

module AB-529

O'Leigh - Ann

**LEE/HENDRY COUNTY REGIONAL  
SOLID WASTE DISPOSAL FACILITY  
APPLICATION FOR TITLE V  
AIR OPERATION PERMIT RENEWAL**

**PERMIT NO.: 0510030-002-AV**

*Submitted to:*

**FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION  
DIVISION OF AIR RESOURCE MANAGEMENT  
OFFICE OF AIR PERMITTING AND COMPLIANCE  
2600 Blair Stone Road, MS 5500  
Tallahassee, Florida 32399**

*Prepared for:*

**LEE COUNTY SOLID WASTE DIVISION  
10500 Buckingham Road  
Fort Myers, Florida 33905**

*Prepared by*

**JONES EDMUNDS & ASSOCIATES, INC.  
730 NE Waldo Road  
Gainesville, Florida 32641**

Certificate of Authorization #1841

NOVEMBER 2013



November 26, 2013

RECEIVED

NOV 27 2013

DIVISION OF AIR  
RESOURCE MANAGEMENT

Syed Arif, PE  
Program Administrator  
Office of Permitting and Compliance  
Division of Air Resource Management  
Florida Department of Environmental Protection  
2600 Blair Stone Road MS 5500  
Tallahassee, Florida 32399-2400

RE: Lee County Solid Waste Division  
Lee/Hendry County Regional Solid Waste Disposal Facility  
Air Operations Permit Renewal Application  
Title V Permit No.: 0510030-003-AV  
Jones Edmunds Project No.: 12345-007-01

Dear Mr. Arif:

On behalf of the Lee County Solid Waste Division, Jones Edmunds & Associates, Inc. is providing the enclosed Air Operation Permit Renewal Application for the Lee/Hendry County Regional Solid Waste Disposal Facility near Felda, Florida.

As you know, the facility is subject to the requirements of 40 CFR 60 Subpart WWW for nonmethane organic compound (NMOC) emissions and operates under Title V Permit 0510030-003-AV. The facility is in the process of expanding the Ash Monofill and design capacity calculations were provided to you in a letter dated June 27, 2013.

The facility is required to calculate the NMOC emission rate annually using the procedures specified in 40 CFR 60.754, based on a site-specific NMOC concentration obtained by Tier 2 sampling and analysis. NMOC sampling and analysis was performed in April 2013 and the NMOC emission rate recalculation was submitted on June 27, 2013. These calculations show that the NMOC emission rate has not exceeded the 50 megagrams of NMOCs per year threshold. Therefore, a collection and control system is not required by 40 CFR 60 Subpart WWW.

Syed Arif  
November 26, 2013  
Page 2

If you have any questions or comments, please contact me at (352) 377-5821 or  
tmcknight@jonesedmunds.com.

Sincerely,

A handwritten signature in black ink, appearing to read "Tobin McKnight". The signature is fluid and cursive, with the first name "Tobin" and last name "McKnight" clearly distinguishable.

Tobin McKnight, PE  
Project Engineer

W:\12345\007011000\Title\2013-11-26-LTR-Sarif-Title\RenewalApplication-TMcKnight.doc

XC: Keith Howard, Lee County  
Laura Gray, Lee County  
Ajaya Satyal, FDEP

**LEE/HENDRY COUNTY REGIONAL  
SOLID WASTE DISPOSAL FACILITY  
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10500 Buckingham Road  
Fort Myers, Florida 33905

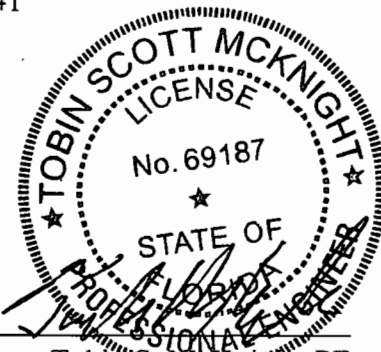
*Prepared by:*

**JONES EDMUNDS & ASSOCIATES, INC.**

730 Northeast Waldo Road  
Gainesville, Florida 32641

PE Certificate of Authorization #1841

November 2013



Tobin S. Mcknight, PE  
Florida PE No. 69187

11/26/2013

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## INTRODUCTION

## INTRODUCTION

This permit application and supporting information are being submitted on behalf of the Lee County Solid Waste Division to renew the Title V Air Operation Permit for the Lee/Hendry County Regional Solid Waste Disposal Facility. The Facility is located 3 miles north of State Road 82 and 6 miles west of State Road 29 near Felda, Florida, in Hendry County. The Facility occupies Sections 4, 9, and 16, Township 45S, Range 28E, and the Facility entrance is at 26° 33' 27" N, 81° 31' 51" E at the intersection of Church Road and South Church Road. The Facility consists of a 38-acre Class I Landfill, 25-acre Class III Landfill, 16-acre Ash Monofill, composting facility, and various ancillary facilities including stormwater management system, leachate surface impoundments, office, leachate deep injection well, and scale house. Florida Department of Environmental Protection (FDEP) Solid Waste Program issued a Notice of Intent to Issue Permit No. 0130719-016-SC/00 on October 22, 2013, for the 20-acre lateral expansion of the Ash Monofill that will be constructed in 2014.

The Facility operates under FDEP Title V Permit No. 0510030-002-AV issued July 13, 2009, as revised by Administrative Correction 0510030-003-AV issued December 27, 2012. The Facility is subject to the requirements of 40 CFR 60, Subpart WWW, *Standards of Performance for Municipal Solid Waste Landfills*. The initial Title V Air Operation permit application was submitted December 11, 2008, with a design capacity of 3.89 million megagrams. The design capacity increased to 5.92 million megagrams with the Ash Monofill Expansion as indicated in the June 27, 2013 correspondence to the FDEP Division of Air Resource Management provided in Appendix A. Tier 2 sampling and analysis were completed April 18, 2013, and the results were provided to FDEP with non-methane organic compounds (NMOC) emission rate recalculation on June 27, 2013. A copy of this correspondence is provided in Appendix B.

This application proposes a renewal of the Title V Air Operation permit that expires on July 12, 2014. The renewal application due date is November 29, 2013, in accordance with the December 27, 2012 administrative correction. This permit application includes the *Application for Air Permit – Long Form* (FDEP Form 62-210.900(1), FAC) and supporting information. The attachments include figures, calculations, and supporting information.

**APPLICATION FOR AIR PERMIT – LONG FORM  
FDEP FORM 62-210.900(1)**





## APPLICATION INFORMATION

### Purpose of Application

**This application for air permit is being submitted to obtain: (Check one)**

#### **Air Construction Permit**

- Air construction permit.
- Air construction permit to establish, revise, or renew a plantwide applicability limit (PAL).
- Air construction permit to establish, revise, or renew a plantwide applicability limit (PAL), and separate air construction permit to authorize construction or modification of one or more emissions units covered by the PAL.

#### **Air Operation Permit**

- Initial Title V air operation permit.
- Title V air operation permit revision.
- Title V air operation permit renewal.
- Initial federally enforceable state air operation permit (FESOP) where professional engineer (PE) certification is required.
- Initial federally enforceable state air operation permit (FESOP) where professional engineer (PE) certification is not required.

#### **Air Construction Permit and Revised/Renewal Title V Air Operation Permit (Concurrent Processing)**

- Air construction permit and Title V permit revision, incorporating the proposed project.
- Air construction permit and Title V permit renewal, incorporating the proposed project.

**Note: By checking one of the above two boxes, you, the applicant, are requesting concurrent processing pursuant to Rule 62-213.405, F.A.C. In such case, you must also check the following box:**

- I hereby request that the department waive the processing time requirements of the air construction permit to accommodate the processing time frames of the Title V air operation permit.

### Application Comment

**This permit application is for the renewal of the Lee/Hendry County Regional Solid Waste Disposal Facility's Title V Air Operation Permit No 0510030-002-AV, which expires July 12, 2014. According to administrative correction No. 0510030-003-AV, the renewal due date is November 29, 2013. The facility includes Class I Landfill, Class III Landfill, and an Ash Monofill and has a total design capacity of approximately 6 million megagrams.**



## APPLICATION INFORMATION

### Owner/Authorized Representative Statement

Complete if applying for an air construction permit or an initial FESOP.

1. Owner/Authorized Representative Name: <b>Not Applicable</b>	
2. Owner/Authorized Representative Mailing Address... Organization/Firm: Street Address: City: State: Zip Code:	
3. Owner/Authorized Representative Telephone Numbers... Telephone: ( ) - ext. Fax: ( ) -	
4. Owner/Authorized Representative E-mail Address:	
5. Owner/Authorized Representative Statement: <i>I, the undersigned, am the owner or authorized representative of the corporation, partnership, or other legal entity submitting this air permit application. To the best of my knowledge, the statements made in this application are true, accurate and complete, and any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department.</i>	
_____ Signature	_____ Date

## APPLICATION INFORMATION

### Application Responsible Official Certification

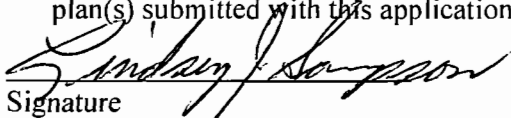
Complete if applying for an initial, revised, or renewal Title V air operation permit or concurrent processing of an air construction permit and revised or renewal Title V air operation permit. If there are multiple responsible officials, the "application responsible official" need not be the "primary responsible official."

1. Application Responsible Official Name: <b>Lindsey J. Sampson, PE</b>
2. Application Responsible Official Qualification (Check one or more of the following options, as applicable): <input type="checkbox"/> For a corporation, the president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit under Chapter 62-213, F.A.C. <input type="checkbox"/> For a partnership or sole proprietorship, a general partner or the proprietor, respectively. <input checked="" type="checkbox"/> For a municipality, county, state, federal, or other public agency, either a principal executive officer or ranking elected official. <input type="checkbox"/> The designated representative at an Acid Rain source or CAIR source.
3. Application Responsible Official Mailing Address... Organization/Firm: <b>Lee County Solid Waste Division</b> Street Address: <b>10500 Buckingham Road</b> City: <b>Fort Myers</b> State: <b>Florida</b> Zip Code: <b>33905</b>
4. Application Responsible Official Telephone Numbers... Telephone: <b>(239) 533-8000</b> ext. Fax: <b>(239) 461-5871</b>
5. Application Responsible Official E-mail Address: <b>lsampson@leegov.com</b>

**APPLICATION INFORMATION**

**6. Application Responsible Official Certification:**

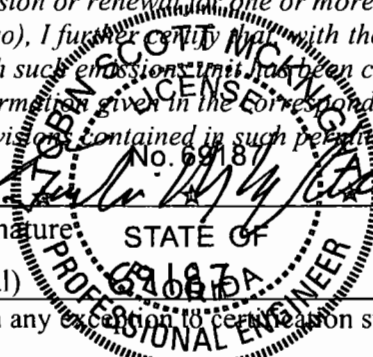
I, the undersigned, am a responsible official of the Title V source addressed in this air permit application. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof and all other applicable requirements identified in this application to which the Title V source is subject. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department, and I will promptly notify the department upon sale or legal transfer of the facility or any permitted emissions unit. Finally, I certify that the facility and each emissions unit are in compliance with all applicable requirements to which they are subject, except as identified in compliance plan(s) submitted with this application.

  
Signature

11/26/2013  
Date

**APPLICATION INFORMATION**

**Professional Engineer Certification**

1. Professional Engineer Name: <b>Tobin S. McKnight, PE</b> Registration Number: <b>69187</b>
2. Professional Engineer Mailing Address... Organization/Firm: <b>Jones Edmunds &amp; Associates, Inc.</b> Street Address: <b>730 NE Waldo Road</b> City: <b>Gainesville</b> State: <b>Florida</b> Zip Code: <b>32641</b>
3. Professional Engineer Telephone Numbers... Telephone: <b>(352) 377-5821</b> ext. Fax: <b>(352) 377-3166</b>
4. Professional Engineer E-mail Address: <b>tmcknight@jonesedmunds.com</b>
5. Professional Engineer Statement: <i>I, the undersigned, hereby certify, except as particularly noted herein*, that:</i> <i>(1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this application for air permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and</i> <i>(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.</i> <i>(3) If the purpose of this application is to obtain a Title V air operation permit (check here <input checked="" type="checkbox"/> , if so), I further certify that each emissions unit described in this application for air permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance plan and schedule is submitted with this application.</i> <i>(4) If the purpose of this application is to obtain an air construction permit (check here <input type="checkbox"/> , if so) or concurrently process and obtain an air construction permit and a Title V air operation permit revision or renewal for one or more proposed new or modified emissions units (check here <input type="checkbox"/> , if so), I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.</i> <i>(5) If the purpose of this application is to obtain an initial air operation permit or operation permit revision or renewal for one or more newly constructed or modified emissions units (check here <input type="checkbox"/> , if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.</i>  Signature: _____ Date: <u>11/26/2013</u> (seal) 

\* Attach any exception to certification statement.

## II. FACILITY INFORMATION

### A. GENERAL FACILITY INFORMATION

#### Facility Location and Type

1. Facility UTM Coordinates... Zone <b>17</b> East (km) <b>456.63</b> North (km) <b>2934.20</b>		2. Facility Latitude/Longitude... Latitude (DD/MM/SS) <b>26/34/20</b> Longitude (DD/MM/SS) <b>81/31/32</b>	
3. Governmental Facility Code: <b>3</b>	4. Facility Status Code: <b>A</b>	5. Facility Major Group SIC Code: <b>49</b>	6. Facility SIC(s): <b>4953</b>
7. Facility Comment :  <p style="text-align: center;"><b>The facility is a solid waste management facility consisting of a Class I Landfill; Ash Monofill, and Class III Landfill that is subject to the requirements of 40 CFR 60 Subpart WWW, Standards of Performance for Municipal Solid Waste Landfills.</b></p>			

#### Facility Contact

1. Facility Contact Name: <b>Laura A. Gray, PE</b>
2. Facility Contact Mailing Address... Organization/Firm: <b>Lee County Solid Waste Division</b> Street Address: <b>10500 Buckingham Road</b> City: <b>Fort Myers</b> State: <b>Florida</b> Zip Code: <b>33905</b>
3. Facility Contact Telephone Numbers: Telephone: <b>(239) 533-8000</b> ext.                      Fax: <b>(239) 461-5871</b>
4. Facility Contact E-mail Address: <b>lgray@leegov.com</b>

#### Facility Primary Responsible Official

**Complete if an "application responsible official" is identified in Section I that is not the facility "primary responsible official."**

1. Facility Primary Responsible Official Name: <b>Lindsey J. Sampson, PE</b>
2. Facility Primary Responsible Official Mailing Address... Organization/Firm: <b>Lee County Solid Waste Division</b> Street Address: <b>10500 Buckingham Road</b> City: <b>Fort Myers</b> State: <b>Florida</b> Zip Code: <b>33905</b>
3. Facility Primary Responsible Official Telephone Numbers... Telephone: <b>(239) 533-8000</b> ext.                      Fax: <b>(239) 461-5871</b>
4. Facility Primary Responsible Official E-mail Address: <b>lsampson@leegov.com</b>



## FACILITY INFORMATION

### Facility Regulatory Classifications

Check all that would apply *following* completion of all projects and implementation of all other changes proposed in this application for air permit. Refer to instructions to distinguish between a “major source” and a “synthetic minor source.”

