
2068	8.583E+03	6.872E+06	4.618E+02	2.292E+03	3.436E+06	2.309E+02
2069	8.246E+03	6.603E+06	4.437E+02	2.203E+03	3.302E+06	2.218E+02
2070	7.923E+03	6.344E+06	4.263E+02	2.116E+03	3.172E+06	2.131E+02
2071	7.612E+03	6.095E+06	4.095E+02	2.033E+03	3.048E+06	2.048E+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)
2072	7.314E+03	5.856E+06	3.935E+02	1.954E+03	2.928E+06	1.967E+02
2073	7.027E+03	5.627E+06	3.781E+02	1.877E+03	2.813E+06	1.890E+02
2074	6.751E+03	5.406E+06	3.632E+02	1.803E+03	2.703E+06	1.816E+02
2075	6.487E+03	5.194E+06	3.490E+02	1.733E+03	2.597E+06	1.745E+02
2076	6.232E+03	4.990E+06	3.353E+02	1.665E+03	2.495E+06	1.677E+02
2077	5.988E+03	4.795E+06	3.222E+02	1.599E+03	2.397E+06	1.611E+02
2078	5.753E+03	4.607E+06	3.095E+02	1.537E+03	2.303E+06	1.548E+02
2079	5.527E+03	4.426E+06	2.974E+02	1.476E+03	2.213E+06	1.487E+02
2080	5.311E+03	4.253E+06	2.857E+02	1.419E+03	2.126E+06	1.429E+02
2081	5.102E+03	4.086E+06	2.745E+02	1.363E+03	2.043E+06	1.373E+02
2082	4.902E+03	3.926E+06	2.638E+02	1.309E+03	1.963E+06	1.319E+02
2083	4.710E+03	3.772E+06	2.534E+02	1.258E+03	1.886E+06	1.267E+02
2084	4.525E+03	3.624E+06	2.435E+02	1.209E+03	1.812E+06	1.217E+02
2085	4.348E+03	3.482E+06	2.339E+02	1.161E+03	1.741E+06	1.170E+02
2086	4.178E+03	3.345E+06	2.248E+02	1.116E+03	1.673E+06	1.124E+02
2087	4.014E+03	3.214E+06	2.160E+02	1.072E+03	1.607E+06	1.080E+02
2088	3.856E+03	3.088E+06	2.075E+02	1.030E+03	1.544E+06	1.037E+02
2089	3.705E+03	2.967E+06	1.993E+02	9.897E+02	1.483E+06	9.967E+01
2090	3.560E+03	2.851E+06	1.915E+02	9.509E+02	1.425E+06	9.577E+01
2091	3.420E+03	2.739E+06	1.840E+02	9.136E+02	1.369E+06	9.201E+01
2092	3.286E+03	2.631E+06	1.768E+02	8.778E+02	1.316E+06	8.840E+01
2093	3.157E+03	2.528E+06	1.699E+02	8.434E+02	1.264E+06	8.494E+01
2094	3.034E+03	2.429E+06	1.632E+02	8.103E+02	1.215E+06	8.161E+01
2095	2.915E+03	2.334E+06	1.568E+02	7.785E+02	1.167E+06	7.841E+01
2096	2.800E+03	2.242E+06	1.507E+02	7.480E+02	1.121E+06	7.533E+01
2097	2.690E+03	2.154E+06	1.448E+02	7.187E+02	1.077E+06	7.238E+01
2098	2.585E+03	2.070E+06	1.391E+02	6.905E+02	1.035E+06	6.954E+01
2099	2.484E+03	1.989E+06	1.336E+02	6.634E+02	9.944E+05	6.681E+01
2100	2.386E+03	1.911E+06	1.284E+02	6.374E+02	9.554E+05	6.419E+01
2101	2.293E+03	1.836E+06	1.234E+02	6.124E+02	9.179E+05	6.168E+01
2102	2.203E+03	1.764E+06	1.185E+02	5.884E+02	8.819E+05	5.926E+01
2103	2.116E+03	1.695E+06	1.139E+02	5.653E+02	8.474E+05	5.693E+01
2104	2.033E+03	1.628E+06	1.094E+02	5.432E+02	8.141E+05	5.470E+01
2105	1.954E+03	1.564E+06	1.051E+02	5.219E+02	7.822E+05	5.256E+01
2106	1.877E+03	1.503E+06	1.010E+02	5.014E+02	7.515E+05	5.050E+01
2107	1.803E+03	1.444E+06	9.703E+01	4.817E+02	7.221E+05	4.852E+01
2108	1.733E+03	1.388E+06	9.323E+01	4.628E+02	6.938E+05	4.661E+01
2109	1.665E+03	1.333E+06	8.957E+01	4.447E+02	6.666E+05	4.479E+01
2110	1.600E+03	1.281E+06	8.606E+01	4.273E+02	6.404E+05	4.303E+01
2111	1.537E+03	1.231E+06	8.269E+01	4.105E+02	6.153E+05	4.134E+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)
1971	0	0	0	0	0	0
1972	6.294E+02	3.438E+05	2.310E+01	1.467E+00	4.092E+02	2.749E-02
1973	1.234E+03	6.742E+05	4.530E+01	2.876E+00	8.023E+02	5.391E-02
1974	1.815E+03	9.916E+05	6.663E+01	4.230E+00	1.180E+03	7.929E-02
1975	2.373E+03	1.297E+06	8.712E+01	5.531E+00	1.543E+03	1.037E-01
1976	2.910E+03	1.590E+06	1.068E+02	6.780E+00	1.892E+03	1.271E-01
1977	3.425E+03	1.871E+06	1.257E+02	7.981E+00	2.227E+03	1.496E-01
1978	3.920E+03	2.142E+06	1.439E+02	9.135E+00	2.549E+03	1.712E-01
1979	4.396E+03	2.401E+06	1.614E+02	1.024E+01	2.858E+03	1.920E-01
1980	4.853E+03	2.651E+06	1.781E+02	1.131E+01	3.155E+03	2.120E-01
1981	5.292E+03	2.891E+06	1.943E+02	1.233E+01	3.440E+03	2.312E-01
1982	5.714E+03	3.122E+06	2.097E+02	1.332E+01	3.715E+03	2.496E-01
1983	6.119E+03	3.343E+06	2.246E+02	1.426E+01	3.978E+03	2.673E-01
1984	6.509E+03	3.556E+06	2.389E+02	1.517E+01	4.231E+03	2.843E-01
1985	6.883E+03	3.760E+06	2.526E+02	1.604E+01	4.475E+03	3.007E-01
1986	7.243E+03	3.957E+06	2.658E+02	1.688E+01	4.708E+03	3.164E-01
1987	7.967E+03	4.353E+06	2.925E+02	1.857E+01	5.180E+03	3.480E-01
1988	8.748E+03	4.779E+06	3.211E+02	2.039E+01	5.687E+03	3.821E-01
1989	9.506E+03	5.193E+06	3.489E+02	2.215E+01	6.180E+03	4.152E-01
1990	1.030E+04	5.624E+06	3.779E+02	2.399E+01	6.693E+03	4.497E-01
1991	1.123E+04	6.136E+06	4.123E+02	2.618E+01	7.302E+03	4.906E-01
1992	1.212E+04	6.622E+06	4.449E+02	2.824E+01	7.880E+03	5.294E-01
1993	1.284E+04	7.016E+06	4.714E+02	2.993E+01	8.349E+03	5.610E-01
1994	1.344E+04	7.340E+06	4.932E+02	3.131E+01	8.735E+03	5.869E-01
1995	1.400E+04	7.650E+06	5.140E+02	3.263E+01	9.103E+03	6.116E-01
1996	1.453E+04	7.940E+06	5.335E+02	3.387E+01	9.449E+03	6.349E-01
1997	1.501E+04	8.202E+06	5.511E+02	3.498E+01	9.760E+03	6.558E-01
1998	1.541E+04	8.419E+06	5.657E+02	3.591E+01	1.002E+04	6.732E-01
1999	1.575E+04	8.606E+06	5.782E+02	3.671E+01	1.024E+04	6.881E-01
2000	1.607E+04	8.781E+06	5.900E+02	3.746E+01	1.045E+04	7.021E-01
2001	1.635E+04	8.932E+06	6.002E+02	3.810E+01	1.063E+04	7.142E-01
2002	1.665E+04	9.094E+06	6.110E+02	3.879E+01	1.082E+04	7.271E-01
2003	1.671E+04	9.130E+06	6.134E+02	3.894E+01	1.086E+04	7.300E-01
2004	1.673E+04	9.141E+06	6.142E+02	3.899E+01	1.088E+04	7.308E-01
2005	1.711E+04	9.346E+06	6.279E+02	3.986E+01	1.112E+04	7.472E-01
2006	1.765E+04	9.641E+06	6.478E+02	4.113E+01	1.147E+04	7.709E-01
2007	1.814E+04	9.909E+06	6.658E+02	4.227E+01	1.179E+04	7.923E-01
2008	1.876E+04	1.025E+07	6.885E+02	4.371E+01	1.219E+04	8.193E-01
2009	1.936E+04	1.058E+07	7.108E+02	4.512E+01	1.259E+04	8.458E-01
2010	1.991E+04	1.088E+07	7.309E+02	4.640E+01	1.294E+04	8.698E-01
2011	2.053E+04	1.122E+07	7.536E+02	4.785E+01	1.335E+04	8.968E-01
2012	2.112E+04	1.154E+07	7.754E+02	4.923E+01	1.373E+04	9.227E-01
2013	2.160E+04	1.180E+07	7.930E+02	5.034E+01	1.404E+04	9.437E-01
2014	2.206E+04	1.205E+07	8.099E+02	5.142E+01	1.434E+04	9.638E-01
2015	2.251E+04	1.230E+07	8.261E+02	5.245E+01	1.463E+04	9.831E-01
2016	2.293E+04	1.253E+07	8.417E+02	5.344E+01	1.491E+04	1.002E+00
2017	2.334E+04	1.275E+07	8.567E+02	5.439E+01	1.517E+04	1.020E+00
2018	2.373E+04	1.297E+07	8.711E+02	5.530E+01	1.543E+04	1.037E+00
2019	2.411E+04	1.317E+07	8.850E+02	5.618E+01	1.567E+04	1.053E+00