1. <input type="checkbox"/> Small Business Stationary Source	<input type="checkbox"/> Unknown
2. <input type="checkbox"/> Synthetic Non-Title V Source	
3. <input checked="" type="checkbox"/> Title V Source	
4. <input type="checkbox"/> Major Source of Air Pollutants, Other than Hazardous Air Pollutants (HAPs)	
5. <input type="checkbox"/> Synthetic Minor Source of Air Pollutants, Other than HAPs	
6. <input type="checkbox"/> Major Source of Hazardous Air Pollutants (HAPs)	
7. <input type="checkbox"/> Synthetic Minor Source of HAPs	
8. <input checked="" type="checkbox"/> One or More Emissions Units Subject to NSPS (40 CFR Part 60)	
9. <input type="checkbox"/> One or More Emissions Units Subject to Emission Guidelines (40 CFR Part 60)	
10. <input type="checkbox"/> One or More Emissions Units Subject to NESHAP (40 CFR Part 61 or Part 63)	
11. <input type="checkbox"/> Title V Source Solely by EPA Designation (40 CFR 70.3(a)(5))	
12. Facility Regulatory Classifications Comment:  <b>This facility is subject to the requirements of 40 CFR 60 Subpart WWW, Standards of Performance for Municipal Solid Waste Landfills.</b>	

## FACILITY INFORMATION

### List of Pollutants Emitted by Facility

1. Pollutant Emitted	2. Pollutant Classification	3. Emissions Cap [Y or N]?
<b>NMOC</b>	<b>B</b>	<b>N</b>
<b>PM</b>	<b>B</b>	<b>N</b>
<b>CO</b>	<b>B</b>	<b>N</b>
<b>NOX</b>	<b>B</b>	<b>N</b>
<b>SO2</b>	<b>B</b>	<b>N</b>
<b>VOC</b>	<b>B</b>	<b>N</b>
<b>HAP</b>	<b>B</b>	<b>N</b>
<b>Greenhouse Gasses (GHG)</b>	<b>B</b>	<b>N</b>



## FACILITY INFORMATION

### C. FACILITY ADDITIONAL INFORMATION

#### Additional Requirements for All Applications, Except as Otherwise Stated

1.	Facility Plot Plan: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input checked="" type="checkbox"/> Attached, Document ID: <u>Attach. II.C.1</u> <input type="checkbox"/> Previously Submitted, Date: _____
2.	Process Flow Diagram(s): (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input checked="" type="checkbox"/> Attached, Document ID: <u>Attach. II.C.2</u> <input type="checkbox"/> Previously Submitted, Date: _____
3.	Precautions to Prevent Emissions of Unconfined Particulate Matter: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input checked="" type="checkbox"/> Attached, Document ID: <u>Attach. II.C.3</u> <input type="checkbox"/> Previously Submitted, Date: _____

#### Additional Requirements for Air Construction Permit Applications

1.	Area Map Showing Facility Location: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable (existing permitted facility)
2.	Description of Proposed Construction, Modification, or Plantwide Applicability Limit (PAL): <input type="checkbox"/> Attached, Document ID: _____
3.	Rule Applicability Analysis: <input type="checkbox"/> Attached, Document ID: _____
4.	List of Exempt Emissions Units: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable (no exempt units at facility)
5.	Fugitive Emissions Identification: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
6.	Air Quality Analysis (Rule 62-212.400(7), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
7.	Source Impact Analysis (Rule 62-212.400(5), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
8.	Air Quality Impact since 1977 (Rule 62-212.400(4)(e), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
9.	Additional Impact Analyses (Rules 62-212.400(8) and 62-212.500(4)(e), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
10.	Alternative Analysis Requirement (Rule 62-212.500(4)(g), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable

## FACILITY INFORMATION

### C. FACILITY ADDITIONAL INFORMATION (CONTINUED)

#### Additional Requirements for FESOP Applications

- |  |
|--|
| 1. List of Exempt Emissions Units:<br><input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable (no exempt units at facility) |
|--|

#### Additional Requirements for Title V Air Operation Permit Applications

- |   |
|---|
| 1. List of Insignificant Activities: (Required for initial/renewal applications only)<br><input checked="" type="checkbox"/> Attached, Document ID: <u>Attach. II.C.4</u> <input type="checkbox"/> Not Applicable (revision application)  |
| 2. Identification of Applicable Requirements: (Required for initial/renewal applications, and for revision applications if this information would be changed as a result of the revision being sought)<br><input checked="" type="checkbox"/> Attached, Document ID: <u>Attach. II.C.5</u><br><input type="checkbox"/> Not Applicable (revision application with no change in applicable requirements)  |
| 3. Compliance Report and Plan: (Required for all initial/revision/renewal applications)<br><input checked="" type="checkbox"/> Attached, Document ID: <u>Attach. II.C.6</u><br>Note: A compliance plan must be submitted for each emissions unit that is not in compliance with all applicable requirements at the time of application and/or at any time during application processing. The department must be notified of any changes in compliance status during application processing. |
| 4. List of Equipment/Activities Regulated under Title VI: (If applicable, required for initial/renewal applications only)<br><input type="checkbox"/> Attached, Document ID: _____<br><input type="checkbox"/> Equipment/Activities Onsite but Not Required to be Individually Listed<br><input checked="" type="checkbox"/> Not Applicable   |
| 5. Verification of Risk Management Plan Submission to EPA: (If applicable, required for initial/renewal applications only)<br><input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable  |
| 6. Requested Changes to Current Title V Air Operation Permit:<br><input checked="" type="checkbox"/> Attached, Document ID: <u>Attach. II.C.7</u> <input type="checkbox"/> Not Applicable   |

**FACILITY INFORMATION**

**C. FACILITY ADDITIONAL INFORMATION (CONTINUED)**

**Additional Requirements for Facilities Subject to Acid Rain, CAIR, or Hg Budget Program**

1. Acid Rain Program Forms:

Acid Rain Part Application (DEP Form No. 62-210.900(1)(a)):

Attached, Document ID: \_\_\_\_\_  Previously Submitted, Date: \_\_\_\_\_

Not Applicable (not an Acid Rain source)

Phase II NO<sub>x</sub> Averaging Plan (DEP Form No. 62-210.900(1)(a)1.):

Attached, Document ID: \_\_\_\_\_  Previously Submitted, Date: \_\_\_\_\_

Not Applicable

New Unit Exemption (DEP Form No. 62-210.900(1)(a)2.):

Attached, Document ID: \_\_\_\_\_  Previously Submitted, Date: \_\_\_\_\_

Not Applicable

2. CAIR Part (DEP Form No. 62-210.900(1)(b)):

Attached, Document ID: \_\_\_\_\_  Previously Submitted, Date: \_\_\_\_\_

Not Applicable (not a CAIR source)

**Additional Requirements Comment**

## EMISSIONS UNIT INFORMATION

Section [ 1 ] of [ 1 ]

### III. EMISSIONS UNIT INFORMATION

**Title V Air Operation Permit Application** - For Title V air operation permitting only, emissions units are classified as regulated, unregulated, or insignificant. If this is an application for an initial, revised or renewal Title V air operation permit, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each regulated and unregulated emissions unit addressed in this application. Some of the subsections comprising the Emissions Unit Information Section of the form are optional for unregulated emissions units. Each such subsection is appropriately marked. Insignificant emissions units are required to be listed at Section II, Subsection C.

**Air Construction Permit or FESOP Application** - For air construction permitting or federally enforceable state air operation permitting, emissions units are classified as either subject to air permitting or exempt from air permitting. The concept of an “unregulated emissions unit” does not apply. If this is an application for an air construction permit or FESOP, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air permitting are required to be listed at Section II, Subsection C.

**Air Construction Permit and Revised/Renewal Title V Air Operation Permit Application** – Where this application is used to apply for both an air construction permit and a revised or renewal Title V air operation permit, each emissions unit is classified as either subject to air permitting or exempt from air permitting for air construction permitting purposes, and as regulated, unregulated, or insignificant for Title V air operation permitting purposes. A separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit addressed in this application that is subject to air construction permitting and for each such emissions unit that is a regulated or unregulated unit for purposes of Title V permitting. (An emissions unit may be exempt from air construction permitting but still be classified as an unregulated unit for Title V purposes.) Emissions units classified as insignificant for Title V purposes are required to be listed at Section II, Subsection C.

If submitting the application form in hard copy, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application must be indicated in the space provided at the top of each page.

**EMISSIONS UNIT INFORMATION**

**Section [ 1 ] of [ 1 ]**

**A. GENERAL EMISSIONS UNIT INFORMATION**

**Title V Air Operation Permit Emissions Unit Classification**

1. Regulated or Unregulated Emissions Unit? (Check one, if applying for an initial, revised or renewal Title V air operation permit. Skip this item if applying for an air construction permit or FESOP only.)

The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.

The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

**Emissions Unit Description and Status**

1. Type of Emissions Unit Addressed in this Section: (Check one)

This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.

This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

2. Description of Emissions Unit Addressed in this Section:

**Class I Landfill, Ash Monofill, and Class III Landfill**

3. Emissions Unit Identification Number: **001**

4. Emissions Unit Status Code: <b>A</b>	5. Commence Construction Date: <b>September 2002</b>	6. Initial Startup Date: <b>September 2002</b>	7. Emissions Unit Major Group SIC Code: <b>49</b>
--	---	---	--

8. Federal Program Applicability: (Check all that apply)

Acid Rain Unit

CAIR Unit

9. Package Unit:  
Manufacturer: \_\_\_\_\_ Model Number: \_\_\_\_\_

10. Generator Nameplate Rating: \_\_\_\_\_

11. Emissions Unit Comment:

**Landfill gas that is continuously generated by municipal solid waste decomposition dissipates through the soil cover of the landfill as fugitive emissions.**



**EMISSIONS UNIT INFORMATION**

**Section [ 1 ] of [ 1 ]**

**Emissions Unit Control Equipment/Method:** Control \_\_\_ of \_\_\_

1. Control Equipment/Method Description:  
  
**No Control Equipment**

2. Control Device or Method Code:

**Emissions Unit Control Equipment/Method:** Control \_\_\_ of \_\_\_

1. Control Equipment/Method Description:

2. Control Device or Method Code:

**Emissions Unit Control Equipment/Method:** Control \_\_\_ of \_\_\_

1. Control Equipment/Method Description:

2. Control Device or Method Code:

**Emissions Unit Control Equipment/Method:** Control \_\_\_ of \_\_\_

1. Control Equipment/Method Description:

2. Control Device or Method Code:

**EMISSIONS UNIT INFORMATION**

Section [ 1 ] of [ 1 ]

**B. EMISSIONS UNIT CAPACITY INFORMATION**

(Optional for unregulated emissions units.)

**Emissions Unit Operating Capacity and Schedule**

1. Maximum Process or Throughput Rate: <b>Not Applicable</b>
2. Maximum Production Rate: <b>1,640 scfm landfill gas in 2035</b>
3. Maximum Heat Input Rate: million Btu/hr
4. Maximum Incineration Rate: pounds/hr tons/day
5. Requested Maximum Operating Schedule: 24 hours/day 7 days/week 52 weeks/year 8,760 hours/year
6. Operating Capacity/Schedule Comment:  <p><b>Landfill gas that is continuously generated by municipal solid waste decomposition dissipates through the soil cover of the landfill as fugitive emissions. The landfill gas generation was determined using USEPA's Landfill Gas Emissions Model (LandGEM), Version 3.02. Models for each of the three landfills—Class I, Ash Monofill, and Class III—were developed using historical and projected waste acceptance rates, methane generation rate (<math>k=0.05</math>), and potential methane generation capacity (<math>L_o=170 m^3/Mg</math>) as specified in 40 CFR 60, Subpart WWW (60.754(a)(1)).</b></p> <p><b>The Class I Landfill began accepting waste in September 2002. The Ash Monofill began accepting waste in August 2008, and the Class III Landfill first received solid waste in January 2009.</b></p> <p><b>Landfill gas generation data are provided and summarized in Attachment III.B.1.</b></p>

**EMISSIONS UNIT INFORMATION**

Section [ 1 ] of [ 1 ]

**C. EMISSION POINT (STACK/VENT) INFORMATION**

(Optional for unregulated emissions units.)

**Emission Point Description and Type**

1. Identification of Point on Plot Plan or Flow Diagram: <b>EU001 – Lee/Hendry Landfill</b>		2. Emission Point Type Code: <b>4</b>	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking: <b>Fugitive emissions are from the Class I Landfill, Ash Monofill, and Class III Landfill.</b>			
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common: <b>Not Applicable</b>			
5. Discharge Type Code: <b>F</b>	6. Stack Height: feet	7. Exit Diameter: feet	
8. Exit Temperature: <b>77°F</b>	9. Actual Volumetric Flow Rate: acfm	10. Water Vapor: %	
11. Maximum Dry Standard Flow Rate: dscfm		12. Nonstack Emission Point Height: <b>0 to100</b> feet	
13. Emission Point UTM Coordinates... Zone: East (km): North (km):		14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) Longitude (DD/MM/SS)	
15. Emission Point Comment:  <b>The fugitive emissions occur over entire area of three landfills. The landfills are designed to be up to approximately 100 feet above ground.</b>			

**EMISSIONS UNIT INFORMATION**

Section [ 1 ] of [ 1 ]

**D. SEGMENT (PROCESS/FUEL) INFORMATION**

**Segment Description and Rate: Segment 1 of 1**

1. Segment Description (Process/Fuel Type): <b>Landfill gas that is generated by municipal solid waste decomposition dissipates through the soil cover of the landfill as fugitive emissions. Landfill gas consists of approximately 50% Methane (CH<sub>4</sub>) and 50% Carbon Dioxide (CO<sub>2</sub>).</b>		
2. Source Classification Code (SCC): <b>50100402</b>	3. SCC Units: <b>Million cubic feet waste gas generated (MM ft<sup>3</sup>)</b>	
4. Maximum Hourly Rate: <b>0.0984 MM ft<sup>3</sup>/hr</b>	5. Maximum Annual Rate: <b>862 MM ft<sup>3</sup>/year</b>	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: <b>0</b>	8. Maximum % Ash: <b>0</b>	9. Million Btu per SCC Unit: <b>5.00 × 10<sup>8</sup> Btu/MM ft<sup>3</sup></b>
10. Segment Comment: <b>The maximum rate of landfill gas generation is based on the sum of gas generation modeling performed using LandGEM for the Class I Landfill, Ash Monofill, and Class III Landfill. See Attachment III.B.1 for the landfill gas generation summary.</b>		
<p><b>4. Maximum Hourly Rate:</b></p> $1,640 \frac{\text{std. ft}^3}{\text{min}} \times 60 \frac{\text{min}}{\text{hr}} \times \frac{1 \text{ MM ft}^3}{10^6 \text{ ft}^3} = 0.0984 \frac{\text{MM ft}^3}{\text{hr}}$ <p><b>5. Maximum Annual Rate:</b></p> $0.0984 \frac{\text{MM ft}^3}{\text{hr}} \times 24 \frac{\text{hr}}{\text{day}} \times \frac{365 \text{ days}}{1 \text{ year}} = 862 \frac{\text{MM ft}^3}{\text{year}}$ <p><b>9. Million Btu per SCC Unit</b></p> $500 \frac{\text{Btu}}{\text{ft}^3} \times \frac{10^6 \text{ ft}^3}{1 \text{ MM ft}^3} = 5.00 \times 10^8 \frac{\text{Btu}}{\text{MM ft}^3}$		

**Segment Description and Rate: Segment \_\_ of \_\_**

1. Segment Description (Process/Fuel Type):		
2. Source Classification Code (SCC):	3. SCC Units:	
4. Maximum Hourly Rate:	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment:		

**EMISSIONS UNIT INFORMATION**

Section [ 1 ] of [ 1 ]

**D. SEGMENT (PROCESS/FUEL) INFORMATION (CONTINUED)****Segment Description and Rate:** Segment \_\_ of \_\_

1. Segment Description (Process/Fuel Type):		
2. Source Classification Code (SCC):		3. SCC Units:
4. Maximum Hourly Rate:	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment:		