2020	2.447E+04	1.337E+07	8.983E+02	5.703E+01	1.591E+04	1.069E+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)
2021	2.482E+04	1.356E+07	9.110E+02	5.784E+01	1.614E+04	1.084E+00
2022	2.515E+04	1.374E+07	9.233E+02	5.862E+01	1.635E+04	1.099E+00
2023	2.548E+04	1.392E+07	9.351E+02	5.937E+01	1.656E+04	1.113E+00
2024	2.578E+04	1.409E+07	9.464E+02	6.008E+01	1.676E+04	1.126E+00
2025	2.608E+04	1.425E+07	9.573E+02	6.078E+01	1.696E+04	1.139E+00
2026	2.637E+04	1.440E+07	9.678E+02	6.144E+01	1.714E+04	1.152E+00
2027	2.664E+04	1.455E+07	9.778E+02	6.208E+01	1.732E+04	1.164E+00
2028	2.690E+04	1.470E+07	9.875E+02	6.269E+01	1.749E+04	1.175E+00
2029	2.716E+04	1.484E+07	9.968E+02	6.328E+01	1.765E+04	1.186E+00
2030	2.740E+04	1.497E+07	1.006E+03	6.385E+01	1.781E+04	1.197E+00
2031	2.763E+04	1.510E+07	1.014E+03	6.439E+01	1.796E+04	1.207E+00
2032	2.655E+04	1.450E+07	9.745E+02	6.186E+01	1.726E+04	1.160E+00
2033	2.551E+04	1.393E+07	9.363E+02	5.944E+01	1.658E+04	1.114E+00
2034	2.451E+04	1.339E+07	8.996E+02	5.711E+01	1.593E+04	1.070E+00
2035	2.355E+04	1.286E+07	8.643E+02	5.487E+01	1.531E+04	1.028E+00
2036	2.262E+04	1.236E+07	8.304E+02	5.272E+01	1.471E+04	9.882E-01
2037	2.174E+04	1.187E+07	7.978E+02	5.065E+01	1.413E+04	9.494E-01
2038	2.088E+04	1.141E+07	7.666E+02	4.866E+01	1.358E+04	9.122E-01
2039	2.006E+04	1.096E+07	7.365E+02	4.676E+01	1.304E+04	8.764E-01
2040	1.928E+04	1.053E+07	7.076E+02	4.492E+01	1.253E+04	8.421E-01
2041	1.852E+04	1.012E+07	6.799E+02	4.316E+01	1.204E+04	8.090E-01
2042	1.780E+04	9.722E+06	6.532E+02	4.147E+01	1.157E+04	7.773E-01
2043	1.710E+04	9.341E+06	6.276E+02	3.984E+01	1.112E+04	7.468E-01
2044	1.643E+04	8.974E+06	6.030E+02	3.828E+01	1.068E+04	7.176E-01
2045	1.578E+04	8.623E+06	5.793E+02	3.678E+01	1.026E+04	6.894E-01
2046	1.516E+04	8.284E+06	5.566E+02	3.534E+01	9.858E+03	6.624E-01
2047	1.457E+04	7.960E+06	5.348E+02	3.395E+01	9.472E+03	6.364E-01
2048	1.400E+04	7.647E+06	5.138E+02	3.262E+01	9.101E+03	6.115E-01
2049	1.345E+04	7.348E+06	4.937E+02	3.134E+01	8.744E+03	5.875E-01
2050	1.292E+04	7.060E+06	4.743E+02	3.011E+01	8.401E+03	5.645E-01
2051	1.242E+04	6.783E+06	4.557E+02	2.893E+01	8.071E+03	5.423E-01
2052	1.193E+04	6.517E+06	4.379E+02	2.780E+01	7.755E+03	5.211E-01
2053	1.146E+04	6.261E+06	4.207E+02	2.671E+01	7.451E+03	5.006E-01
2054	1.101E+04	6.016E+06	4.042E+02	2.566E+01	7.159E+03	4.810E-01
2055	1.058E+04	5.780E+06	3.883E+02	2.465E+01	6.878E+03	4.621E-01
2056	1.017E+04	5.553E+06	3.731E+02	2.369E+01	6.608E+03	4.440E-01
2057	9.767E+03	5.335E+06	3.585E+02	2.276E+01	6.349E+03	4.266E-01
2058	9.384E+03	5.126E+06	3.444E+02	2.187E+01	6.100E+03	4.099E-01
2059	9.016E+03	4.925E+06	3.309E+02	2.101E+01	5.861E+03	3.938E-01
2060	8.662E+03	4.732E+06	3.180E+02	2.019E+01	5.631E+03	3.784E-01
2061	8.323E+03	4.547E+06	3.055E+02	1.939E+01	5.410E+03	3.635E-01
2062	7.996E+03	4.368E+06	2.935E+02	1.863E+01	5.198E+03	3.493E-01
2063	7.683E+03	4.197E+06	2.820E+02	1.790E+01	4.994E+03	3.356E-01
2064	7.381E+03	4.032E+06	2.709E+02	1.720E+01	4.799E+03	3.224E-01
2065	7.092E+03	3.874E+06	2.603E+02	1.653E+01	4.610E+03	3.098E-01
2066	6.814E+03	3.722E+06	2.501E+02	1.588E+01	4.430E+03	2.976E-01
2067	6.547E+03	3.576E+06	2.403E+02	1.526E+01	4.256E+03	2.860E-01
2068	6.290E+03	3.436E+06	2.309E+02	1.466E+01	4.089E+03	2.747E-01
2069	6.043E+03	3.302E+06	2.218E+02	1.408E+01	3.929E+03	2.640E-01
2070	5.806E+03	3.172E+06	2.131E+02	1.353E+01	3.775E+03	2.536E-01
2071	5.579E+03	3.048E+06	2.048E+02	1.300E+01	3.627E+03	2.437E-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)
2072	5.360E+03	2.928E+06	1.967E+02	1.249E+01	3.485E+03	2.341E-01
2073	5.150E+03	2.813E+06	1.890E+02	1.200E+01	3.348E+03	2.249E-01
2074	4.948E+03	2.703E+06	1.816E+02	1.153E+01	3.217E+03	2.161E-01
2075	4.754E+03	2.597E+06	1.745E+02	1.108E+01	3.090E+03	2.076E-01
2076	4.568E+03	2.495E+06	1.677E+02	1.064E+01	2.969E+03	1.995E-01
2077	4.388E+03	2.397E+06	1.611E+02	1.023E+01	2.853E+03	1.917E-01
2078	4.216E+03	2.303E+06	1.548E+02	9.825E+00	2.741E+03	1.842E-01
2079	4.051E+03	2.213E+06	1.487E+02	9.440E+00	2.634E+03	1.769E-01
2080	3.892E+03	2.126E+06	1.429E+02	9.070E+00	2.530E+03	1.700E-01
2081	3.740E+03	2.043E+06	1.373E+02	8.714E+00	2.431E+03	1.633E-01
2082	3.593E+03	1.963E+06	1.319E+02	8.372E+00	2.336E+03	1.569E-01
2083	3.452E+03	1.886E+06	1.267E+02	8.044E+00	2.244E+03	1.508E-01
2084	3.317E+03	1.812E+06	1.217E+02	7.729E+00	2.156E+03	1.449E-01
2085	3.187E+03	1.741E+06	1.170E+02	7.426E+00	2.072E+03	1.392E-01
2086	3.062E+03	1.673E+06	1.124E+02	7.134E+00	1.990E+03	1.337E-01
2087	2.942E+03	1.607E+06	1.080E+02	6.855E+00	1.912E+03	1.285E-01
2088	2.826E+03	1.544E+06	1.037E+02	6.586E+00	1.837E+03	1.235E-01
2089	2.715E+03	1.483E+06	9.967E+01	6.328E+00	1.765E+03	1.186E-01
2090	2.609E+03	1.425E+06	9.577E+01	6.080E+00	1.696E+03	1.140E-01
2091	2.507E+03	1.369E+06	9.201E+01	5.841E+00	1.630E+03	1.095E-01
2092	2.408E+03	1.316E+06	8.840E+01	5.612E+00	1.566E+03	1.052E-01
2093	2.314E+03	1.264E+06	8.494E+01	5.392E+00	1.504E+03	1.011E-01
2094	2.223E+03	1.215E+06	8.161E+01	5.181E+00	1.445E+03	9.711E-02
2095	2.136E+03	1.167E+06	7.841E+01	4.978E+00	1.389E+03	9.330E-02
2096	2.052E+03	1.121E+06	7.533E+01	4.782E+00	1.334E+03	8.964E-02
2097	1.972E+03	1.077E+06	7.238E+01	4.595E+00	1.282E+03	8.613E-02
2098	1.895E+03	1.035E+06	6.954E+01	4.415E+00	1.232E+03	8.275E-02
2099	1.820E+03	9.944E+05	6.681E+01	4.242E+00	1.183E+03	7.951E-02
2100	1.749E+03	9.554E+05	6.419E+01	4.075E+00	1.137E+03	7.639E-02
2101	1.680E+03	9.179E+05	6.168E+01	3.915E+00	1.092E+03	7.339E-02
2102	1.614E+03	8.819E+05	5.926E+01	3.762E+00	1.050E+03	7.052E-02
2103	1.551E+03	8.474E+05	5.693E+01	3.614E+00	1.008E+03	6.775E-02
2104	1.490E+03	8.141E+05	5.470E+01	3.473E+00	9.688E+02	6.510E-02
2105	1.432E+03	7.822E+05	5.256E+01	3.337E+00	9.308E+02	6.254E-02
2106	1.376E+03	7.515E+05	5.050E+01	3.206E+00	8.943E+02	6.009E-02
2107	1.322E+03	7.221E+05	4.852E+01	3.080E+00	8.593E+02	5.773E-02
2108	1.270E+03	6.938E+05	4.661E+01	2.959E+00	8.256E+02	5.547E-02
2109	1.220E+03	6.666E+05	4.479E+01	2.843E+00	7.932E+02	5.330E-02
2110	1.172E+03	6.404E+05	4.303E+01	2.732E+00	7.621E+02	5.121E-02
2111	1.126E+03	6.153E+05	4.134E+01	2.625E+00	7.322E+02	4.920E-02