**Segment Description and Rate:** Segment \_\_ of \_\_

1. Segment Description (Process/Fuel Type):		
2. Source Classification Code (SCC):		3. SCC Units:
4. Maximum Hourly Rate:	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment:		



**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –  
POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS  
(Optional for unregulated emissions units.)**

**Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.**

**Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions**

1. Pollutant Emitted: <b>NMOC</b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: <b>14.4 lb/hour                      62.9 tons/year</b>		4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year			
6. Emission Factor: <b>Class I C<sub>NMOC</sub> = 345 ppmv Ash Monofill C<sub>NMOC</sub> = 56 ppmv Class III C<sub>NMOC</sub> = 1,083 ppmv</b>  Reference: <i>Tier 2 Sampling and Analysis Results and NMOC Emission Rate Recalculation, June 27, 2013, Testing by TRC Environmental (See Appendix A)</i>		7. Emissions Method Code: <b>1</b>	
8.a. Baseline Actual Emissions (if required): tons/year		8.b. Baseline 24-month Period: From:                      To:	
9.a. Projected Actual Emissions (if required): tons/year		9.b. Projected Monitoring Period: <input type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions:  <b>The potential NMOC emissions for the facility were determined using USEPA's LandGEM. Models for each of the three landfills—Class I, Ash Monofill, and Class III—were developed using historical and projected waste acceptance rates, methane generation rate (<math>k=0.05</math>), and potential methane generation capacity (<math>L_o=170 m^3/Mg</math>) as specified in 40 CFR 60, Subpart WWW (60.754(a)(1)) and site-specific NMOC concentrations based on sampling and analysis performed by TRC Environmental. Results of the sampling and analysis and NMOC recalculation were provided to FDEP in a letter dated June 27, 2013, and a copy of this letter is provided in Appendix B.</b>			
11. Potential, Fugitive, and Actual Emissions Comment: <b>The potential NMOC emissions calculated above assume that all landfill gas that is generated dissipates through the soil cover of the landfill as fugitive emissions.</b>			

**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –  
POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS  
(Optional for unregulated emissions units.)**

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

**Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions**

1. Pollutant Emitted: <b>VOC</b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: <b>5.60 lb/hour                      24.5 tons/year</b>		4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year			
6. Emission Factor: <b>39% of NMOC</b>  Reference: <b>AP-42 Table 2.4-2</b>		7. Emissions Method Code: <b>3</b>	
8.a. Baseline Actual Emissions (if required): tons/year		8.b. Baseline 24-month Period: From:                      To:	
9.a. Projected Actual Emissions (if required): tons/year		9.b. Projected Monitoring Period: <input type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions:  <b>The potential VOC emissions were determined using the AP-42 emission factor for VOCs as a fraction of the NMOCs generated. See Attachment III.F.1 for calculations for the potential emissions provided above.</b>			
11. Potential, Fugitive, and Actual Emissions Comment: <b>The potential VOC emissions calculated above assume that all landfill gas that is generated dissipates through the soil cover of the landfill as fugitive emissions.</b>			



**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –  
POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS  
(Optional for unregulated emissions units.)**

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

**Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions**

1. Pollutant Emitted: <b>HAP</b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: <b>2.68 lb/hour</b> 11.7 tons/year		4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year			
6. Emission Factor: <b>Varies</b>  Reference: <b>Tables 2.4-1 and 2.4-2 of Compilation of Air Pollutant Emission Factors, AP-42, Chapter 2.4</b>		7. Emissions Method Code: <b>3</b>	
8.a. Baseline Actual Emissions (if required): tons/year		8.b. Baseline 24-month Period: From:                      To:	
9.a. Projected Actual Emissions (if required): tons/year		9.b. Projected Monitoring Period: <input type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions:  <b>The potential HAP emissions for the facility were determined using USEPA's LandGEM. Models for each of the three landfills were developed using historical and projected tonnage and 40 CFR 60, Subpart WWW default parameter. HAP emissions were based on emissions factors from AP-42, Chapter 2.4, Tables 2.4-1 and 2.4-2. See Attachment III.F.1 for calculations for the potential emissions provided above.</b>			
11. Potential, Fugitive, and Actual Emissions Comment: <b>The potential HAP emissions calculated above assume that all landfill gas that is generated dissipates through the soil cover of the landfill as fugitive emissions.</b>			



**F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION -  
ALLOWABLE EMISSIONS**

**Complete Subsection F2 if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.**

**Allowable Emissions** Allowable Emissions \_\_ of \_\_

1. Basis for Allowable Emissions Code: <b>Not Applicable</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions \_\_ of \_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions \_\_ of \_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	



**EMISSIONS UNIT INFORMATION**

Section [ 1 ] of [ 1 ]

**H. CONTINUOUS MONITOR INFORMATION**

**Complete Subsection H if this emissions unit is or would be subject to continuous monitoring.**

**Continuous Monitoring System:** Continuous Monitor \_\_\_ of \_\_\_

1. Parameter Code: <b>Not Applicable</b>	2. Pollutant(s):
3. CMS Requirement:	<input type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: Model Number:	Serial Number:
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

**Continuous Monitoring System:** Continuous Monitor \_\_\_ of \_\_\_

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	<input type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: Model Number:	Serial Number:
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

**EMISSIONS UNIT INFORMATION**

Section [ 1 ] of [ 1 ]

**I. EMISSIONS UNIT ADDITIONAL INFORMATION**

**Additional Requirements for All Applications, Except as Otherwise Stated**

1. Process Flow Diagram: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input checked="" type="checkbox"/> Attached, Document ID: <u>Attach. II.C.2</u> <input type="checkbox"/> Previously Submitted, Date _____
2. Fuel Analysis or Specification: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input checked="" type="checkbox"/> Attached, Document ID: <u>Attach. III.I.2</u> <input type="checkbox"/> Previously Submitted, Date _____
3. Detailed Description of Control Equipment: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input checked="" type="checkbox"/> Attached, Document ID: <u>Attach. III.I.3</u> <input type="checkbox"/> Previously Submitted, Date _____
4. Procedures for Startup and Shutdown: (Required for all operation permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input checked="" type="checkbox"/> Attached, Document ID: <u>Attach. III.I.4</u> <input type="checkbox"/> Previously Submitted, Date _____ <input type="checkbox"/> Not Applicable (construction application)
5. Operation and Maintenance Plan: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input checked="" type="checkbox"/> Attached, Document ID: <u>Attach. III.I.5</u> <input type="checkbox"/> Previously Submitted, Date _____ <input type="checkbox"/> Not Applicable

6. Compliance Demonstration Reports/Records:

Attached, Document ID: \_\_\_\_\_

Test Date(s)/Pollutant(s) Tested: \_\_\_\_\_

Previously Submitted, Date: \_\_\_\_\_

Test Date(s)/Pollutant(s) Tested: \_\_\_\_\_

To be Submitted, Date (if known): \_\_\_\_\_

Test Date(s)/Pollutant(s) Tested: \_\_\_\_\_

Not Applicable

Note: For FESOP applications, all required compliance demonstration records/reports must be submitted at the time of application. For Title V air operation permit applications, all required compliance demonstration reports/records must be submitted at the time of application, or a compliance plan must be submitted at the time of application.

7. Other Information Required by Rule or Statute:

Attached, Document ID: \_\_\_\_\_

Not Applicable





**ATTACHMENT II.C.1**  
**FACILITY PLOT PLAN**

NOTE:  
AERIAL PHOTOGRAPH BY PICKETT AND ASSOCIATES, INC.  
FLIGHT DATE 01/23/13.

12345-007-01

\\JEACAD\DRAWING\12345 LEE COUNTY\007 LEE HENDRY TITLE V PERMIT FIGURES\PERMIT RENEWAL\12345007PR-FIG1-FACILITY.DWG

SAVED: 10/30/2013 2:36 PM PUPSTILL

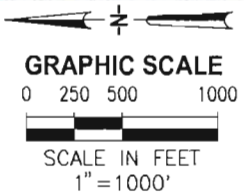
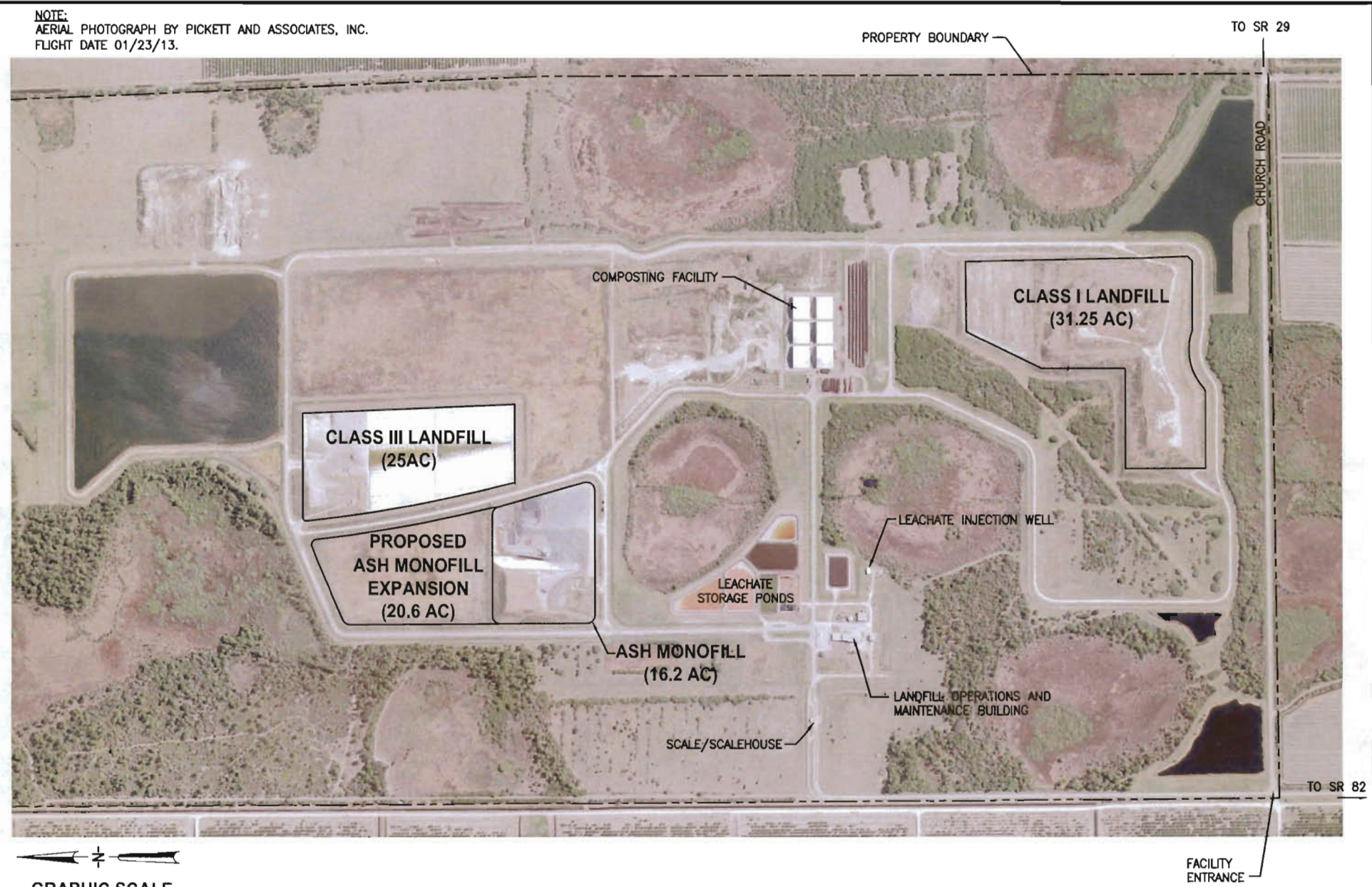


FIGURE 1  
FACILITY PLOT PLAN  
LEE/HENDRY COUNTY REGIONAL SOLID WASTE DISPOSAL FACILITY

**ATTACHMENT II.C.2**  
**PROCESS FLOW DIAGRAM**

EU 001 LEE/HENDRY LANDFILL

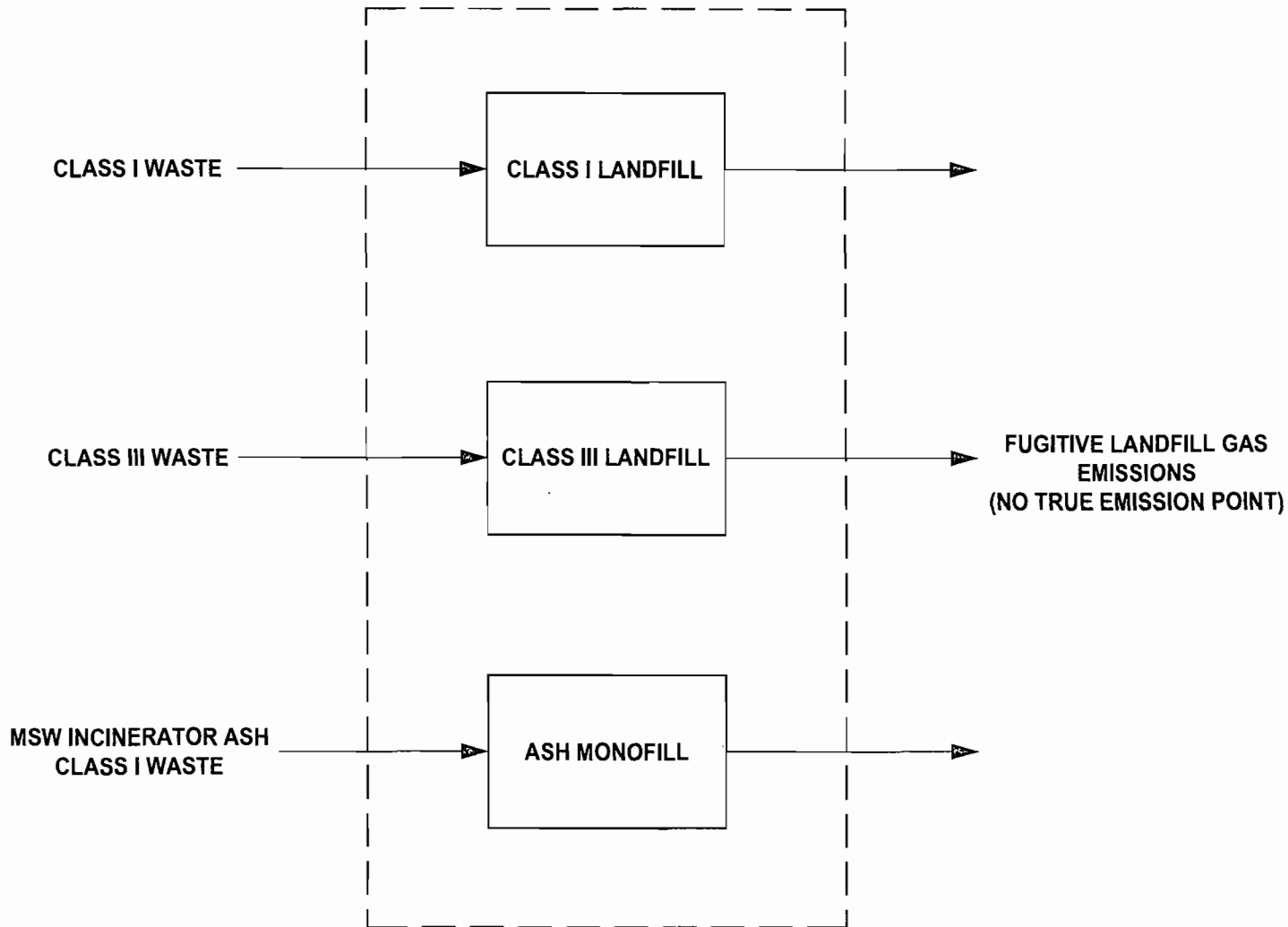


FIGURE 2  
PROCESS FLOW DIAGRAM  
LEE/HENDRY COUNTY REGIONAL SOLID WASTE DISPOSAL FACILITY

**ATTACHMENT II.C.3**

**PRECAUTIONS TO PREVENT EMISSIONS OF  
UNCONFINED PARTICULATE MATTER**

**ATTACHMENT II.C.3  
PRECAUTIONS TO PREVENT EMISSIONS OF  
UNCONFINED PARTICULATE MATTER**

Unconfined particulate matter emissions at the facility are the result of wind and vehicle traffic on unpaved roads at the facility. Emissions of unconfined particulate matter are prevented in the following manners:

- The facility entrance and most access roads are paved.
- Dust and particulate matter emissions will be controlled on the landfills by covering with vegetation or seeding landfill slopes that have reached final grade, have intermediate cover, or will not receive additional waste for some period.
- Dust and particulate matter emissions will be controlled on unpaved access roads with watering application from a water truck as necessary.