Summary Report

Landfill Name or Identifier: Clark-Floyd Landfill - Existing Closure 2012

Date: Tuesday, November 20, 2012

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/Ma)

M_i = mass of waste accepted in the i^{th} year (Ma)

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 conventional 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	1971	
Landfill Closure Year (with 80-year limit)	2010	
Actual Closure Year (without limit)	2010	
Have Model Calculate Closure Year?	Yes	
Waste Design Capacity	5,036,629	<i>megagrams</i>

MODEL PARAMETERS

Methane Generation Rate, k	0.040	<i>year⁻¹</i>
Potential Methane Generation Capacity, L ₀	100	<i>m³/Mg</i>
NMOC Concentration	595	<i>ppmv as hexane</i>
Methane Content	50	<i>% by volume</i>

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)
1971	87,518	96,270	0	0
1972	87,518	96,270	87,518	96,270
1973	87,518	96,270	175,036	192,540
1974	87,518	96,270	262,554	288,809
1975	87,518	96,270	350,072	385,079
1976	87,518	96,270	437,590	481,349
1977	87,518	96,270	525,108	577,619
1978	87,518	96,270	612,626	673,889
1979	87,518	96,270	700,144	770,158
1980	87,518	96,270	787,662	866,428
1981	87,518	96,270	875,180	962,698
1982	87,518	96,270	962,698	1,058,968
1983	87,518	96,270	1,050,216	1,155,238
1984	87,518	96,270	1,137,734	1,251,507
1985	87,518	96,270	1,225,252	1,347,777
1986	140,282	154,310	1,312,770	1,444,047
1987	151,985	167,184	1,453,052	1,598,357
1988	153,026	168,329	1,605,037	1,765,541
1989	161,603	177,763	1,758,063	1,933,869
1990	186,511	205,162	1,919,666	2,111,633
1991	184,735	203,209	2,106,177	2,316,795
1992	166,456	183,102	2,290,912	2,520,003
1993	152,480	167,728	2,457,368	2,703,105
1994	152,101	167,311	2,609,848	2,870,833
1995	150,212	165,233	2,761,949	3,038,144
1996	145,875	160,463	2,912,161	3,203,377
1997	137,170	150,887	3,058,036	3,363,840
1998	131,502	144,652	3,195,206	3,514,727
1999	130,591	143,650	3,326,708	3,659,379
2000	126,105	138,716	3,457,299	3,803,029
2001	130,156	143,172	3,583,404	3,941,744
2002	99,943	109,937	3,713,560	4,084,916
2003	93,885	103,274	3,813,503	4,194,853
2004	143,391	157,730	3,907,388	4,298,127
2005	168,598	185,458	4,050,779	4,455,857
2006	164,271	180,698	4,219,377	4,641,315
2007	184,892	203,381	4,383,648	4,822,013
2008	186,711	205,382	4,568,540	5,025,394
2009	181,808	199,989	4,755,251	5,230,776
2010	99,570	109,527	4,937,059	5,430,765

WASTE ACCEPTANCE RATES (Continued)

Year	Waste Accepted		Waste-In-Place	
	(Mg/year)	(short tons/year)	(Mg)	(short tons)
2011	0	0	5,036,629	5,540,292
2012	0	0	5,036,629	5,540,292
2013	0	0	5,036,629	5,540,292
2014	0	0	5,036,629	5,540,292
2015	0	0	5,036,629	5,540,292
2016	0	0	5,036,629	5,540,292
2017	0	0	5,036,629	5,540,292
2018	0	0	5,036,629	5,540,292
2019	0	0	5,036,629	5,540,292
2020	0	0	5,036,629	5,540,292
2021	0	0	5,036,629	5,540,292
2022	0	0	5,036,629	5,540,292
2023	0	0	5,036,629	5,540,292
2024	0	0	5,036,629	5,540,292
2025	0	0	5,036,629	5,540,292
2026	0	0	5,036,629	5,540,292
2027	0	0	5,036,629	5,540,292
2028	0	0	5,036,629	5,540,292
2029	0	0	5,036,629	5,540,292
2030	0	0	5,036,629	5,540,292
2031	0	0	5,036,629	5,540,292
2032	0	0	5,036,629	5,540,292
2033	0	0	5,036,629	5,540,292
2034	0	0	5,036,629	5,540,292
2035	0	0	5,036,629	5,540,292
2036	0	0	5,036,629	5,540,292
2037	0	0	5,036,629	5,540,292
2038	0	0	5,036,629	5,540,292
2039	0	0	5,036,629	5,540,292
2040	0	0	5,036,629	5,540,292
2041	0	0	5,036,629	5,540,292
2042	0	0	5,036,629	5,540,292
2043	0	0	5,036,629	5,540,292
2044	0	0	5,036,629	5,540,292
2045	0	0	5,036,629	5,540,292
2046	0	0	5,036,629	5,540,292
2047	0	0	5,036,629	5,540,292
2048	0	0	5,036,629	5,540,292
2049	0	0	5,036,629	5,540,292
2050	0	0	5,036,629	5,540,292

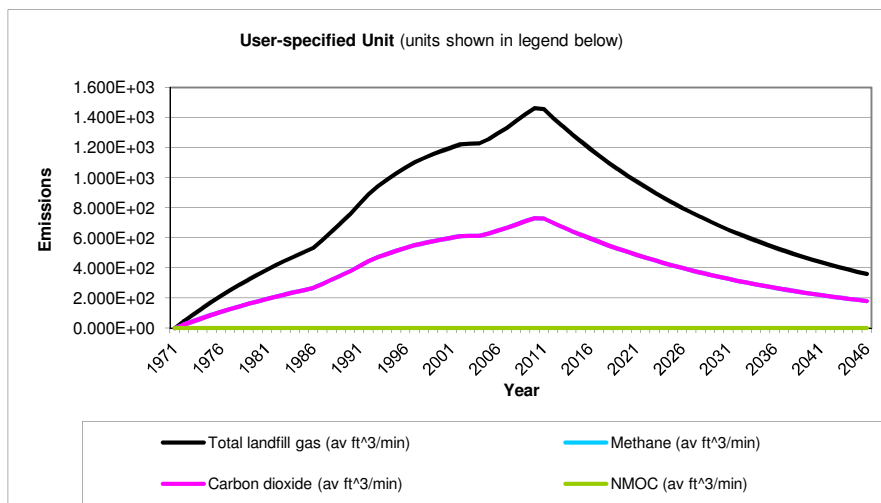
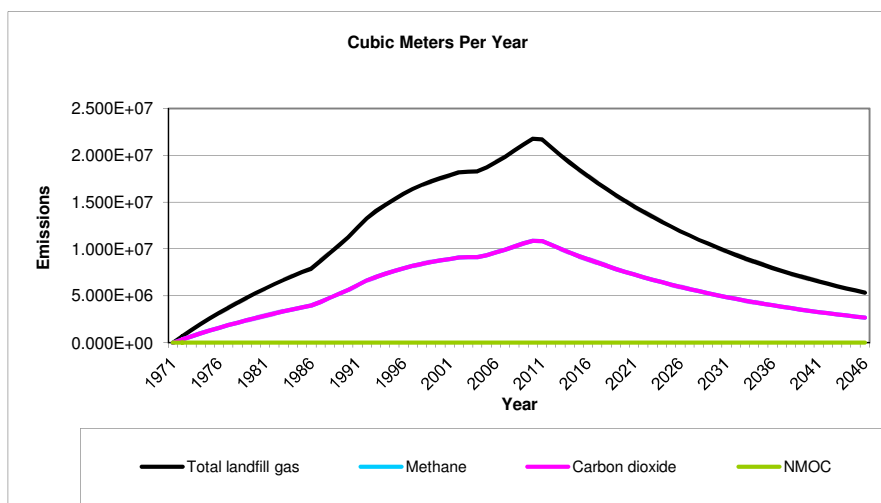
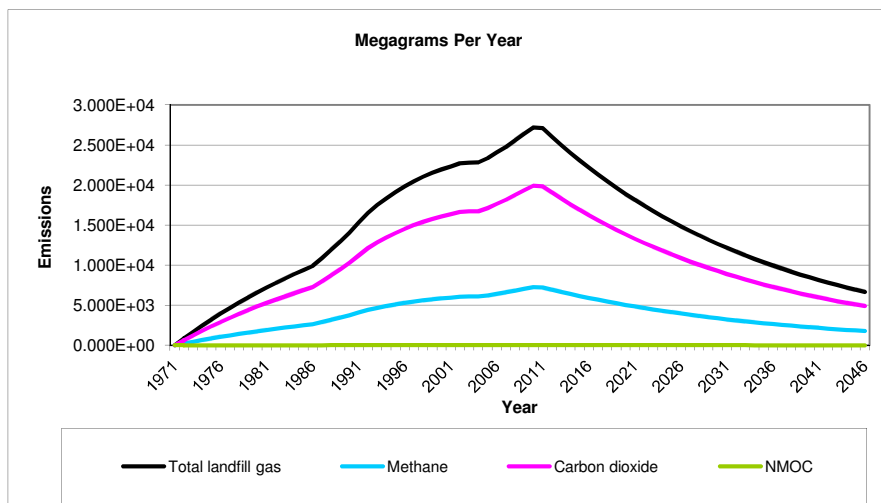
Pollutant Parameters

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		
	1,1,1,2,2-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)

<i>Gas / Pollutant Default Parameters:</i>				<i>User-specified Pollutant Parameters:</i>	
	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