**ATTACHMENT II.C.4**

**LIST OF INSIGNIFICANT ACTIVITIES**

**ATTACHMENT I.I.C.4**  
**LIST OF EXEMPT EMISSIONS UNITS AND INSIGNIFICANT ACTIVITIES**

EXEMPT EMISSIONS UNITS

The following emissions units or pollutant-emitting activities are categorically exempt from permitting requirements of Rules 62-210 and 62-4, FAC, in accordance with 62-210.300(3)(a)35, FAC:

- Kohler Diesel Emergency Back-up Generator

Table 1 presents the conditions for categorical exemption in accordance with 62-210.300(3)(a)35, FAC.

Table 1 Conditions for Exempt in Accordance with 62-210.300(3)(a)35, FAC	
a.	The engine is not subject to the Acid Rain Program, CAIR Program, or any other unit-specific limitation or requirement other than 40 CFR Part 60, Subpart IIII.
b.	The engine does not burn used oil or any fuels other than diesel fuel.
c.	The engine will not burn more than the collective maximum annual amount of a single fuel, as given in sub-subparagraph d., or equivalent collective maximum annual amounts of multiple fuels, as addressed in sub-subparagraph e.
d.	The collective annual amount of fuel burned by all engines claiming this exemption at the same facility will not exceed 64,000 gallons of diesel fuel.
e.	The engine burns only diesel and will not exceed the collective maximum annual amount of such fuel, as given in subparagraph d.
f.	The engine is a stationary compression ignition internal combustion engine that is subject to 40 CFR Part 60, Subpart IIII, and the owner or operator will comply with all limitations and requirements of Subpart IIII that apply to the engine.
g.	The engine is not a stationary spark ignition internal combustion engine that is subject to 40 CFR Part 60, Subpart JJJJ
h.	The engine is not a stationary reciprocating internal combustion engine subject to 40 CFR Part 63, Subpart ZZZZ.

This stationary reciprocating internal combustion engine is subject to the requirements of 40 CFR 60, Subpart IIII, based on the information provided in Table 2.



Engine Make/Model	Kohler 180REOZJD
Description	180 kW Diesel Generator
Fuel Type	Diesel
Sulfur Content (ppm)	15 ppm
Ignition Type	Compression Ignition
Horsepower	315
Stationary Engine	Yes
Refurbished	No
Date of Manufacture	2009
EPA Certified and Labeled	Tier 3 Nonroad
Date Acquired On Site	December 15, 2009
Displacement	6.79 Liters
Controls	
Continuous Monitoring System	No
Total Hours of Operation (historical)	13 hours/year
Emergency Hours of Operation (historical)	20 hours/year
Demand Response Hours of Operation	0
Peak Shaving/Income	Not Applicable
Fire Pumps	Not Applicable

Monitoring Requirements	
Install non-resettable hour meter prior to startup of engine	60.4209(a)
Diesel particulate filter with backpressure monitor	60.4209(b)
Operation Requirements	
Emergency Operation (no time limit)	60.4211(f)(1)
Non-emergency Operation – maintenance, demand response, or voltage deviation (maximum of 100 hours per calendar year)	60.4211(f)(2)
Non-emergency Operation (maximum of 50 hours per calendar year)	60.4211(f)(3)
Notification, Reports, and Records	
Records of backpressure monitor corrective actions if limit is approached	60.4214(c)

### INSIGNIFICANT EMISSIONS UNITS

The following are insignificant emissions units or pollutant-emitting activities at the Lee/Hendry Regional Solid Waste Disposal Facility. These units, by virtue of size or operating rate, are eligible for treatment as insignificant emissions units in accordance with the criteria of Rule 62-213.430(6), FAC, and are requested to be treated as such pursuant to Rule 62-213.420(3), FAC.

Additionally, emissions units or pollutant-emitting activities listed in Rule 62-210.300(3)(a), FAC, are exempt from the permit requirements of 62-210 and 62-4, FAC.

## 1. Emergency Generator

Lee County installed a 180-kW diesel emergency generator in December 2009. Emission calculations provided in Attachment II.C.4 demonstrate that the diesel emergency generator is an insignificant emissions unit or pollutant-emitting activity.



PROJECT NUMBER: 12345-007-01 SHEET: 1 OF 1  
 PROJECT NAME: LEE/HENDRY TITLE V RENEWAL APPLICATION  
 SUBJECT: ATTACHMENT II.C.4 - INSIGNIFICANT EMISSIONS  
 BY: TMCKNIGHT DATE: 10/30/2013  
 CHECKED BY: HBOUDREAU DATE: 11/12/2013

**Objective:** Calculate emissions from emergency diesel generator based on AP-42 emissions factors and engine's horsepower.

**Data:**

Regulated Air Pollutant Engine Emissions Factors	
Pollutant	Emission Factor [lb/hp-hr]
Nitrogen Oxides (NO <sub>x</sub> )	0.031
Carbon Monoxide (CO)	0.00668
Particulate Mater (PM <sub>10</sub> )	0.0022
Volatile Organic Compounds (VOC)	0.00251
Sulfur Dioxide (SO <sub>2</sub> )	0.00205

AP-42 Table 3.3-1

The VOC emission factor is estimated as the sum of the Total Organic Compounds (TOC) listed in AP-42 Table 3.3-1.

Hazardous Air Pollutant (HAPs) Engine Emissions Factors	
Pollutant	Emission Factor [lb/MMBtu]
Single HAP (Formaldehyde)	0.00118
Total HAPs	0.00387

AP-42 Table 3.3-2

The Total HAPs emission factor is estimated as the sum of the HAPs listed in AP-42 Table 3.3-2.

Engine Information

Make/Model Kohler 180REOZJD  
 Description 180 kW Diesel Generator  
 Horsepower 315 hp  
 Maximum Operation 100 hr/yr  
 Average Brake Specific Fuel Consumption 7000 Btu/hp-hr (Estimated based on AP-42 Table 3.3-2)

**Calculations:**

NO<sub>x</sub> Emissions

$100 \text{ hr/yr} \times 315 \text{ hp} \times 0.031 \text{ lb NO}_x/\text{hp-hr} \times 1 \text{ ton} \div 2,000\text{lb} = 0.488 \text{ tons NO}_x/\text{year}$

CO Emissions

$100 \text{ hr/yr} \times 0.00668 \text{ lb CO/hp-hr} \times 315 \text{ hp} \times 1 \text{ ton} \div 2,000\text{lb} = 0.105 \text{ tons CO/year}$

PM<sub>10</sub> Emissions

$100 \text{ hr/yr} \times 0.0022 \text{ lb PM}_{10}/\text{hp-hr} \times 315 \text{ hp} \times 1 \text{ ton} \div 2,000\text{lb} = 0.035 \text{ tons PM}_{10}/\text{year}$

VOC Emissions

$100 \text{ hr/yr} \times 0.00251 \text{ lb VOC/hp-hr} \times 315 \text{ hp} \times 1 \text{ ton} \div 2,000\text{lb} = 0.040 \text{ tons CO/year}$

SO<sub>2</sub> Emissions

$100 \text{ hr/yr} \times 0.00205 \text{ lb SO}_2/\text{hp-hr} \times 315 \text{ hp} \times 1 \text{ ton} \div 2,000\text{lb} = 0.032 \text{ tons SO}_2/\text{year}$

Single HAP (Formaldehyde) Emissions

$100 \text{ hr/yr} \times 315 \text{ hp} \times 7000 \text{ Btu/hp-hr} \times 1 \text{ MMBtu}/1000000 \text{ Btu} \times 0.00118 \text{ lb Single HAP}/\text{MMBtu} = 0.260 \text{ lbs Single HAP}/\text{year}$

Total HAPs Emissions

$100 \text{ hr/yr} \times 315 \text{ hp} \times 7000 \text{ Btu/hp-hr} \times 1 \text{ MMBtu}/1000000 \text{ Btu} \times 0.00387 \text{ lb Total HAPs}/\text{MMBtu} = 0.853 \text{ lbs Total HAPs}/\text{year}$

**Conclusion:**

Regulated Air Pollutant	Emissions [tons/year]
Nitrogen Oxides (NO <sub>x</sub> )	0.488
Carbon Monoxide (CO)	0.105
Particulate Mater (PM <sub>10</sub> )	0.035
Volatile Organic Compounds (VOC)	0.040
Sulfur Dioxide (SO <sub>2</sub> )	0.032

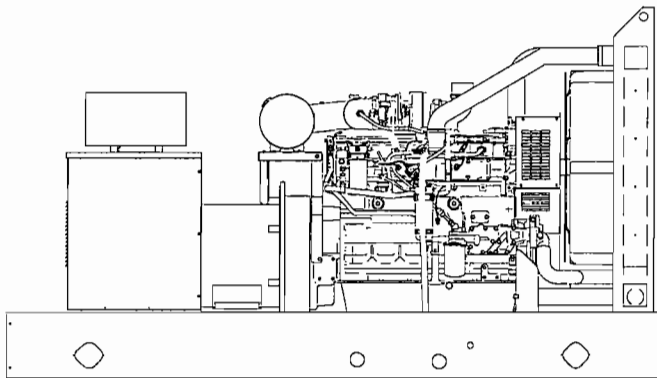
HAPs	Emissions [lbs/year]
Single HAP (Formaldehyde)	0.260
Total HAPs	0.853

Each of the Hazardous Air Pollutants (HAPs) are below 1,000 pounds per year threshold. The Total HAPs are below 2,500 pounds per year threshold. The rest of the regulated pollutants are each below the 5.0 tons per year threshold; therefore, the engine is an insignificant emission unit or pollutant-emitting activity in accordance with 62-213.430(6), FAC.



**Ratings Range**

		<b>60 Hz</b>
<b>Standby:</b>	<b>kW</b>	145-180
	<b>kVA</b>	181-225
<b>Prime:</b>	<b>kW</b>	135-165
	<b>kVA</b>	169-206



**Standard Features**

- Kohler Co. provides one-source responsibility for the generating system and accessories.
- The generator set and its components are prototype-tested, factory-built, and production-tested.
- The 60 Hz generator set offers a UL 2200 listing.
- The generator set accepts rated load in one step.
- The 60 Hz generator set meets NFPA 110, Level 1, when equipped with the necessary accessories and installed per NFPA standards.
- The generator set complies with ISO 8528-5, Class G2, requirements for transient performance in all generator set configurations. Select the Decision-Maker™ 550 controller for improved voltage regulation and ISO 8528-5, Class G3, compliance.
- The 60 Hz generator set engine is certified by the Environmental Protection Agency (EPA) to conform to Tier 3 nonroad emissions regulations.
- A one-year limited warranty covers all systems and components. Two-, five-, and ten-year extended warranties are also available.
- Alternator features:
  - The unique Fast-Response™ II excitation system delivers excellent voltage response and short circuit capability using a permanent magnet (PM)-excited alternator.
  - The brushless, rotating-field alternator has broadrange reconnectability.
- Other features:
  - Controllers are available for all applications. See controller features inside.
  - The low coolant level shutdown prevents overheating (standard on radiator models only).
  - Integral vibration isolation eliminates the need for under-unit vibration spring isolators.

**Generator Set Ratings**

Alternator	Voltage	Ph	Hz	130°C Rise Standby Rating		105°C Rise Prime Rating	
				kW/kVA	Amps	kW/kVA	Amps
4S15	120/208	3	60	180/225	625	165/206	573
	127/220	3	60	180/225	590	165/206	541
	120/240	3	60	150/188	452	140/175	421
	139/240	3	60	180/225	541	165/206	496
	220/380	3	60	145/181	275	135/169	256
	277/480	3	60	180/225	271	165/206	248
	347/600	3	60	180/225	217	165/206	198

**RATINGS:** All three-phase units are rated at 0.8 power factor. All single-phase units are rated at 1.0 power factor. **Standby Ratings:** Standby ratings apply to installations served by a reliable utility source. The standby rating is applicable to varying loads for the duration of a power outage. There is no overload capability for this rating. Ratings are in accordance with ISO-3046/1, BS 5514, AS 2789, and DIN 6271. **Prime Power Ratings:** Prime power ratings apply to installations where utility power is unavailable or unreliable. At varying load, the number of generator set operating hours is unlimited. A 10% overload capacity is available for one hour in twelve. Ratings are in accordance with ISO-8528/1, overload power in accordance with ISO-3046/1, BS 5514, AS 2789, and DIN 6271. For limited running time and base load ratings, consult the factory. Obtain the technical information bulletin (TIB-101) on ratings guidelines for the complete ratings definitions. The generator set manufacturer reserves the right to change the design or specifications without notice and without any obligation or liability whatsoever. **GENERAL GUIDELINES FOR DERATION:** *Altitude:* Derate 0.5% per 100 m (328 ft.) elevation above 1000 m (3300 ft.). *Temperature:* Derate 1.0% per 10°C (18°F) temperature above 25°C (77°F).

# Alternator Specifications

Specifications	Alternator
Manufacturer	Kohler
Type	4-Pole, Rotating-Field
Exciter type	Wound field (WF)
Permanent magnet (PM)	Wound Exciter Field with Separate Excitation Power Winding
Leads: quantity, type	Brushless, Permanent-Magnet
Voltage regulator	12, Reconnectable
Insulation:	Solid State, Volts/Hz
Material	NEMA MG1
Temperature rise	Class H
Bearing: quantity, type	130°C, Standby
Coupling	1, Sealed
Amortisseur windings	Flexible Disc
Voltage regulation, no-load to full-load	Full
Wound field (WF) alternator	±0.25% Average
Permanent magnet (PM) alternator	±2% Average
550 controller (with 0.5% drift due to temperature variation)	3-Phase Sensing, ±0.25%
Unbalanced load capability	100% of Rated Standby Current
One-step load acceptance	100% of Rating
Peak motor starting kVA:	(35% dip for voltages below)
480 V 4S15 (12 lead)	620

- NEMA MG1, IEEE, and ANSI standards compliance for temperature rise and motor starting.
- Sustained short-circuit current of up to 300% of the rated current for up to 10 seconds.
- Sustained short-circuit current enabling downstream circuit breakers to trip without collapsing the alternator field.
- Self-ventilated and dripproof construction.
- Vacuum-impregnated windings with fungus-resistant epoxy varnish for dependability and long life.
- Fast-Response™ II brushless alternator with brushless exciter for excellent load response.