Results

Year	Total landfill gas			Methane		
	(Mg/year)	(m ³ /year)	(av ft ³ /min)	(Mg/year)	(m ³ /year)	(av ft ³ /min)
1971	0	0	0	0	0	0
1972	8.588E+02	6.877E+05	4.621E+01	2.294E+02	3.438E+05	2.310E+01
1973	1.684E+03	1.348E+06	9.060E+01	4.498E+02	6.742E+05	4.530E+01
1974	2.477E+03	1.983E+06	1.333E+02	6.616E+02	9.916E+05	6.663E+01
1975	3.238E+03	2.593E+06	1.742E+02	8.650E+02	1.297E+06	8.712E+01
1976	3.970E+03	3.179E+06	2.136E+02	1.061E+03	1.590E+06	1.068E+02
1977	4.673E+03	3.742E+06	2.514E+02	1.248E+03	1.871E+06	1.257E+02
1978	5.349E+03	4.283E+06	2.878E+02	1.429E+03	2.142E+06	1.439E+02
1979	5.998E+03	4.803E+06	3.227E+02	1.602E+03	2.401E+06	1.614E+02
1980	6.622E+03	5.302E+06	3.563E+02	1.769E+03	2.651E+06	1.781E+02
1981	7.221E+03	5.782E+06	3.885E+02	1.929E+03	2.891E+06	1.943E+02
1982	7.797E+03	6.243E+06	4.195E+02	2.083E+03	3.122E+06	2.097E+02
1983	8.350E+03	6.686E+06	4.492E+02	2.230E+03	3.343E+06	2.246E+02
1984	8.881E+03	7.112E+06	4.778E+02	2.372E+03	3.556E+06	2.389E+02
1985	9.392E+03	7.520E+06	5.053E+02	2.509E+03	3.760E+06	2.526E+02
1986	9.882E+03	7.913E+06	5.317E+02	2.640E+03	3.957E+06	2.658E+02
1987	1.087E+04	8.705E+06	5.849E+02	2.904E+03	4.353E+06	2.925E+02
1988	1.194E+04	9.558E+06	6.422E+02	3.188E+03	4.779E+06	3.211E+02
1989	1.297E+04	1.039E+07	6.978E+02	3.464E+03	5.193E+06	3.489E+02
1990	1.405E+04	1.125E+07	7.558E+02	3.752E+03	5.624E+06	3.779E+02
1991	1.533E+04	1.227E+07	8.246E+02	4.094E+03	6.136E+06	4.123E+02
1992	1.654E+04	1.324E+07	8.898E+02	4.418E+03	6.622E+06	4.449E+02
1993	1.752E+04	1.403E+07	9.428E+02	4.681E+03	7.016E+06	4.714E+02
1994	1.833E+04	1.468E+07	9.863E+02	4.897E+03	7.340E+06	4.932E+02
1995	1.911E+04	1.530E+07	1.028E+03	5.104E+03	7.650E+06	5.140E+02
1996	1.983E+04	1.588E+07	1.067E+03	5.297E+03	7.940E+06	5.335E+02
1997	2.049E+04	1.640E+07	1.102E+03	5.472E+03	8.202E+06	5.511E+02
1998	2.103E+04	1.684E+07	1.131E+03	5.617E+03	8.419E+06	5.657E+02
1999	2.149E+04	1.721E+07	1.156E+03	5.741E+03	8.606E+06	5.782E+02
2000	2.193E+04	1.756E+07	1.180E+03	5.858E+03	8.781E+06	5.900E+02
2001	2.231E+04	1.786E+07	1.200E+03	5.959E+03	8.932E+06	6.002E+02
2002	2.271E+04	1.819E+07	1.222E+03	6.067E+03	9.094E+06	6.110E+02
2003	2.280E+04	1.826E+07	1.227E+03	6.091E+03	9.130E+06	6.134E+02
2004	2.283E+04	1.828E+07	1.228E+03	6.098E+03	9.141E+06	6.142E+02
2005	2.334E+04	1.869E+07	1.256E+03	6.235E+03	9.346E+06	6.279E+02
2006	2.408E+04	1.928E+07	1.296E+03	6.432E+03	9.641E+06	6.478E+02
2007	2.475E+04	1.982E+07	1.332E+03	6.611E+03	9.909E+06	6.658E+02
2008	2.559E+04	2.049E+07	1.377E+03	6.836E+03	1.025E+07	6.885E+02
2009	2.642E+04	2.116E+07	1.422E+03	7.057E+03	1.058E+07	7.108E+02
2010	2.717E+04	2.176E+07	1.462E+03	7.257E+03	1.088E+07	7.309E+02
2011	2.708E+04	2.169E+07	1.457E+03	7.234E+03	1.084E+07	7.285E+02
2012	2.602E+04	2.084E+07	1.400E+03	6.950E+03	1.042E+07	7.000E+02
2013	2.500E+04	2.002E+07	1.345E+03	6.678E+03	1.001E+07	6.725E+02
2014	2.402E+04	1.923E+07	1.292E+03	6.416E+03	9.617E+06	6.461E+02
2015	2.308E+04	1.848E+07	1.242E+03	6.164E+03	9.240E+06	6.208E+02
2016	2.217E+04	1.775E+07	1.193E+03	5.922E+03	8.877E+06	5.965E+02
2017	2.130E+04	1.706E+07	1.146E+03	5.690E+03	8.529E+06	5.731E+02
2018	2.047E+04	1.639E+07	1.101E+03	5.467E+03	8.195E+06	5.506E+02
2019	1.967E+04	1.575E+07	1.058E+03	5.253E+03	7.873E+06	5.290E+02
2020	1.889E+04	1.513E+07	1.017E+03	5.047E+03	7.565E+06	5.083E+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)
2021	1.815E+04	1.454E+07	9.767E+02	4.849E+03	7.268E+06	4.883E+02
2022	1.744E+04	1.397E+07	9.384E+02	4.659E+03	6.983E+06	4.692E+02
2023	1.676E+04	1.342E+07	9.016E+02	4.476E+03	6.709E+06	4.508E+02
2024	1.610E+04	1.289E+07	8.662E+02	4.301E+03	6.446E+06	4.331E+02
2025	1.547E+04	1.239E+07	8.323E+02	4.132E+03	6.193E+06	4.161E+02
2026	1.486E+04	1.190E+07	7.996E+02	3.970E+03	5.951E+06	3.998E+02
2027	1.428E+04	1.143E+07	7.683E+02	3.814E+03	5.717E+06	3.841E+02
2028	1.372E+04	1.099E+07	7.382E+02	3.665E+03	5.493E+06	3.691E+02
2029	1.318E+04	1.056E+07	7.092E+02	3.521E+03	5.278E+06	3.546E+02
2030	1.266E+04	1.014E+07	6.814E+02	3.383E+03	5.071E+06	3.407E+02
2031	1.217E+04	9.744E+06	6.547E+02	3.250E+03	4.872E+06	3.273E+02
2032	1.169E+04	9.362E+06	6.290E+02	3.123E+03	4.681E+06	3.145E+02
2033	1.123E+04	8.995E+06	6.044E+02	3.000E+03	4.497E+06	3.022E+02
2034	1.079E+04	8.642E+06	5.807E+02	2.883E+03	4.321E+06	2.903E+02
2035	1.037E+04	8.303E+06	5.579E+02	2.770E+03	4.152E+06	2.789E+02
2036	9.963E+03	7.978E+06	5.360E+02	2.661E+03	3.989E+06	2.680E+02
2037	9.572E+03	7.665E+06	5.150E+02	2.557E+03	3.832E+06	2.575E+02
2038	9.197E+03	7.364E+06	4.948E+02	2.457E+03	3.682E+06	2.474E+02
2039	8.836E+03	7.076E+06	4.754E+02	2.360E+03	3.538E+06	2.377E+02
2040	8.490E+03	6.798E+06	4.568E+02	2.268E+03	3.399E+06	2.284E+02
2041	8.157E+03	6.532E+06	4.389E+02	2.179E+03	3.266E+06	2.194E+02
2042	7.837E+03	6.275E+06	4.216E+02	2.093E+03	3.138E+06	2.108E+02
2043	7.530E+03	6.029E+06	4.051E+02	2.011E+03	3.015E+06	2.026E+02
2044	7.234E+03	5.793E+06	3.892E+02	1.932E+03	2.896E+06	1.946E+02
2045	6.951E+03	5.566E+06	3.740E+02	1.857E+03	2.783E+06	1.870E+02
2046	6.678E+03	5.348E+06	3.593E+02	1.784E+03	2.674E+06	1.797E+02
2047	6.416E+03	5.138E+06	3.452E+02	1.714E+03	2.569E+06	1.726E+02
2048	6.165E+03	4.936E+06	3.317E+02	1.647E+03	2.468E+06	1.658E+02
2049	5.923E+03	4.743E+06	3.187E+02	1.582E+03	2.371E+06	1.593E+02
2050	5.691E+03	4.557E+06	3.062E+02	1.520E+03	2.278E+06	1.531E+02
2051	5.468E+03	4.378E+06	2.942E+02	1.460E+03	2.189E+06	1.471E+02
2052	5.253E+03	4.207E+06	2.826E+02	1.403E+03	2.103E+06	1.413E+02
2053	5.047E+03	4.042E+06	2.716E+02	1.348E+03	2.021E+06	1.358E+02
2054	4.849E+03	3.883E+06	2.609E+02	1.295E+03	1.942E+06	1.305E+02
2055	4.659E+03	3.731E+06	2.507E+02	1.245E+03	1.865E+06	1.253E+02
2056	4.477E+03	3.585E+06	2.408E+02	1.196E+03	1.792E+06	1.204E+02
2057	4.301E+03	3.444E+06	2.314E+02	1.149E+03	1.722E+06	1.157E+02
2058	4.132E+03	3.309E+06	2.223E+02	1.104E+03	1.654E+06	1.112E+02
2059	3.970E+03	3.179E+06	2.136E+02	1.061E+03	1.590E+06	1.068E+02
2060	3.815E+03	3.055E+06	2.052E+02	1.019E+03	1.527E+06	1.026E+02
2061	3.665E+03	2.935E+06	1.972E+02	9.790E+02	1.467E+06	9.859E+01
2062	3.521E+03	2.820E+06	1.895E+02	9.406E+02	1.410E+06	9.473E+01
2063	3.383E+03	2.709E+06	1.820E+02	9.037E+02	1.355E+06	9.101E+01
2064	3.251E+03	2.603E+06	1.749E+02	8.683E+02	1.301E+06	8.745E+01