# Application Data

## Engine

Engine Specifications	
Manufacturer	John Deere
Engine model	6068HF485
Engine type	4-Cycle, Turbocharged, Charge Air-Cooled
Cylinder arrangement	6 Inline
Displacement, L (cu. in.)	6.79 (414)
Bore and stroke, mm (in.)	106 x 127 (4.19 x 5.00)
Compression ratio	17.0:1
Piston speed, m/min. (ft./min.)	457 (1500)
Main bearings: quantity, type	7, Replaceable Insert
Rated rpm	1800
Max. power at rated rpm, kWm (BHP)	235 (315)
Cylinder head material	Cast Iron
Crankshaft material	Forged Steel
Valve material:	
Intake	Chromium-Silicon Steel
Exhaust	Stainless Steel
Governor: type, make/model	JDEC Electronic L14 Denso HP3
Frequency regulation, no-load to full-load	Isochronous
Frequency regulation, steady state	±0.25%
Frequency	Fixed
Air cleaner type, all models	Dry

## Exhaust

Exhaust System	
Exhaust manifold type	Dry
Exhaust flow at rated kW, m <sup>3</sup> /min. (cfm)	42.8 (1510)
Exhaust temperature at rated kW, dry exhaust, °C (°F)	527 (980)
Maximum allowable back pressure, kPa (in. Hg)	Min. 4 (1.2) Max. 10 (3.0)
Exhaust outlet size at engine hookup, mm (in.)	98 (3.86)

## Engine Electrical

Engine Electrical System	
Battery charging alternator:	24 Volt
Ground (negative/positive)	Negative
Volts (DC)	24
Ampere rating	45
Starter motor rated voltage (DC)	24
Battery, recommended cold cranking amps (CCA):	
Quantity, CCA rating each	Two, 950
Battery voltage (DC)	12

# Application Data

## Fuel

Fuel System	
Fuel supply line, min. ID, mm (in.)	11.0 (0.44)
Fuel return line, min. ID, mm (in.)	6.0 (0.25)
Max. lift, fuel pump: type, m (ft.)	Electronic, 1.8 (6.0)
Max. fuel flow, Lph (gph)	92.7 (24.5)
Fuel prime pump	Manual
Fuel filter	
Secondary	2 Microns @ 98% Efficiency
Primary	30 Microns
Water Separator	Yes
Recommended fuel	#2 Diesel

## Lubrication

Lubricating System	
Type	Full Pressure
Oil pan capacity, L (qt.)	32.5 (34.4)
Oil pan capacity with filter, L (qt.)	33.4 (35.3)
Oil filter: quantity, type	1, Cartridge
Oil cooler	Water-Cooled

## Cooling

Radiator System	
Ambient temperature, °C (°F)	50 (122)
Engine jacket water capacity, L (gal.)	11.3 (3.0)
Radiator system capacity, including engine, L (gal.)	27.6 (7.3)
Engine jacket water flow, Lpm (gpm)	230.9 (61)
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	85.8 (4880)
Heat rejected to air charge cooler at rated kW, dry exhaust, kW (Btu/min.)	66.6 (3790)
Water pump type	Centrifugal
Fan diameter, including blades, mm (in.)	787 (31)
Fan, kWm (HP)	8.6 (11.5)
Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. H <sub>2</sub> O)	0.125 (0.5)

## Operation Requirements

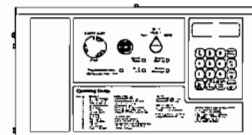
Air Requirements	
Radiator-cooled cooling air, m <sup>3</sup> /min. (scfm) <sup>‡</sup>	368.1 (13000)
Combustion air, m <sup>3</sup> /min. (cfm)	15.9 (560)
Heat rejected to ambient air:	
Engine, kW (Btu/min.)	41.8 (2380)
Alternator, kW (Btu/min.)	14.4 (820)

<sup>‡</sup> Air density = 1.20 kg/m<sup>3</sup> (0.075 lbm/ft<sup>3</sup>)

## Fuel Consumption

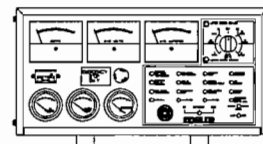
Diesel, Lph (gph) at % load	Standby Rating
100%	51.5 (13.6)
75%	39.3 (10.4)
50%	27.5 (7.3)
25%	15.8 (4.2)
Diesel, Lph (gph) at % load	Prime Rating
100%	46.9 (12.4)
75%	36.3 (9.6)
50%	25.5 (6.7)
25%	14.8 (3.9)

## Controllers



### Decision-Maker™ 550 Controller

Audiovisual annunciation with NFPA 110 Level 1 capability. Programmable microprocessor logic and digital display features. Alternator safeguard circuit protection. 12- or 24-volt engine electrical system capability. Remote start, remote annunciation, and remote communication options. Refer to G6-46 for additional controller features and accessories.



### Decision-Maker™ 3+, 16-Light Controller

Audiovisual annunciation with NFPA 110 Level 1 capability. Microprocessor logic, AC meters, and engine gauge features. 12- or 24-volt engine electrical system capability. Remote start, prime power, and remote annunciation options. Refer to G6-30 for additional controller features and accessories.

## Additional Standard Features

- Alternator Protection (standard with 550 controller)
- Battery Rack and Cables
- Emission Compliant Engine
- Integral Vibration Isolation
- Oil Drain Extension
- Operation and Installation Literature

## Available Options

### Approvals and Listings

- CSA Approval
- IBC Seismic Certification
- UL 2200 Listing

### Enclosed Unit

- Sound Enclosure (with enclosed critical silencer)
- Weather Enclosure (with enclosed critical silencer)
- Weather Housing (with roof-mounted critical silencer)

### Open Unit

- Exhaust Silencer, Critical (kit: PA-354809)
- Exhaust Silencer, Hospital (kit: PA-365349)
- Flexible Exhaust Connector, Stainless Steel

### Fuel System

- Auxiliary Fuel Pump
- Flexible Fuel Lines
- Fuel Pressure Gauge
- Subbase Fuel Tanks
- Subbase Fuel Tank with Day Tank

### Controller

- Common Failure Relay
- Communication Products and PC Software (550 controller only)
- Customer Connection
- Dry Contact (isolated alarm)
- Prime Power Switch (550 controller only)
- Remote Annunciator Panel
- Remote Audiovisual Alarm Panel
- Remote Emergency Stop
- Remote Mounting Cable
- Run Relay

### Cooling System

- Block Heater  
(recommended for ambient temperatures below 0°C [32°F])
- Radiator Duct Flange

### Electrical System

- Alternator Strip Heater
- Battery
- Battery Charger, Equalize/Float Type
- Battery Heater
- Line Circuit Breaker (NEMA type 1 enclosure)
- Line Circuit Breaker with Shunt Trip (NEMA type 1 enclosure)
- Safeguard Breaker (16-light controller)

### Paralleling System

- Reactive Droop Compensator
- Voltage Adjust Control
- Voltage Regulator Relocation

### Miscellaneous

- Air Cleaner, Heavy Duty
- Air Cleaner Restriction Indicator
- Crankcase Emissions Canister
- Engine Fluids (oil and coolant) Added
- Rated Power Factor Testing
- Rodent Guards
- Skid End Caps

### Literature

- General Maintenance
- NFPA 110
- Overhaul
- Production

### Warranty

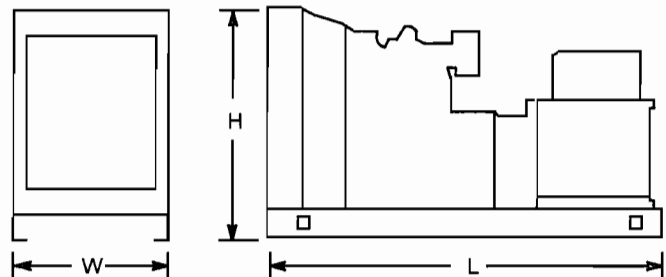
- 2-Year Basic
- 2-Year Prime
- 5-Year Basic
- 5-Year Comprehensive
- 10-Year Major Components

### Other Options

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

## Dimensions and Weights

Overall Size, L x W x H, mm (in.): 2975 x 1250 x 1692  
 (117.13 x 49.21 x 66.62)  
 Weight (radiator model), wet, kg (lb.): 1542.2 (3400)



NOTE: This drawing is provided for reference only and should not be used for planning installation. Contact your local distributor for more detailed information.

**DISTRIBUTED BY:**

**ATTACHMENT II.C.5**

**IDENTIFICATION OF APPLICABLE REQUIREMENTS**



**ATTACHMENT II.C.5  
IDENTIFICATION OF APPLICABLE REQUIREMENTS**

The following table provides each federal, state, and state-enforceable local air pollution regulation applicable to the facility as a whole.

40 CFR 60, Subpart A	NSPS General Provisions
40 CFR 60, Subpart WWW	Standards of Performance for Municipal Solid Waste Landfills
40 CFR 60, Subpart IIII	Standards of Performance for Stationary Compression Ignition Internal Combustion Engines
40 CFR 61, Subpart A	General Provisions
40 CFR 61, Subpart M	National Emission Standard for Asbestos
62-4, FAC	Permits
62-204, FAC	Air Pollution Control – General Provisions
62-210, FAC	Stationary Sources – General Requirements
62-213, FAC	Operation Permits for Major Sources of Air Pollution

**ATTACHMENT II.C.6**  
**COMPLIANCE REPORT AND PLAN**

**ATTACHMENT II.C.6  
COMPLIANCE REPORT AND PLAN**

EU001 – Lee/Hendry Landfill, is in compliance with all applicable requirements and therefore does not require a compliance plan. See the attached Compliance Report from the FDEP Division of Air Resource Management.



**Programs**

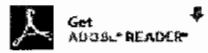
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- » [Small Business Environmental Assistance](#)
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## Emission Sources

### Air Compliance and Enforcement Search (ACES)

## Facility Search Results

[Glossary](#)

Facility Name (Select Name to read Report) ▲ ▼	Inspections (5 yrs) ▲ ▼	Violations (5 yrs) ▲ ▼	Formal Enforcement Actions (5 yrs) ▲ ▼	Penalties Assessed (5 yrs) ▲ ▼	Current Compliance Status ▲ ▼
LEE COUNTY BOARD OF COUNTY COMMISSIONERS LEE/HENDRY COUNTY REGIONAL WASTE 5500 Church Road Felda FL 33930 Facility ID 0510030	3	0	0	\$0.00	IN

Number of Facilities Displayed: 1

### New Search

The following selection criteria was used:

Facility ID: 0510030

Report Run Date: 11/11/2013

Last updated: December 08, 2010

2600 Blair Stone Road, M.S. 5500 Tallahassee, Florida 32399-2400 850-717-9000 (phone) / 850-717-9001 (fax)

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**ATTACHMENT II.C.7**

**REQUESTED CHANGES TO CURRENT TITLE V  
AIR OPERATION PERMIT**

**ATTACHMENT II.C.7**  
**REQUESTED CHANGES TO CURRENT TITLE V AIR OPERATION PERMIT**

The following changes are proposed to the Lee/Hendry Solid Waste Disposal Facility's Title V Operation Permit:

- Increase the design capacity from 3.86 to 5.92 million megagrams based on the recently permitted 20-acre expansion of the Ash Monofill.
- Add the emergency diesel generator as an insignificant emissions unit that falls under the categorical exemption for internal combustion engines in Rule 62-210.300(3)(a)35, FAC.

**ATTACHMENT III.B.1**  
**LANDFILL GAS GENERATION SUMMARY**



PROJECT NUMBER: 12345-007-01 SHEET: 1 OF 1  
 PROJECT NAME: LEE/HENDRY TITLE V RENEWAL APP.  
 SUBJECT: ATTACHMENT III.B.1 - LANDFILL GAS GENERATION  
 BY: TMCKNIGHT DATE: 10/30/2013  
 CHECKED BY: HBOUDREAU DATE: 11/21/2013

**Objective:** Calculate facility's total landfill gas generation including the landfill Ash Monofill expansion.

**Data and Calculation:** *Appendix B, Tier 2 Sampling and Analysis Results and NMOC Emission Rate Recalculation, Attachment 4*

LandGEM Waste Acceptance and Total Landfill Gas Generation								
Year	Waste Accepted (Mg/year)				Total Landfill Gas (scfm)			
	Class I	Ash	Class III	Total	Class I	Ash	Class III	Total
2002	8,297			8,297	0			0
2003	111,086			111,086	9			9
2004	137,000			137,000	133			133
2005	199,462			199,462	279			279
2006	225,194			225,194	489			489
2007	146,971			146,971	716			716
2008	24,930	4,442		29,373	846	0		846
2009	87	13,935	20,841	34,862	832	5	0	837
2010	0	13,433	32,798	46,232	792	20	23	835
2011	0	5,985	27,586	33,571	753	34	59	846
2012	0	12,286	19,118	31,405	716	39	87	842
2013	22,727	18,182	31,818	72,727	681	51	104	836
2014	23,409	18,727	32,773	74,909	674	69	134	877
2015	24,111	19,289	33,756	77,156	667	86	164	918
2016	24,835	19,868	34,769	79,471	661	104	194	959
2017	25,580	20,464	35,812	81,855	657	121	223	1,001
2018	26,347	21,078	36,886	84,311	653	138	253	1,044
2019	27,138	21,710	37,993	86,840	651	155	281	1,087
2020	27,952	22,361	39,132	89,445	649	171	310	1,131
2021	28,790	23,032	40,306	92,129	649	188	339	1,176
2022	29,654	23,723	41,516	94,893	649	205	367	1,221
2023	30,544	24,435	42,761	97,739	651	221	396	1,268
2024	31,460	25,168	44,044	100,672	653	238	424	1,315
2025	32,404	18,987	45,365	96,756	657	254	453	1,363
2026	33,376	0	46,726	80,102	661	263	481	1,405
2027	34,377	0	48,128	82,505	666	250	510	1,426
2028	35,408	0	49,572	84,980	672	238	539	1,448
2029	36,471	0	51,059	87,529	678	226	568	1,473
2030	37,565	0	52,591	90,155	686	215	597	1,499
2031	38,692	0	54,168	92,860	695	205	627	1,526
2032	39,852	0	55,793	95,646	704	195	657	1,556
2033	41,048	0	57,467	98,515	714	185	687	1,587
2034	29,798	0	59,191	88,989	725	176	718	1,619
2035	0	0	60,967	60,967	723	168	749	1,640
2036	0	0	62,796	62,796	688	159	780	1,628
2037	0	0	14,715	14,715	654	152	813	1,618
2038	0	0	0	0	622	144	789	1,556
2039	0	0	0	0	592	137	751	1,480
2040	0	0	0	0	563	131	714	1,408
2041	0	0	0	0	536	124	679	1,339
2042	0	0	0	0	510	118	646	1,274
2043	0	0	0	0	485	112	615	1,212
2044	0	0	0	0	461	107	585	1,153
2045	0	0	0	0	439	102	556	1,096
2046	0	0	0	0	417	97	529	1,043
2047	0	0	0	0	397	92	503	992
2048	0	0	0	0	377	88	479	944
2049	0	0	0	0	359	83	455	898
2050	0	0	0	0	342	79	433	854

**Conclusion:**

Year	Total Landfill Gas [SCFM]
2035	1,640

The maximum projected landfill gas generation for the facility occurs in 2035 and is 1,640 scfm.



**ATTACHMENT III.F.1**

**POTENTIAL TO EMIT CALCULATIONS**

## ATTACHMENT III.F.1 POTENTIAL TO EMIT CALCULATIONS

The potential to emit (PTE) calculations were performed for pollutants from landfill gas fugitive emissions including non-methane organic compounds (NMOC), volatile organic compounds (VOC), hazardous air pollutants (HAP), and greenhouse gases (GHG). Based on current waste acceptance projections, landfill gas generation is expected to peak in 2035 at 1,640 standard cubic feet per minute. Therefore, PTE calculations were performed for the projected gas production in 2035.

### GREENHOUSE GAS EMISSIONS

Beginning on January 2, 2011, GHGs became a regulated New Source Review (NSR) pollutant under the Prevention of Significant Deterioration (PSD) Major Source permitting program subject to the thresholds in 40 CFR 52.21(b)(49)(v). This regulation stipulates that for permits issued on or after July 1, 2011, GHG emissions are subject to regulation at existing stationary sources that have the PTE 100,000 tons per year (tpy) of Carbon Dioxide equivalents (CO<sub>2</sub>e) when the stationary source undertakes a modification that will result in an emissions increase of 75,000 tpy CO<sub>2</sub>e or more. The calculations provided demonstrate that the existing PTE is approximately 172,000 tpy CO<sub>2</sub>e in 2035 and the Ash Monofill expansion results in an increase of approximately 13,000 tpy CO<sub>2</sub>e; therefore, the facility is not subject to PSD Major Source permitting requirements because the expansion increased the CO<sub>2</sub>e emissions less than 75,000 tpy.

GHG emission calculations consist of uncontrolled CH<sub>4</sub> emissions from the landfill. Biogenic CO<sub>2</sub> emissions are deferred (excluded from these calculations) in accordance with US Environmental Protection Agency's July 20, 2011 *Deferral for CO<sub>2</sub> Emissions from Bioenergy and Other Biogenic Sources under the Prevention of Significant Deterioration (PSD) and Title V Programs*.



PROJECT NUMBER: 12345-007-01 SHEET: 1 OF 7  
 PROJECT NAME: LEE/HENDRY TITLE V RENEWAL APPLICATION  
 SUBJECT: ATTACHMENT III.F.1 - POTENTIAL TO EMIT CALCULATIONS  
 BY: TMCKNIGHT DATE: 10/30/2013  
 CHECKED BY: HBOUDREAU DATE: 11/21/2013

**Objective:** Calculate facility's the potential to emit (PTE) for the following pollutants:  
 NMOC  
 VOC  
 HAP  
 GHG

**Data:**

LandGEM Results for Landfill Gas Emissions Rate				
Year	Landfill Gas Emissions Rate [scfm]			
	Class I	Ash	Class III	Total
2035	723	168	749	1,640

(Attachments 4 and 5 of Tier 2 Sampling and Analysis Results and NMOC Emission Rate Recalculation, June 27, 2013)  
 (Maximum projected landfill gas production)

LandGEM Results for NMOC Emissions Rate				
Year	NMOC Emissions Rate [Mg/year]			
	Class I	Ash	Class III	Total
2035	13.3	0.5	43.3	57.1

(Maximum projected landfill gas production)

Landfill Gas Composition	
50% Methane by volume	16.04 g/mol
50% Carbon Dioxide by volume	44.01 g/mol

Pollutant Emissions Factors			
Pollutant	Emission Factor	Unit	Reference
NMOC			Site-specific Sampling and Analysis, TRC Environmental, April 2013
Class I	345	ppmv as hexane	
Ash	56	ppmv as hexane	
Class III	1,083	ppmv as hexane	
VOC	39% of NMOC emissions		AP-42, Table 2.4-2 (see HAP)
	Varies	ppmv	
HAP	Varies	ppmv	Source: Tables 2.4-1 and 2.4-2 of Compilation of Air Pollutant Emission Factors, AP-42, Volume 1: Stationary Point and Area Sources, 5th ed., Chapter 2.4 Municipal Solid Waste Landfills. U.S. EPA, Office of Air Quality Planning and Standards. Research Triangle Park, NC. November 1998. <a href="http://www.epa.gov/ttn/chief/ap42/ch02/final/c02s04.pdf">http://www.epa.gov/ttn/chief/ap42/ch02/final/c02s04.pdf</a>
GHG			40 CFR 98, Table A-1
CO <sub>2</sub>	1	CO <sub>2</sub> e	
CH <sub>4</sub>	21	CO <sub>2</sub> e	

Conversions	
1 short ton (tn) =	0.907 Mg
1 short ton =	2,000 lbs
1 foot =	0.3048 meter



PROJECT NUMBER: 12345-007-01 SHEET: 2 OF 7  
 PROJECT NAME: LEE/HENDRY TITLE V RENEWAL APPLICATION  
 SUBJECT: ATTACHMENT III.F.1 - POTENTIAL TO EMIT CALCULATIONS  
 BY: TMCKNIGHT DATE: 10/30/2013  
 CHECKED BY: HBOUDREAU DATE: 11/21/2013

**Calculations:**

**NMOC Potential to Emit**

Calculate the potential NMOC emissions from the facility based on LandGEM results.

- Convert the total annual NMOC emissions from megagrams to short tons:

$$57.1 \text{ Mg/yr} \times 1 \text{ tn}/0.907 \text{ Mg} = \underline{\hspace{2cm}} 62.9 \text{ tons/year}$$

- Convert the annual NMOC emissions to pounds per hour:

$$62.9 \text{ tn/yr} \times 2000 \text{ lbs/tn} \times 1 \text{ yr}/365 \text{ dy} \times 1 \text{ dy}/24 \text{ hr} = \underline{\hspace{2cm}} 14.4 \text{ lb/hr}$$

**VOC Potential to Emit**

Calculate the potential VOC emissions from the facility based on AP-42 emissions factor.

$$14.4 \text{ lb/hr} \times 39\% = \underline{\hspace{2cm}} 5.60 \text{ lb/hr}$$

$$62.9 \text{ tn/yr} \times 39\% = \underline{\hspace{2cm}} 24.5 \text{ tons/year}$$

Calculate the potential VOC emissions from the facility based on LandGEM Inventory for 2035.

LandGEM Results for VOC Potential to Emit for 2035				
Gas / Pollutant	Emission Rate (short tons/year)			
	Class I	Ash	Class III	Total
1,1,2,2-Tetrachloroethane - HAP/VOC	9.091E-02	2.108E-02	9.415E-02	2.061E-01
1,1-Dichloroethane (ethylidene dichloride) - HAP/VOC	1.170E-01	2.712E-02	1.211E-01	2.652E-01
1,1-Dichloroethane (vinylidene chloride) - HAP/VOC	9.546E-03	2.214E-03	9.887E-03	2.165E-02
1,2-Dichloroethane (ethylene dichloride) - HAP/VOC	1.998E-02	4.632E-03	2.069E-02	4.530E-02
1,2-Dichloropropane (propylene dichloride) - HAP/VOC	1.001E-02	2.322E-03	1.037E-02	2.271E-02
2-Propanol (isopropyl alcohol) - VOC	1.480E+00	3.431E-01	1.533E+00	3.356E+00
Acrylonitrile - HAP/VOC	1.646E-01	3.816E-02	1.705E-01	3.732E-01
Benzene - No or Unknown Co-disposal - HAP/VOC	7.307E-02	1.694E-02	7.568E-02	1.657E-01
Bromodichloromethane - VOC	2.501E-01	5.798E-02	2.590E-01	5.670E-01
Butane - VOC	1.431E-01	3.318E-02	1.482E-01	3.244E-01
Carbon disulfide - HAP/VOC	2.174E-02	5.041E-03	2.252E-02	4.930E-02
Carbon tetrachloride - HAP/VOC	3.030E-04	7.026E-05	3.138E-04	6.870E-04
Carbonyl sulfide - HAP/VOC	1.449E-02	3.361E-03	1.501E-02	3.286E-02
Chlorobenzene - HAP/VOC	1.386E-02	3.213E-03	1.435E-02	3.142E-02
Chloroethane (ethyl chloride) - HAP/VOC	4.130E-02	9.576E-03	4.277E-02	9.365E-02
Chloroform - HAP/VOC	1.764E-03	4.089E-04	1.826E-03	3.999E-03
Chloromethane - VOC	2.983E-02	6.917E-03	3.090E-02	6.764E-02
Dichlorobenzene - (HAP for para isomer/VOC)	1.520E-02	3.524E-03	1.574E-02	3.447E-02
Dichlorofluoromethane - VOC	1.318E-01	3.055E-02	1.365E-01	2.988E-01
Dimethyl sulfide (methyl sulfide) - VOC	2.386E-01	5.533E-02	2.471E-01	5.411E-01
Ethanol - VOC	6.126E-01	1.420E-01	6.344E-01	1.389E+00
Ethyl mercaptan (ethanethiol) - VOC	7.036E-02	1.631E-02	7.287E-02	1.595E-01
Ethylbenzene - HAP/VOC	2.404E-01	5.575E-02	2.490E-01	5.452E-01
Ethylene dibromide - HAP/VOC	9.251E-05	2.145E-05	9.581E-05	2.098E-04
Fluorotrichloromethane - VOC	5.141E-02	1.192E-02	5.324E-02	1.166E-01
Hexane - HAP/VOC	2.801E-01	6.494E-02	2.900E-01	6.350E-01
Methyl ethyl ketone - HAP/VOC	2.521E-01	5.845E-02	2.611E-01	5.716E-01
Methyl isobutyl ketone - HAP/VOC	9.370E-02	2.173E-02	9.704E-02	2.125E-01
Methyl mercaptan - VOC	5.922E-02	1.373E-02	6.133E-02	1.343E-01
Pentane - VOC	1.172E-01	2.718E-02	1.214E-01	2.658E-01
Propane - VOC	2.388E-01	5.537E-02	2.473E-01	5.415E-01
t-1,2-Dichloroethane - VOC	1.336E-01	3.099E-02	1.384E-01	3.030E-01
Toluene - No or Unknown Co-disposal - HAP/VOC	1.769E+00	4.102E-01	1.832E+00	4.012E+00
Trichloroethylene (trichloroethene) - HAP/VOC	1.812E-01	4.201E-02	1.876E-01	4.108E-01
Vinyl chloride - HAP/VOC	2.246E-01	5.209E-02	2.327E-01	5.094E-01
Xylenes - HAP/VOC	6.272E-01	1.454E-01	6.496E-01	1.422E+00
<b>Total VOC</b>	<b>7.8</b>	<b>1.8</b>	<b>8.1</b>	<b>17.7</b>
<b>Maximum VOC</b>	<b>1.8</b>	<b>0.4</b>	<b>1.8</b>	<b>4.0</b>



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 BY: TMCKNIGHT DATE: 10/30/2013  
 CHECKED BY: HBOUDREAU DATE: 11/21/2013

**HAP Potential to Emit**

Calculate the potential HAP emissions from the facility based on LandGEM Inventory for 2035.

LandGEM Results for HAP Potential to Emit for 2035				
Gas / Pollutant	Emission Rate (short tons/year)			
	Class I	Ash	Class III	Total
1,1,1-Trichloroethane (methyl chloroform) - HAP	3.153E-02	7.311E-03	3.265E-02	7.150E-02
1,1,2,2-Tetrachloroethane - HAP/VOC	9.091E-02	2.108E-02	9.415E-02	2.061E-01
1,1-Dichloroethane (ethylidene dichloride) - HAP/VOC	1.170E-01	2.712E-02	1.211E-01	2.652E-01
1,1-Dichloroethene (vinylidene chloride) - HAP/VOC	9.546E-03	2.214E-03	9.887E-03	2.165E-02
1,2-Dichloroethane (ethylene dichloride) - HAP/VOC	1.998E-02	4.632E-03	2.069E-02	4.530E-02
1,2-Dichloropropane (propylene dichloride) - HAP/VOC	1.001E-02	2.322E-03	1.037E-02	2.271E-02
Acrylonitrile - HAP/VOC	1.646E-01	3.816E-02	1.705E-01	3.732E-01
Benzene - No or Unknown Co-disposal - HAP/VOC	7.307E-02	1.694E-02	7.568E-02	1.657E-01
Carbon disulfide - HAP/VOC	2.174E-02	5.041E-03	2.252E-02	4.930E-02
Carbon tetrachloride - HAP/VOC	3.030E-04	7.026E-05	3.138E-04	6.870E-04
Carbonyl sulfide - HAP/VOC	1.449E-02	3.361E-03	1.501E-02	3.286E-02
Chlorobenzene - HAP/VOC	1.386E-02	3.213E-03	1.435E-02	3.142E-02
Chloroethane (ethyl chloride) - HAP/VOC	4.130E-02	9.576E-03	4.277E-02	9.365E-02
Chloroform - HAP/VOC	1.764E-03	4.089E-04	1.826E-03	3.999E-03
Dichlorobenzene - (HAP for para isomer/VOC)	1.520E-02	3.524E-03	1.574E-02	3.447E-02
Dichloromethane (methylene chloride) - HAP	5.855E-01	1.358E-01	6.064E-01	1.328E+00
Ethylbenzene - HAP/VOC	2.404E-01	5.575E-02	2.490E-01	5.452E-01
Ethylene dibromide - HAP/VOC	9.251E-05	2.145E-05	9.581E-05	2.098E-04
Hexane - HAP/VOC	2.801E-01	6.494E-02	2.900E-01	6.350E-01
Mercury (total) - HAP	2.864E-05	6.642E-06	2.967E-05	6.495E-05
Methyl ethyl ketone - HAP/VOC	2.521E-01	5.845E-02	2.611E-01	5.716E-01
Methyl isobutyl ketone - HAP/VOC	9.370E-02	2.173E-02	9.704E-02	2.125E-01
Perchloroethylene (tetrachloroethylene) - HAP	3.021E-01	7.005E-02	3.129E-01	6.850E-01
Toluene - No or Unknown Co-disposal - HAP/VOC	1.769E+00	4.102E-01	1.832E+00	4.012E+00
Trichloroethylene (trichloroethene) - HAP/VOC	1.812E-01	4.201E-02	1.876E-01	4.108E-01
Vinyl chloride - HAP/VOC	2.246E-01	5.209E-02	2.327E-01	5.094E-01
Xylenes - HAP/VOC	6.272E-01	1.454E-01	6.496E-01	1.422E+00
<b>Total HAP</b>	<b>5.2</b>	<b>1.2</b>	<b>5.4</b>	<b>11.7</b>
<b>Maximum HAP</b>	<b>1.8</b>	<b>0.4</b>	<b>1.8</b>	<b>4.0</b>

11.7 tn/yr × 2000 lbs/tn × 1 yr/365 dy × 1 dy/24 hr = 2.68 lb/hr



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 SUBJECT: ATTACHMENT III.F.1 - POTENTIAL TO EMIT CALCULATIONS  
 BY: TMCKNIGHT DATE: 10/30/2013  
 CHECKED BY: HBOUDREAU DATE: 11/21/2013

**GHG Potential to Emit**

Calculate the potential GHG emissions from the facility based on LandGEM results and 40 CFR 98 emissions factors.  
 Calculate the potential GHG emissions from the facility before the Ash Monofill Expansion.  
 Calculate the potential GHG emissions from the facility as a result of the Ash Monofill Expansion.