2065	3.123E+03	2.501E+06	1.680E+02	8.342E+02	1.250E+06	8.402E+01
2066	3.001E+03	2.403E+06	1.614E+02	8.015E+02	1.201E+06	8.072E+01
2067	2.883E+03	2.309E+06	1.551E+02	7.701E+02	1.154E+06	7.756E+01
2068	2.770E+03	2.218E+06	1.490E+02	7.399E+02	1.109E+06	7.452E+01
2069	2.661E+03	2.131E+06	1.432E+02	7.109E+02	1.066E+06	7.159E+01
2070	2.557E+03	2.048E+06	1.376E+02	6.830E+02	1.024E+06	6.879E+01
2071	2.457E+03	1.967E+06	1.322E+02	6.562E+02	9.836E+05	6.609E+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)
2072	2.360E+03	1.890E+06	1.270E+02	6.305E+02	9.451E+05	6.350E+01
2073	2.268E+03	1.816E+06	1.220E+02	6.058E+02	9.080E+05	6.101E+01
2074	2.179E+03	1.745E+06	1.172E+02	5.820E+02	8.724E+05	5.862E+01
2075	2.094E+03	1.676E+06	1.126E+02	5.592E+02	8.382E+05	5.632E+01
2076	2.011E+03	1.611E+06	1.082E+02	5.373E+02	8.053E+05	5.411E+01
2077	1.933E+03	1.547E+06	1.040E+02	5.162E+02	7.737E+05	5.199E+01
2078	1.857E+03	1.487E+06	9.990E+01	4.960E+02	7.434E+05	4.995E+01
2079	1.784E+03	1.429E+06	9.598E+01	4.765E+02	7.143E+05	4.799E+01
2080	1.714E+03	1.373E+06	9.222E+01	4.578E+02	6.863E+05	4.611E+01
2081	1.647E+03	1.319E+06	8.860E+01	4.399E+02	6.593E+05	4.430E+01
2082	1.582E+03	1.267E+06	8.513E+01	4.226E+02	6.335E+05	4.256E+01
2083	1.520E+03	1.217E+06	8.179E+01	4.061E+02	6.087E+05	4.090E+01
2084	1.461E+03	1.170E+06	7.858E+01	3.901E+02	5.848E+05	3.929E+01
2085	1.403E+03	1.124E+06	7.550E+01	3.748E+02	5.619E+05	3.775E+01
2086	1.348E+03	1.080E+06	7.254E+01	3.601E+02	5.398E+05	3.627E+01
2087	1.295E+03	1.037E+06	6.970E+01	3.460E+02	5.187E+05	3.485E+01
2088	1.245E+03	9.966E+05	6.696E+01	3.325E+02	4.983E+05	3.348E+01
2089	1.196E+03	9.576E+05	6.434E+01	3.194E+02	4.788E+05	3.217E+01
2090	1.149E+03	9.200E+05	6.182E+01	3.069E+02	4.600E+05	3.091E+01
2091	1.104E+03	8.839E+05	5.939E+01	2.949E+02	4.420E+05	2.970E+01
2092	1.061E+03	8.493E+05	5.706E+01	2.833E+02	4.246E+05	2.853E+01
2093	1.019E+03	8.160E+05	5.483E+01	2.722E+02	4.080E+05	2.741E+01
2094	9.791E+02	7.840E+05	5.268E+01	2.615E+02	3.920E+05	2.634E+01
2095	9.407E+02	7.532E+05	5.061E+01	2.513E+02	3.766E+05	2.531E+01
2096	9.038E+02	7.237E+05	4.863E+01	2.414E+02	3.619E+05	2.431E+01
2097	8.684E+02	6.953E+05	4.672E+01	2.319E+02	3.477E+05	2.336E+01
2098	8.343E+02	6.681E+05	4.489E+01	2.229E+02	3.340E+05	2.244E+01
2099	8.016E+02	6.419E+05	4.313E+01	2.141E+02	3.209E+05	2.156E+01
2100	7.702E+02	6.167E+05	4.144E+01	2.057E+02	3.084E+05	2.072E+01
2101	7.400E+02	5.925E+05	3.981E+01	1.977E+02	2.963E+05	1.991E+01
2102	7.109E+02	5.693E+05	3.825E+01	1.899E+02	2.846E+05	1.913E+01
2103	6.831E+02	5.470E+05	3.675E+01	1.825E+02	2.735E+05	1.838E+01
2104	6.563E+02	5.255E+05	3.531E+01	1.753E+02	2.628E+05	1.765E+01
2105	6.306E+02	5.049E+05	3.393E+01	1.684E+02	2.525E+05	1.696E+01
2106	6.058E+02	4.851E+05	3.260E+01	1.618E+02	2.426E+05	1.630E+01
2107	5.821E+02	4.661E+05	3.132E+01	1.555E+02	2.330E+05	1.566E+01
2108	5.593E+02	4.478E+05	3.009E+01	1.494E+02	2.239E+05	1.504E+01
2109	5.373E+02	4.303E+05	2.891E+01	1.435E+02	2.151E+05	1.445E+01
2110	5.163E+02	4.134E+05	2.778E+01	1.379E+02	2.067E+05	1.389E+01
2111	4.960E+02	3.972E+05	2.669E+01	1.325E+02	1.986E+05	1.334E+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)
1971	0	0	0	0	0	0
1972	6.294E+02	3.438E+05	2.310E+01	1.467E+00	4.092E+02	2.749E-02
1973	1.234E+03	6.742E+05	4.530E+01	2.876E+00	8.023E+02	5.391E-02
1974	1.815E+03	9.916E+05	6.663E+01	4.230E+00	1.180E+03	7.929E-02
1975	2.373E+03	1.297E+06	8.712E+01	5.531E+00	1.543E+03	1.037E-01
1976	2.910E+03	1.590E+06	1.068E+02	6.780E+00	1.892E+03	1.271E-01
1977	3.425E+03	1.871E+06	1.257E+02	7.981E+00	2.227E+03	1.496E-01
1978	3.920E+03	2.142E+06	1.439E+02	9.135E+00	2.549E+03	1.712E-01
1979	4.396E+03	2.401E+06	1.614E+02	1.024E+01	2.858E+03	1.920E-01
1980	4.853E+03	2.651E+06	1.781E+02	1.131E+01	3.155E+03	2.120E-01
1981	5.292E+03	2.891E+06	1.943E+02	1.233E+01	3.440E+03	2.312E-01
1982	5.714E+03	3.122E+06	2.097E+02	1.332E+01	3.715E+03	2.496E-01
1983	6.119E+03	3.343E+06	2.246E+02	1.426E+01	3.978E+03	2.673E-01
1984	6.509E+03	3.556E+06	2.389E+02	1.517E+01	4.231E+03	2.843E-01
1985	6.883E+03	3.760E+06	2.526E+02	1.604E+01	4.475E+03	3.007E-01
1986	7.243E+03	3.957E+06	2.658E+02	1.688E+01	4.708E+03	3.164E-01
1987	7.967E+03	4.353E+06	2.925E+02	1.857E+01	5.180E+03	3.480E-01
1988	8.748E+03	4.779E+06	3.211E+02	2.039E+01	5.687E+03	3.821E-01
1989	9.506E+03	5.193E+06	3.489E+02	2.215E+01	6.180E+03	4.152E-01
1990	1.030E+04	5.624E+06	3.779E+02	2.399E+01	6.693E+03	4.497E-01
1991	1.123E+04	6.136E+06	4.123E+02	2.618E+01	7.302E+03	4.906E-01
1992	1.212E+04	6.622E+06	4.449E+02	2.824E+01	7.880E+03	5.294E-01
1993	1.284E+04	7.016E+06	4.714E+02	2.993E+01	8.349E+03	5.610E-01
1994	1.344E+04	7.340E+06	4.932E+02	3.131E+01	8.735E+03	5.869E-01
1995	1.400E+04	7.650E+06	5.140E+02	3.263E+01	9.103E+03	6.116E-01
1996	1.453E+04	7.940E+06	5.335E+02	3.387E+01	9.449E+03	6.349E-01
1997	1.501E+04	8.202E+06	5.511E+02	3.498E+01	9.760E+03	6.558E-01
1998	1.541E+04	8.419E+06	5.657E+02	3.591E+01	1.002E+04	6.732E-01
1999	1.575E+04	8.606E+06	5.782E+02	3.671E+01	1.024E+04	6.881E-01
2000	1.607E+04	8.781E+06	5.900E+02	3.746E+01	1.045E+04	7.021E-01
2001	1.635E+04	8.932E+06	6.002E+02	3.810E+01	1.063E+04	7.142E-01
2002	1.665E+04	9.094E+06	6.110E+02	3.879E+01	1.082E+04	7.271E-01
2003	1.671E+04	9.130E+06	6.134E+02	3.894E+01	1.086E+04	7.300E-01
2004	1.673E+04	9.141E+06	6.142E+02	3.899E+01	1.088E+04	7.308E-01
2005	1.711E+04	9.346E+06	6.279E+02	3.986E+01	1.112E+04	7.472E-01
2006	1.765E+04	9.641E+06	6.478E+02	4.113E+01	1.147E+04	7.709E-01
2007	1.814E+04	9.909E+06	6.658E+02	4.227E+01	1.179E+04	7.923E-01
2008	1.876E+04	1.025E+07	6.885E+02	4.371E+01	1.219E+04	8.193E-01
2009	1.936E+04	1.058E+07	7.108E+02	4.512E+01	1.259E+04	8.458E-01
2010	1.991E+04	1.088E+07	7.309E+02	4.640E+01	1.294E+04	8.698E-01
2011	1.985E+04	1.084E+07	7.285E+02	4.625E+01	1.290E+04	8.669E-01
2012	1.907E+04	1.042E+07	7.000E+02	4.444E+01	1.240E+04	8.329E-01
2013	1.832E+04	1.001E+07	6.725E+02	4.269E+01	1.191E+04	8.003E-01
2014	1.760E+04	9.617E+06	6.461E+02	4.102E+01	1.144E+04	7.689E-01
2015	1.691E+04	9.240E+06	6.208E+02	3.941E+01	1.100E+04	7.388E-01
2016	1.625E+04	8.877E+06	5.965E+02	3.787E+01	1.056E+04	7.098E-01
2017	1.561E+04	8.529E+06	5.731E+02	3.638E+01	1.015E+04	6.820E-01
2018	1.500E+04	8.195E+06	5.506E+02	3.495E+01	9.752E+03	6.552E-01
2019	1.441E+04	7.873E+06	5.290E+02	3.358E+01	9.369E+03	6.295E-01
2020	1.385E+04	7.565E+06	5.083E+02	3.227E+01	9.002E+03	6.048E-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)
2021	1.330E+04	7.268E+06	4.883E+02	3.100E+01	8.649E+03	5.811E-01
2022	1.278E+04	6.983E+06	4.692E+02	2.979E+01	8.310E+03	5.583E-01
2023	1.228E+04	6.709E+06	4.508E+02	2.862E+01	7.984E+03	5.364E-01
2024	1.180E+04	6.446E+06	4.331E+02	2.750E+01	7.671E+03	5.154E-01
2025	1.134E+04	6.193E+06	4.161E+02	2.642E+01	7.370E+03	4.952E-01
2026	1.089E+04	5.951E+06	3.998E+02	2.538E+01	7.081E+03	4.758E-01
2027	1.047E+04	5.717E+06	3.841E+02	2.439E+01	6.804E+03	4.571E-01
2028	1.006E+04	5.493E+06	3.691E+02	2.343E+01	6.537E+03	4.392E-01
2029	9.661E+03	5.278E+06	3.546E+02	2.251E+01	6.280E+03	4.220E-01
2030	9.282E+03	5.071E+06	3.407E+02	2.163E+01	6.034E+03	4.054E-01
2031	8.918E+03	4.872E+06	3.273E+02	2.078E+01	5.798E+03	3.895E-01
2032	8.568E+03	4.681E+06	3.145E+02	1.997E+01	5.570E+03	3.743E-01
2033	8.232E+03	4.497E+06	3.022E+02	1.918E+01	5.352E+03	3.596E-01
2034	7.910E+03	4.321E+06	2.903E+02	1.843E+01	5.142E+03	3.455E-01
2035	7.599E+03	4.152E+06	2.789E+02	1.771E+01	4.940E+03	3.319E-01
2036	7.302E+03	3.989E+06	2.680E+02	1.701E+01	4.747E+03	3.189E-01
2037	7.015E+03	3.832E+06	2.575E+02	1.635E+01	4.561E+03	3.064E-01
2038	6.740E+03	3.682E+06	2.474E+02	1.571E+01	4.382E+03	2.944E-01
2039	6.476E+03	3.538E+06	2.377E+02	1.509E+01	4.210E+03	2.829E-01
2040	6.222E+03	3.399E+06	2.284E+02	1.450E+01	4.045E+03	2.718E-01
2041	5.978E+03	3.266E+06	2.194E+02	1.393E+01	3.886E+03	2.611E-01
2042	5.744E+03	3.138E+06	2.108E+02	1.338E+01	3.734E+03	2.509E-01
2043	5.518E+03	3.015E+06	2.026E+02	1.286E+01	3.587E+03	2.410E-01
2044	5.302E+03	2.896E+06	1.946E+02	1.235E+01	3.447E+03	2.316E-01
2045	5.094E+03	2.783E+06	1.870E+02	1.187E+01	3.312E+03	2.225E-01
2046	4.894E+03	2.674E+06	1.797E+02	1.141E+01	3.182E+03	2.138E-01
2047	4.702E+03	2.569E+06	1.726E+02	1.096E+01	3.057E+03	2.054E-01
2048	4.518E+03	2.468E+06	1.658E+02	1.053E+01	2.937E+03	1.973E-01
2049	4.341E+03	2.371E+06	1.593E+02	1.012E+01	2.822E+03	1.896E-01
2050	4.171E+03	2.278E+06	1.531E+02	9.719E+00	2.711E+03	1.822E-01
2051	4.007E+03	2.189E+06	1.471E+02	9.338E+00	2.605E+03	1.750E-01
2052	3.850E+03	2.103E+06	1.413E+02	8.972E+00	2.503E+03	1.682E-01
2053	3.699E+03	2.021E+06	1.358E+02	8.620E+00	2.405E+03	1.616E-01
2054	3.554E+03	1.942E+06	1.305E+02	8.282E+00	2.310E+03	1.552E-01
2055	3.415E+03	1.865E+06	1.253E+02	7.957E+00	2.220E+03	1.492E-01
2056	3.281E+03	1.792E+06	1.204E+02	7.645E+00	2.133E+03	1.433E-01
2057	3.152E+03	1.722E+06	1.157E+02	7.345E+00	2.049E+03	1.377E-01
2058	3.029E+03	1.654E+06	1.112E+02	7.057E+00	1.969E+03	1.323E-01
2059	2.910E+03	1.590E+06	1.068E+02	6.781E+00	1.892E+03	1.271E-01
2060	2.796E+03	1.527E+06	1.026E+02	6.515E+00	1.817E+03	1.221E-01
2061	2.686E+03	1.467E+06	9.859E+01	6.259E+00	1.746E+03	1.173E-01
2062	2.581E+03	1.410E+06	9.473E+01	6.014E+00	1.678E+03	1.127E-01
2063	2.480E+03	1.355E+06	9.101E+01	5.778E+00	1.612E+03	1.083E-01
2064	2.382E+03	1.301E+06	8.745E+01	5.551E+00	1.549E+03	1.041E-01
2065	2.289E+03	1.250E+06	8.402E+01	5.334E+00	1.488E+03	9.998E-02
2066	2.199E+03	1.201E+06	8.072E+01	5.125E+00	1.430E+03	9.606E-02
2067	2.113E+03	1.154E+06	7.756E+01	4.924E+00	1.374E+03	9.229E-02
2068	2.030E+03	1.109E+06	7.452E+01	4.731E+00	1.320E+03	8.867E-02
2069	1.950E+03	1.066E+06	7.159E+01	4.545E+00	1.268E+03	8.520E-02
2070	1.874E+03	1.024E+06	6.879E+01	4.367E+00	1.218E+03	8.186E-02
2071	1.801E+03	9.836E+05	6.609E+01	4.196E+00	1.171E+03	7.865E-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)
2072	1.730E+03	9.451E+05	6.350E+01	4.031E+00	1.125E+03	7.556E-02
2073	1.662E+03	9.080E+05	6.101E+01	3.873E+00	1.081E+03	7.260E-02
2074	1.597E+03	8.724E+05	5.862E+01	3.721E+00	1.038E+03	6.975E-02
2075	1.534E+03	8.382E+05	5.632E+01	3.575E+00	9.974E+02	6.702E-02
2076	1.474E+03	8.053E+05	5.411E+01	3.435E+00	9.583E+02	6.439E-02
2077	1.416E+03	7.737E+05	5.199E+01	3.300E+00	9.208E+02	6.187E-02
2078	1.361E+03	7.434E+05	4.995E+01	3.171E+00	8.847E+02	5.944E-02
2079	1.307E+03	7.143E+05	4.799E+01	3.047E+00	8.500E+02	5.711E-02
2080	1.256E+03	6.863E+05	4.611E+01	2.927E+00	8.166E+02	5.487E-02
2081	1.207E+03	6.593E+05	4.430E+01	2.812E+00	7.846E+02	5.272E-02
2082	1.160E+03	6.335E+05	4.256E+01	2.702E+00	7.539E+02	5.065E-02
2083	1.114E+03	6.087E+05	4.090E+01	2.596E+00	7.243E+02	4.867E-02
2084	1.070E+03	5.848E+05	3.929E+01	2.494E+00	6.959E+02	4.676E-02
2085	1.028E+03	5.619E+05	3.775E+01	2.397E+00	6.686E+02	4.492E-02
2086	9.882E+02	5.398E+05	3.627E+01	2.303E+00	6.424E+02	4.316E-02
2087	9.494E+02	5.187E+05	3.485E+01	2.212E+00	6.172E+02	4.147E-02
2088	9.122E+02	4.983E+05	3.348E+01	2.126E+00	5.930E+02	3.984E-02
2089	8.764E+02	4.788E+05	3.217E+01	2.042E+00	5.698E+02	3.828E-02
2090	8.420E+02	4.600E+05	3.091E+01	1.962E+00	5.474E+02	3.678E-02
2091	8.090E+02	4.420E+05	2.970E+01	1.885E+00	5.259E+02	3.534E-02
2092	7.773E+02	4.246E+05	2.853E+01	1.811E+00	5.053E+02	3.395E-02
2093	7.468E+02	4.080E+05	2.741E+01	1.740E+00	4.855E+02	3.262E-02
2094	7.175E+02	3.920E+05	2.634E+01	1.672E+00	4.665E+02	3.134E-02
2095	6.894E+02	3.766E+05	2.531E+01	1.606E+00	4.482E+02	3.011E-02
2096	6.624E+02	3.619E+05	2.431E+01	1.544E+00	4.306E+02	2.893E-02
2097	6.364E+02	3.477E+05	2.336E+01	1.483E+00	4.137E+02	2.780E-02
2098	6.115E+02	3.340E+05	2.244E+01	1.425E+00	3.975E+02	2.671E-02
2099	5.875E+02	3.209E+05	2.156E+01	1.369E+00	3.819E+02	2.566E-02
2100	5.644E+02	3.084E+05	2.072E+01	1.315E+00	3.669E+02	2.465E-02
2101	5.423E+02	2.963E+05	1.991E+01	1.264E+00	3.526E+02	2.369E-02
2102	5.210E+02	2.846E+05	1.913E+01	1.214E+00	3.387E+02	2.276E-02
2103	5.006E+02	2.735E+05	1.838E+01	1.167E+00	3.254E+02	2.187E-02
2104	4.810E+02	2.628E+05	1.765E+01	1.121E+00	3.127E+02	2.101E-02
2105	4.621E+02	2.525E+05	1.696E+01	1.077E+00	3.004E+02	2.019E-02
2106	4.440E+02	2.426E+05	1.630E+01	1.035E+00	2.886E+02	1.939E-02
2107	4.266E+02	2.330E+05	1.566E+01	9.941E-01	2.773E+02	1.863E-02
2108	4.099E+02	2.239E+05	1.504E+01	9.551E-01	2.665E+02	1.790E-02
2109	3.938E+02	2.151E+05	1.445E+01	9.176E-01	2.560E+02	1.720E-02
2110	3.784E+02	2.067E+05	1.389E+01	8.817E-01	2.460E+02	1.653E-02
2111	3.635E+02	1.986E+05	1.334E+01	8.471E-01	2.363E+02	1.588E-02