Sample Calculation:

1. Calculate the Methane generation rate based on LandGEM landfill gas generation rate for 2035:

$$Q_{CH_4} = Q_{LFG} C_{CH_4} \left( 0.3048 \frac{ft}{m} \right)^3 \frac{60 \text{ min} \times 24 \text{ hr} \times 365 \text{ day}}{\text{year}}$$

where:

$Q_{CH_4}$  = Emission rate of Methane,  $m^3/yr$   
 $Q_{LFG}$  = Landfill gas emission rate, scfm  
 $C_{CH_4}$  = Concentration of Methane, %

$$1640 \text{ SCFM} \times 50\% \times (0.3048 \text{ m/ft})^3 \times 60 \text{ min} \times 24 \text{ hr} \times 365 \text{ dy/yr} = \underline{1.22E+07} \text{ m}^3 \text{ CH}_4/\text{yr}$$

2. Calculate the mass Methane generation rate based on LandGEM landfill gas generation rate for 2035:

$$M_{CH_4} = Q_{CH_4} \left[ \frac{MW_{CH_4} \times 1 \text{ atm}}{\left( 8.205 \times 10^{-5} \frac{m^3 - atm}{gmol - K} \right) \left( \frac{1,000 \text{ g}}{kg} \right) (273 + T)} \right]$$

where:

$M_{CH_4}$  = Mass emission rate of Methane,  $kg^3/yr$   
 $Q_{CH_4}$  = Emission rate of Methane,  $m^3/yr$   
 $MW_{CH_4}$  = Molecular weight of Methane,  $g/gmol$   
 T = temperature of landfill gas, C 25 C

$$12201472 \text{ m}^3 \text{ CH}_4/\text{yr} \left[ \frac{(16.04 \text{ g/mol} \times 1 \text{ atm})}{(8.205 \times 10^{-5} \text{ m}^3\text{-atm/gmolK} \times 1,000 \text{ g/kg} \times (273+25C))} \right] / 1000 \text{ kg/Mg} =$$

$$M_{CH_4} = \frac{8.00E+03 \text{ Mg CH}_4/\text{yr}}{8.82E+03 \text{ tons CH}_4/\text{yr}} = \frac{2.01E+03 \text{ lb CH}_4/\text{hr}}{1.85E+05 \text{ tons CO}_2e/\text{yr}} = \frac{4.23E+04 \text{ lb CO}_2e/\text{hr}}$$

3. Sum total greenhouse gas emissions in  $CO_2e$ :

	[lb/hr]	[ton/yr]
Methane	42,312	185,325
Total	42,312	185,325

Note : Biogenic  $CO_2$  Emissions are deferred and not included in these calculations.



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 BY: TMCKNIGHT DATE: 10/30/2013  
 CHECKED BY: HBOUDREAU DATE: 11/21/2013

Before the Ash Monofill Expansion the Ash Monofill was projected to reach capacity in February 2017 according to County Annual Remaining Capacity Site Life Calculations submitted to FDEP on January 22, 2013

Pre-Ash Monofill Expansion LandGEM Waste Acceptance, Landfill Gas Generation, and Greenhouse Gas Potential to Emit									
Year	Waste Accepted (short tons/year)				Total Landfill Gas (scfm)				GHG (tpy CO <sub>2</sub> e)
	Class I	Ash	Class III	Total	Class I	Ash	Class III	Total	Total
	2002	9,127	0	0	9,127	0			0
2003	122,195	0	0	122,195	9			9	1,048
2004	150,700	0	0	150,700	133			133	15,021
2005	219,409	0	0	219,409	279			279	31,584
2006	247,713	0	0	247,713	489			489	55,225
2007	161,669	0	0	161,669	716			716	80,961
2008	27,423	4,886	0	32,310	846	0		846	95,567
2009	96	15,328	22,925	38,349	832	5	0	837	94,615
2010	0	14,777	36,078	50,855	792	20	23	835	94,401
2011	0	6,584	30,344	36,928	753	34	59	846	95,634
2012	0	13,515	21,030	34,545	716	39	87	842	95,208
2013	25,000	20,000	35,000	80,000	681	51	104	836	94,529
2014	25,750	20,600	36,050	82,400	674	69	134	877	99,101
2015	26,523	21,218	37,132	84,872	667	86	164	918	103,724
2016	27,318	21,855	38,245	87,418	661	104	194	959	108,406
2017	28,138	3,752	39,393	71,282	657	121	223	1,001	113,152
2018	28,982		40,575	69,556	653	119	253	1,025	115,815
2019	29,851		41,792	71,643	651	113	281	1,045	118,149
2020	30,747		43,046	73,792	649	108	310	1,067	120,610
2021	31,669		44,337	76,006	649	102	339	1,090	123,196
2022	32,619		45,667	78,286	649	97	367	1,114	125,911
2023	33,598		47,037	80,635	651	93	396	1,139	128,755
2024	34,606		48,448	83,054	653	88	424	1,165	131,730
2025	35,644		49,902	85,546	657	84	453	1,193	134,838
2026	36,713		51,399	88,112	661	80	481	1,222	138,080
2027	37,815		52,941	90,755	666	76	510	1,252	141,458
2028	38,949		54,529	93,478	672	72	539	1,283	144,975
2029	40,118		56,165	96,282	678	69	568	1,315	148,633
2030	41,321		57,850	99,171	686	65	597	1,349	152,434
2031	42,561		59,585	102,146	695	62	627	1,384	156,382
2032	43,838		61,373	105,210	704	59	657	1,420	160,478
2033	45,153		63,214	108,367	714	56	687	1,457	164,726
2034	32,777		65,110	97,888	725	53	718	1,496	169,130
2035			67,064	67,064	723	51	749	1,523	172,116
2036			69,076	69,076	688	48	780	1,517	171,418
2037			16,186	16,186	654	46	813	1,513	170,986

Prior to the Ash Monofill Expansion, the facility had a maximum GHG potential to emit of 172116 tons per year of CO2 equivalent.



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 BY: TMCKNIGHT DATE: 10/30/2013  
 CHECKED BY: HBOUDREAU DATE: 11/21/2013

With the Ash Monofill Expansion the Ash Monofill is projected to reach capacity in 2025.

Pre-Ash Monofill Expansion LandGEM Waste Acceptance, Landfill Gas Generation, and Greenhouse Gas Potential to Emit									
Year	Waste Accepted (short tons/year)				Total Landfill Gas (scfm)				GHG (tpy CO <sub>2</sub> e)
	Class I	Ash	Class III	Total	Class I	Ash	Class III	Total	Total
	2002	9,127	0	0	9,127	0			0
2003	122,195	0	0	122,195	9			9	1,048
2004	150,700	0	0	150,700	133			133	15,021
2005	219,409	0	0	219,409	279			279	31,584
2006	247,713	0	0	247,713	489			489	55,225
2007	161,669	0	0	161,669	716			716	80,961
2008	27,423	4,886	0	32,310	846	0		846	95,567
2009	96	15,328	22,925	38,349	832	5	0	837	94,615
2010	0	14,777	36,078	50,855	792	20	23	835	94,401
2011	0	6,584	30,344	36,928	753	34	59	846	95,634
2012	0	13,515	21,030	34,545	716	39	87	842	95,208
2013	25,000	20,000	35,000	80,000	681	51	104	836	94,529
2014	25,750	20,600	36,050	82,400	674	69	134	877	99,101
2015	26,523	21,218	37,132	84,872	667	86	164	918	103,724
2016	27,318	21,855	38,245	87,418	661	104	194	959	108,406
2017	28,138	22,510	39,393	90,041	657	121	223	1,001	113,152
2018	28,982	23,185	40,575	92,742	653	138	253	1,044	117,968
2019	29,851	23,881	41,792	95,524	651	155	281	1,087	122,858
2020	30,747	24,597	43,046	98,390	649	171	310	1,131	127,830
2021	31,669	25,335	44,337	101,342	649	188	339	1,176	132,887
2022	32,619	26,095	45,667	104,382	649	205	367	1,221	138,037
2023	33,598	26,878	47,037	107,513	651	221	396	1,268	143,285
2024	34,606	27,685	48,448	110,739	653	238	424	1,315	148,636
2025	35,644	20,886	49,902	106,431	657	254	453	1,363	154,096
2026	36,713		51,399	88,112	661	263	481	1,405	158,796
2027	37,815		52,941	90,755	666	250	510	1,426	161,164
2028	38,949		54,529	93,478	672	238	539	1,448	163,720
2029	40,118		56,165	96,282	678	226	568	1,473	166,464
2030	41,321		57,850	99,171	686	215	597	1,499	169,395
2031	42,561		59,585	102,146	695	205	627	1,526	172,516
2032	43,838		61,373	105,210	704	195	657	1,556	175,825
2033	45,153		63,214	108,367	714	185	687	1,587	179,325
2034	32,777		65,110	97,888	725	176	718	1,619	183,016
2035			67,064	67,064	723	168	749	1,640	185,325
2036			69,076	69,076	688	159	780	1,628	183,983
2037			16,186	16,186	654	152	813	1,618	182,938

After the Ash Monofill Expansion, the facility had a maximum GHG potential to emit of 185325 tons per year of CO2 equivalent.

The net increase as a result of the Ash Monofill Expansion is 13209 tons per year of CO2 equivalent, which is less than 75,000 tons per year. Therefore, the facility is not subject to PSD requirements for GHG emissions.





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 BY: TMCKNIGHT DATE: 10/30/2013  
 CHECKED BY: HBOUDREAU DATE: 11/21/2013

**Conclusion:**

The following table summarizes the potential to emit for NMOC, VOC, HAP, and GHG:

Pollutant	Potential Emissions (2035)	
	[lb/hr]	[ton/yr]
NMOC	14.4	62.9
VOC	5.60	24.5
HAP	2.68	11.7

\*greater of the two calculation methods

Pollutant	Potential Emissions	
	[lb/hr]	[ton/yr]
Existing GHG PTE (tpy CO <sub>2</sub> e)	39,296	172,116
Modification GHG PTE (tpy CO <sub>2</sub> e)	3,016	13,209
Total GHG PTE (tpy CO <sub>2</sub> e)	42,312	185,325



**INVENTORY**

Landfill Name or Identifier: Lee/Hendry - Ash Monofill

Enter year of emissions inventory: 2035

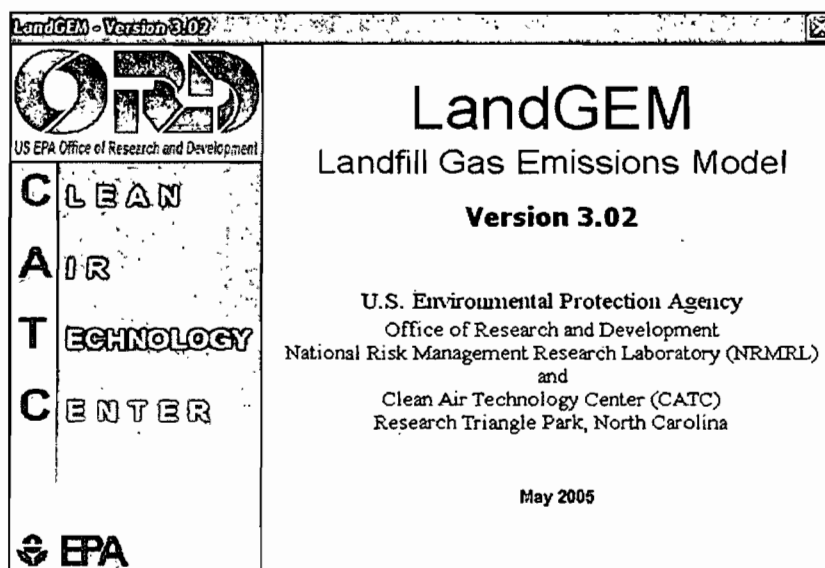
Gas / Pollutant	Emission Rate				
	(Mg/year)	(m <sup>3</sup> /year)	(av ft <sup>3</sup> /min)	(ft <sup>3</sup> /year)	(short tons/year)
Total landfill gas	3.116E+03	2.495E+06	1.677E+02	8.813E+07	3.428E+03
Methane	8.324E+02	1.248E+06	8.383E+01	4.406E+07	9.156E+02
Carbon dioxide	2.284E+03	1.248E+06	8.383E+01	4.406E+07	2.512E+03
NMOC	5.009E-01	1.397E+02	9.389E-03	4.935E+03	5.510E-01
1,1,1-Trichloroethane (methyl chloroform) - HAP	6.646E-03	1.198E+00	8.048E-05	4.230E+01	7.311E-03
1,1,2,2-Tetrachloroethane - HAP/VOC	1.916E-02	2.745E+00	1.844E-04	9.694E+01	2.108E-02
1,1-Dichloroethane (ethylidene dichloride) - HAP/VOC	2.465E-02	5.989E+00	4.024E-04	2.115E+02	2.712E-02
1,1-Dichloroethene (vinylidene chloride) - HAP/VOC	2.012E-03	4.991E-01	3.353E-05	1.763E+01	2.214E-03
1,2-Dichloroethane (ethylene dichloride) - HAP/VOC	4.211E-03	1.023E+00	6.874E-05	3.613E+01	4.632E-03
1,2-Dichloropropane (propylene dichloride) - HAP/VOC	2.111E-03	4.492E-01	3.018E-05	1.586E+01	2.322E-03
2-Propanol (isopropyl alcohol) - VOC	3.119E-01	1.248E+02	8.383E-03	4.406E+03	3.431E-01
Acetone	4.220E-02	1.747E+01	1.174E-03	6.169E+02	4.642E-02
Acrylonitrile - HAP/VOC	3.469E-02	1.572E+01	1.056E-03	5.552E+02	3.816E-02
Benzene - No or Unknown Co-disposal - HAP/VOC	1.540E-02	4.741E+00	3.186E-04	1.674E+02	1.694E-02
Benzene - Co-disposal - HAP/VOC	8.918E-02	2.745E+01	1.844E-03	9.694E+02	9.810E-02
Bromodichloromethane - VOC	5.271E-02	7.736E+00	5.198E-04	2.732E+02	5.798E-02
Butane - VOC	3.016E-02	1.248E+01	8.383E-04	4.406E+02	3.318E-02
Carbon disulfide - HAP/VOC	4.583E-03	1.447E+00	9.725E-05	5.111E+01	5.041E-03
Carbon monoxide	4.070E-01	3.494E+02	2.347E-02	1.234E+04	4.477E-01
Carbon tetrachloride - HAP/VOC	6.387E-05	9.982E-03	6.707E-07	3.525E-01	7.026E-05
Carbonyl sulfide - HAP/VOC	3.055E-03	1.223E+00	8.216E-05	4.318E+01	3.361E-03
Chlorobenzene - HAP/VOC	2.921E-03	6.238E-01	4.192E-05	2.203E+01	3.213E-03
Chlorodifluoromethane	1.167E-02	3.244E+00	2.180E-04	1.146E+02	1.283E-02
Chloroethane (ethyl chloride) - HAP/VOC	8.706E-03	3.244E+00	2.180E-04	1.146E+02	9.576E-03
Chloroform - HAP/VOC	3.717E-04	7.486E-02	5.030E-06	2.644E+00	4.089E-04
Chloromethane - VOC	6.288E-03	2.994E+00	2.012E-04	1.058E+02	6.917E-03
Dichlorobenzene - (HAP for para isomer/VOC)	3.204E-03	5.240E-01	3.521E-05	1.851E+01	3.524E-03
Dichlorodifluoromethane	2.008E-01	3.993E+01	2.683E-03	1.410E+03	2.209E-01
Dichlorofluoromethane - VOC	2.777E-02	6.488E+00	4.359E-04	2.291E+02	3.055E-02
Dichloromethane (methylene chloride) - HAP	1.234E-01	3.494E+01	2.347E-03	1.234E+03	1.358E-01
Dimethyl sulfide (methyl sulfide) - VOC	5.030E-02	1.946E+01	1.308E-03	6.874E+02	5.533E-02
Ethane	2.778E+00	2.221E+03	1.492E-01	7.843E+04	3.055E+00
Ethanol - VOC	1.291E-01	6.738E+01	4.527E-03	2.379E+03	1.420E-01
Ethyl mercaptan (ethanethiol) - VOC	1.483E-02	5.739E+00	3.856E-04	2.027E+02	1.631E-02
Ethylbenzene - HAP/VOC	5.068E-02	1.148E+01	7.713E-04	4.054E+02	5.575E-02
Ethylene dibromide - HAP/VOC	1.950E-05	2.495E-03	1.677E-07	8.813E-02	2.145E-05
Fluorotrichloromethane - VOC	1.084E-02	1.897E+00	1.274E-04	6.698E+01	1.192E-02
Hexane - HAP/VOC	5.903E-02	1.647E+01	1.107E-03	5.816E+02	6.494E-02
Hydrogen sulfide	1.273E-01	8.983E+01	6.036E-03	3.173E+03	1.401E-01
Mercury (total) - HAP	6.038E-06	7.237E-04	4.862E-08	2.556E-02	6.642E-06
Methyl ethyl ketone - HAP/VOC	5.314E-02	1.772E+01	1.190E-03	6.257E+02	5.845E-02
Methyl isobutyl ketone - HAP/VOC	1.975E-02	4.741E+00	3.186E-04	1.674E+02	2.173E-02
Methyl mercaptan - VOC	1.248E-02	6.238E+00	4.192E-04	2.203E+02	1.373E-02
Pentane - VOC	2.471E-02	8.235E+00	5.533E-04	2.908E+02	2.718E-02
Perchloroethylene (tetrachloroethylene) - HAP	6.368E-02	9.233E+00	6.204E-04	3.261E+02	7.005E-02
Propane - VOC	5.034E-02	2.745E+01	1.844E-03	9.694E+02	5.537E-02
t-1,2-Dichloroethene - VOC	2.817E-02	6.987E+00	4.695E-04	2.468E+02	3.099E-02
Toluene - No or Unknown Co-disposal - HAP/VOC	3.729E-01	9.732E+01	6.539E-03	3.437E+03	4.102E-01
Toluene - Co-disposal - HAP/VOC	1.626E+00	4.242E+02	2.850E-02	1.498E+04	1.788E+00
Trichloroethylene (trichloroethene) - HAP/VOC	3.819E-02	6.987E+00	4.695E-04	2.468E+02	4.201E-02
Vinyl chloride - HAP/VOC	4.735E-02	1.822E+01	1.224E-03	6.433E+02	5.209E-02
Xylenes - HAP/VOC	1.322E-01	2.994E+01	2.012E-03	1.058E+03	1.454E-01