Landfill Name or Identifier: Clark-Floyd Landfill - Existing Closure 2012

2010

Gas / Pollutant	Emission Rate				
	(Mg/year)	(m ³ /year)	(av ft ³ /min)	(ft ³ /year)	(short tons/year)
Total landfill gas	2.717E+04	2.176E+07	1.462E+03	7.683E+08	2.989E+04
Methane	7.257E+03	1.088E+07	7.309E+02	3.842E+08	7.983E+03
Carbon dioxide	1.991E+04	1.088E+07	7.309E+02	3.842E+08	2.190E+04
NMOC	4.640E+01	1.294E+04	8.698E-01	4.571E+05	5.104E+01
1,1,1-Trichloroethane (methyl chloroform) - HAP	5.795E-02	1.044E+01	7.017E-04	3.688E+02	6.374E-02
1,1,2,2-Tetrachloroethane - HAP/VOC	1.671E-01	2.393E+01	1.608E-03	8.451E+02	1.838E-01
1,1-Dichloroethane (ethylidene dichloride) - HAP/VOC	2.149E-01	5.221E+01	3.508E-03	1.844E+03	2.364E-01
1,1-Dichloroethene (vinylidene chloride) - HAP/VOC	1.754E-02	4.351E+00	2.924E-04	1.537E+02	1.930E-02
1,2-Dichloroethane (ethylene dichloride) - HAP/VOC	3.671E-02	8.920E+00	5.993E-04	3.150E+02	4.039E-02
1,2-Dichloropropane (propylene dichloride) - HAP/VOC	1.840E-02	3.916E+00	2.631E-04	1.383E+02	2.024E-02
2-Propanol (isopropyl alcohol) - VOC	2.720E+00	1.088E+03	7.309E-02	3.842E+04	2.992E+00
Acetone	3.679E-01	1.523E+02	1.023E-02	5.378E+03	4.047E-01
Acrylonitrile - HAP/VOC	3.025E-01	1.371E+02	9.209E-03	4.840E+03	3.327E-01
Benzene - No or Unknown Co-disposal - HAP/VOC	1.343E-01	4.134E+01	2.777E-03	1.460E+03	1.477E-01
Benzene - Co-disposal - HAP/VOC	7.775E-01	2.393E+02	1.608E-02	8.451E+03	8.552E-01
Bromodichloromethane - VOC	4.596E-01	6.744E+01	4.532E-03	2.382E+03	5.055E-01
Butane - VOC	2.630E-01	1.088E+02	7.309E-03	3.842E+03	2.893E-01
Carbon disulfide - HAP/VOC	3.996E-02	1.262E+01	8.478E-04	4.456E+02	4.395E-02
Carbon monoxide	3.548E+00	3.046E+03	2.047E-01	1.076E+05	3.903E+00
Carbon tetrachloride - HAP/VOC	5.568E-04	8.702E-02	5.847E-06	3.073E+00	6.125E-04
Carbonyl sulfide - HAP/VOC	2.663E-02	1.066E+01	7.163E-04	3.765E+02	2.930E-02
Chlorobenzene - HAP/VOC	2.546E-02	5.439E+00	3.654E-04	1.921E+02	2.801E-02
Chlorodifluoromethane	1.017E-01	2.828E+01	1.900E-03	9.988E+02	1.119E-01
Chloroethane (ethyl chloride) - HAP/VOC	7.590E-02	2.828E+01	1.900E-03	9.988E+02	8.349E-02
Chloroform - HAP/VOC	3.241E-03	6.527E-01	4.385E-05	2.305E+01	3.565E-03
Chloromethane - VOC	5.483E-02	2.611E+01	1.754E-03	9.220E+02	6.031E-02
Dichlorobenzene - (HAP for para isomer/VOC)	2.793E-02	4.569E+00	3.070E-04	1.613E+02	3.073E-02
Dichlorodifluoromethane	1.751E+00	3.481E+02	2.339E-02	1.229E+04	1.926E+00
Dichlorofluoromethane - VOC	2.421E-01	5.657E+01	3.801E-03	1.998E+03	2.664E-01
Dichloromethane (methylene chloride) - HAP	1.076E+00	3.046E+02	2.047E-02	1.076E+04	1.184E+00
Dimethyl sulfide (methyl sulfide) - VOC	4.385E-01	1.697E+02	1.140E-02	5.993E+03	4.824E-01
Ethane	2.422E+01	1.936E+04	1.301E+00	6.838E+05	2.664E+01
Ethanol - VOC	1.126E+00	5.874E+02	3.947E-02	2.074E+04	1.238E+00
Ethyl mercaptan (ethanethiol) - VOC	1.293E-01	5.004E+01	3.362E-03	1.767E+03	1.422E-01
Ethylbenzene - HAP/VOC	4.419E-01	1.001E+02	6.724E-03	3.534E+03	4.861E-01
Ethylene dibromide - HAP/VOC	1.700E-04	2.176E-02	1.462E-06	7.683E-01	1.870E-04
Fluorotrichloromethane - VOC	9.448E-02	1.653E+01	1.111E-03	5.839E+02	1.039E-01
Hexane - HAP/VOC	5.147E-01	1.436E+02	9.648E-03	5.071E+03	5.662E-01
Hydrogen sulfide	1.110E+00	7.832E+02	5.262E-02	2.766E+04	1.221E+00
Mercury (total) - HAP	5.264E-05	6.309E-03	4.239E-07	2.228E-01	5.791E-05
Methyl ethyl ketone - HAP/VOC	4.633E-01	1.545E+02	1.038E-02	5.455E+03	5.096E-01
Methyl isobutyl ketone - HAP/VOC	1.722E-01	4.134E+01	2.777E-03	1.460E+03	1.894E-01
Methyl mercaptan - VOC	1.088E-01	5.439E+01	3.654E-03	1.921E+03	1.197E-01
Pentane - VOC	2.155E-01	7.180E+01	4.824E-03	2.535E+03	2.370E-01
Perchloroethylene (tetrachloroethylene) - HAP	5.552E-01	8.050E+01	5.409E-03	2.843E+03	6.107E-01



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We Protect Hoosiers and Our Environment.

Michael R. Pence
Governor

Thomas W. Easterly
Commissioner

100 North Senate Avenue
Indianapolis, Indiana 46204
(317) 232-8603
Toll Free (800) 451-6027
www.idem.IN.gov

SENT VIA U.S. MAIL: CONFIRMED DELIVERY AND SIGNATURE REQUESTED

TO: Robert E Lee
Clark-Floyd Landfill
6108 Sable Mill Court
Jeffersonville, IN 47130

DATE: April 19, 2013

FROM: Matt Stuckey, Branch Chief
Permits Branch
Office of Air Quality

SUBJECT: Final Decision
Significant Permit Modification
019-31708-00097

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:
Michael C Harrison – Jacobi, Toombs & Lanz, Inc.
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.

Final Applicant Cover letter.dot 11/30/07



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We Protect Hoosiers and Our Environment.

Michael R. Pence
Governor

Thomas W. Easterly
Commissioner

100 North Senate Avenue
Indianapolis, Indiana 46204
(317) 232-8603
Toll Free (800) 451-6027
www.idem.IN.gov

April 19, 2013

TO: Clark County Public Library – Borden Branch

From: Matthew Stuckey, Branch Chief
Permits Branch
Office of Air Quality

Subject: **Important Information for Display Regarding a Final Determination**


Applicant Name: Clark-Floyd Landfill
Permit Number: 019-31708-00097

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 11/30/07

Mail Code 61-53

IDEM Staff	GHOTOPP 4/19/2013 Clark-Floyd Landfill 019-31708-00097 Final			AFFIX STAMP HERE IF USED AS CERTIFICATE OF MAILING
Name and address of Sender		Indiana Department of Environmental Management Office of Air Quality – Permits Branch 100 N. Senate Indianapolis, IN 46204	Type of Mail: CERTIFICATE OF MAILING ONLY	

Line	Article Number	Name, Address, Street and Post Office Address	Postage	Handling Charges	Act. Value (If Registered)	Insured Value	Due Send if COD	R.R. Fee	S.D. Fee	S.H. Fee	Rest. Del. Fee
											Remarks
1		Roebert E Lee Clark-Floyd Landfill 6108 Sable Mill Ct Jeffersonville IN 47130 (Source CAATS) via confirmed delivery									
2		Clark County Public Library - Borden Branch 117 Main St Borden IN 47106 (Library)									
3		Ms. Rhonda England 17213 Persimmon Run Rd Borden IN 47106-8604 (Affected Party)									
4		Ms. Betty Hislip 602 Dartmouth Drive, Apt 8 Clarksville IN 47129 (Affected Party)									
5		Clarksville Town Council 2000 Broadway Clarksville IN 47129 (Local Official)									
6		Mrs. Sandy Banet 514 Haddox Rd Henryville IN 47126 (Affected Party)									
7		Mr. Robert Bottom Paddlewheel Alliance P.O. Box 35531 Louisville KY 40232-5531 (Affected Party)									
8		Clark County Board of Commissioners 501 E. Court Avenue Jeffersonville IN 47130 (Local Official)									
9		Clark County Health Department 1320 Duncan Avenue Jeffersonville IN 47130-3723 (Health Department)									
10		Michael C. Harris Jacobi, Toombs & Lanz, Inc. 120 Bell Ave Clarksville IN 47129 (Consultant)									
11											
12											
13											
14											
15											

Total number of pieces Listed by Sender	Total number of Pieces Received at Post Office	Postmaster, Per (Name of Receiving employee)	The full declaration of value is required on all domestic and international registered mail. The maximum indemnity payable for the reconstruction of nonnegotiable documents under Express Mail document reconstructing insurance is \$50,000 per piece subject to a limit of \$50, 000 per occurrence. The maximum indemnity payable on Express mil merchandise insurance is \$500. The maximum indemnity payable is \$25,000 for registered mail, sent with optional postal insurance. See Domestic Mail Manual R900, S913, and S921 for limitations of coverage on inured and COD mail. See International Mail Manual for limitations o coverage on international mail. Special handling charges apply only to Standard Mail (A) and Standard Mail (B) parcels.
9			