INVENTORY

Landfill Name or Identifier: Lee/Hendry - Class III Landfill

Enter year of emissions inventory:

Gas / Pollutant	Emission Rate				
	(Mg/year)	(m <sup>3</sup> /year)	(av ft <sup>3</sup> /min)	(ft <sup>3</sup> /year)	(short tons/year)
Total landfill gas	1.392E+04	1.115E+07	7.489E+02	3.936E+08	1.531E+04
Methane	3.718E+03	5.573E+06	3.744E+02	1.968E+08	4.090E+03
Carbon dioxide	1.020E+04	5.573E+06	3.744E+02	1.968E+08	1.122E+04
NMOC	4.327E+01	1.207E+04	8.110E-01	4.263E+05	4.759E+01
1,1,1-Trichloroethane (methyl chloroform) - HAP	2.969E-02	5.350E+00	3.595E-04	1.889E+02	3.265E-02
1,1,2,2-Tetrachloroethane - HAP/VOC	8.559E-02	1.226E+01	8.238E-04	4.330E+02	9.415E-02
1,1-Dichloroethane (ethylidene dichloride) - HAP/VOC	1.101E-01	2.675E+01	1.797E-03	9.447E+02	1.211E-01
1,1-Dichloroethene (vinylidene chloride) - HAP/VOC	8.988E-03	2.229E+00	1.498E-04	7.872E+01	9.887E-03
1,2-Dichloroethane (ethylene dichloride) - HAP/VOC	1.881E-02	4.570E+00	3.070E-04	1.614E+02	2.069E-02
1,2-Dichloropropane (propylene dichloride) - HAP/VOC	9.428E-03	2.006E+00	1.348E-04	7.085E+01	1.037E-02
2-Propanol (isopropyl alcohol) - VOC	1.393E+00	5.573E+02	3.744E-02	1.968E+04	1.533E+00
Acetone	1.885E-01	7.802E+01	5.242E-03	2.755E+03	2.073E-01
Acrylonitrile - HAP/VOC	1.550E-01	7.022E+01	4.718E-03	2.480E+03	1.705E-01
Benzene - No or Unknown Co-disposal - HAP/VOC	6.880E-02	2.118E+01	1.423E-03	7.479E+02	7.568E-02
Benzene - Co-disposal - HAP/VOC	3.983E-01	1.226E+02	8.238E-03	4.330E+03	4.381E-01
Bromodichloromethane - VOC	2.354E-01	3.455E+01	2.321E-03	1.220E+03	2.590E-01
Butane - VOC	1.347E-01	5.573E+01	3.744E-03	1.968E+03	1.482E-01
Carbon disulfide - HAP/VOC	2.047E-02	6.464E+00	4.343E-04	2.283E+02	2.252E-02
Carbon monoxide	1.818E+00	1.560E+03	1.048E-01	5.510E+04	2.000E+00
Carbon tetrachloride - HAP/VOC	2.853E-04	4.458E-02	2.995E-06	1.574E+00	3.138E-04
Carbonyl sulfide - HAP/VOC	1.365E-02	5.461E+00	3.669E-04	1.929E+02	1.501E-02
Chlorobenzene - HAP/VOC	1.305E-02	2.786E+00	1.872E-04	9.840E+01	1.435E-02
Chlorodifluoromethane	5.211E-02	1.449E+01	9.735E-04	5.117E+02	5.732E-02
Chloroethane (ethyl chloride) - HAP/VOC	3.888E-02	1.449E+01	9.735E-04	5.117E+02	4.277E-02
Chloroform - HAP/VOC	1.660E-03	3.344E-01	2.247E-05	1.181E+01	1.826E-03
Chloromethane - VOC	2.809E-02	1.337E+01	8.986E-04	4.723E+02	3.090E-02
Dichlorobenzene - (HAP for para isomer/VOC)	1.431E-02	2.341E+00	1.573E-04	8.266E+01	1.574E-02
Dichlorodifluoromethane	8.968E-01	1.783E+02	1.198E-02	6.298E+03	9.865E-01
Dichlorofluoromethane - VOC	1.240E-01	2.898E+01	1.947E-03	1.023E+03	1.365E-01
Dichloromethane (methylene chloride) - HAP	5.513E-01	1.560E+02	1.048E-02	5.510E+03	6.064E-01
Dimethyl sulfide (methyl sulfide) - VOC	2.247E-01	8.694E+01	5.841E-03	3.070E+03	2.471E-01
Ethane	1.241E+01	9.920E+03	6.665E-01	3.503E+05	1.365E+01
Ethanol - VOC	5.768E-01	3.009E+02	2.022E-02	1.063E+04	6.344E-01
Ethyl mercaptan (ethanethiol) - VOC	6.624E-02	2.563E+01	1.722E-03	9.053E+02	7.287E-02
Ethylbenzene - HAP/VOC	2.264E-01	5.127E+01	3.445E-03	1.811E+03	2.490E-01
Ethylene dibromide - HAP/VOC	8.710E-05	1.115E-02	7.489E-07	3.936E-01	9.581E-05
Fluorotrichloromethane - VOC	4.840E-02	8.471E+00	5.691E-04	2.991E+02	5.324E-02
Hexane - HAP/VOC	2.637E-01	7.356E+01	4.943E-03	2.598E+03	2.900E-01
Hydrogen sulfide	5.688E-01	4.012E+02	2.696E-02	1.417E+04	6.256E-01
Mercury (total) - HAP	2.697E-05	3.232E-03	2.172E-07	1.141E-01	2.967E-05
Methyl ethyl ketone - HAP/VOC	2.373E-01	7.913E+01	5.317E-03	2.795E+03	2.611E-01
Methyl isobutyl ketone - HAP/VOC	8.822E-02	2.118E+01	1.423E-03	7.479E+02	9.704E-02
Methyl mercaptan - VOC	5.576E-02	2.786E+01	1.872E-03	9.840E+02	6.133E-02
Pentane - VOC	1.104E-01	3.678E+01	2.471E-03	1.299E+03	1.214E-01
Perchloroethylene (tetrachloroethylene) - HAP	2.844E-01	4.124E+01	2.771E-03	1.456E+03	3.129E-01
Propane - VOC	2.248E-01	1.226E+02	8.238E-03	4.330E+03	2.473E-01
t-1,2-Dichloroethene - VOC	1.258E-01	3.121E+01	2.097E-03	1.102E+03	1.384E-01
Toluene - No or Unknown Co-disposal - HAP/VOC	1.666E+00	4.347E+02	2.921E-02	1.535E+04	1.832E+00
Toluene - Co-disposal - HAP/VOC	7.261E+00	1.895E+03	1.273E-01	6.691E+04	7.987E+00
Trichloroethylene (trichloroethene) - HAP/VOC	1.706E-01	3.121E+01	2.097E-03	1.102E+03	1.876E-01
Vinyl chloride - HAP/VOC	2.115E-01	8.136E+01	5.467E-03	2.873E+03	2.327E-01
Xylenes - HAP/VOC	5.906E-01	1.337E+02	8.986E-03	4.723E+03	6.496E-01



## Summary Report

**Landfill Name or Identifier:** Lee/Hendry - Ash Monofill - Pre-Expansion

**Date:** Tuesday, November 26, 2013

### Description/Comments:

### About LandGEM:

First-Order Decomposition Rate Equation:

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

Where,

$Q_{CH_4}$  = annual methane generation in the year of the calculation ( $m^3/year$ )

$i$  = 1-year time increment

$n$  = (year of the calculation) - (initial year of waste acceptance)

$j$  = 0.1-year time increment

$k$  = methane generation rate ( $year^{-1}$ )

$L_o$  = potential methane generation capacity ( $m^3/Mg$ )

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

$t_{ij}$  = age of the  $j^{th}$  section of waste mass  $M_i$  accepted in the  $i^{th}$  year  
(decimal years, e.g., 3.2 years)

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

LandGEM is considered a screening tool — the better the input data, the better the estimates. Often, there are limitations with the available data regarding waste quantity and composition, variation in design and operating practices over time, and changes occurring over time that impact the emissions potential. Changes to landfill operation, such as operating under wet conditions through leachate recirculation or other liquid additions, will result in generating more gas at a faster rate. Defaults for estimating emissions for this type of operation are being developed to include in LandGEM along with defaults for 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	<b>2008</b>	
Landfill Closure Year (with 80-year limit)	<b>2017</b>	
Actual Closure Year (without limit)	<b>2017</b>	
Have Model Calculate Closure Year?	<b>No</b>	
Waste Design Capacity	<b>138,762</b>	<i>short tons</i>

MODEL PARAMETERS

Methane Generation Rate, k	<b>0.050</b>	<i>year<sup>-1</sup></i>
Potential Methane Generation Capacity, L <sub>0</sub>	<b>170</b>	<i>m<sup>3</sup>/Mg</i>
NMOC Concentration	<b>50</b>	<i>ppmv as hexane</i>
Methane Content	<b>50</b>	<i>% by volume</i>

GASES / POLLUTANTS SELECTED

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

WASTE ACCEPTANCE RATES

Year	Waste Accepted		Waste-In-Place	
	(Mg/year)	(short tons/year)	(Mg)	(short tons)
2008	4,442	4,886	0	0
2009	13,935	15,328	4,442	4,886
2010	13,433	14,777	18,377	20,215
2011	5,985	6,584	31,810	34,991
2012	12,286	13,515	37,795	41,575
2013	18,182	20,000	50,082	55,090
2014	18,727	20,600	68,263	75,090
2015	19,289	21,218	86,991	95,690
2016	19,868	21,855	106,280	116,908
2017	3,411	3,752	126,147	138,762
2018	0	0	129,558	142,514
2019	0	0	129,558	142,514
2020	0	0	129,558	142,514
2021	0	0	129,558	142,514
2022	0	0	129,558	142,514
2023	0	0	129,558	142,514
2024	0	0	129,558	142,514
2025	0	0	129,558	142,514
2026	0	0	129,558	142,514
2027	0	0	129,558	142,514
2028	0	0	129,558	142,514
2029	0	0	129,558	142,514
2030	0	0	129,558	142,514
2031	0	0	129,558	142,514
2032	0	0	129,558	142,514
2033	0	0	129,558	142,514
2034	0	0	129,558	142,514
2035	0	0	129,558	142,514
2036	0	0	129,558	142,514
2037	0	0	129,558	142,514
2038	0	0	129,558	142,514
2039	0	0	129,558	142,514
2040	0	0	129,558	142,514
2041	0	0	129,558	142,514
2042	0	0	129,558	142,514
2043	0	0	129,558	142,514
2044	0	0	129,558	142,514
2045	0	0	129,558	142,514
2046	0	0	129,558	142,514
2047	0	0	129,558	142,514

## WASTE ACCEPTANCE RATES (Continued)

Year	Waste Accepted		Waste-In-Place	
	(Mg/year)	(short tons/year)	(Mg)	(short tons)
2048	0	0	129,558	142,514
2049	0	0	129,558	142,514
2050	0	0	129,558	142,514
2051	0	0	129,558	142,514
2052	0	0	129,558	142,514
2053	0	0	129,558	142,514
2054	0	0	129,558	142,514
2055	0	0	129,558	142,514
2056	0	0	129,558	142,514
2057	0	0	129,558	142,514
2058	0	0	129,558	142,514
2059	0	0	129,558	142,514
2060	0	0	129,558	142,514
2061	0	0	129,558	142,514
2062	0	0	129,558	142,514
2063	0	0	129,558	142,514
2064	0	0	129,558	142,514
2065	0	0	129,558	142,514
2066	0	0	129,558	142,514
2067	0	0	129,558	142,514
2068	0	0	129,558	142,514
2069	0	0	129,558	142,514
2070	0	0	129,558	142,514
2071	0	0	129,558	142,514
2072	0	0	129,558	142,514
2073	0	0	129,558	142,514
2074	0	0	129,558	142,514
2075	0	0	129,558	142,514
2076	0	0	129,558	142,514
2077	0	0	129,558	142,514
2078	0	0	129,558	142,514
2079	0	0	129,558	142,514
2080	0	0	129,558	142,514
2081	0	0	129,558	142,514
2082	0	0	129,558	142,514
2083	0	0	129,558	142,514
2084	0	0	129,558	142,514
2085	0	0	129,558	142,514
2086	0	0	129,558	142,514
2087	0	0	129,558	142,514

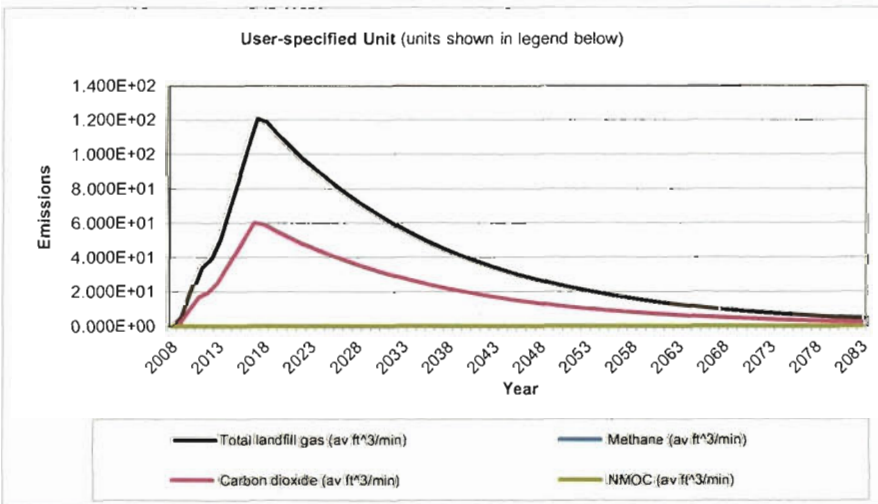
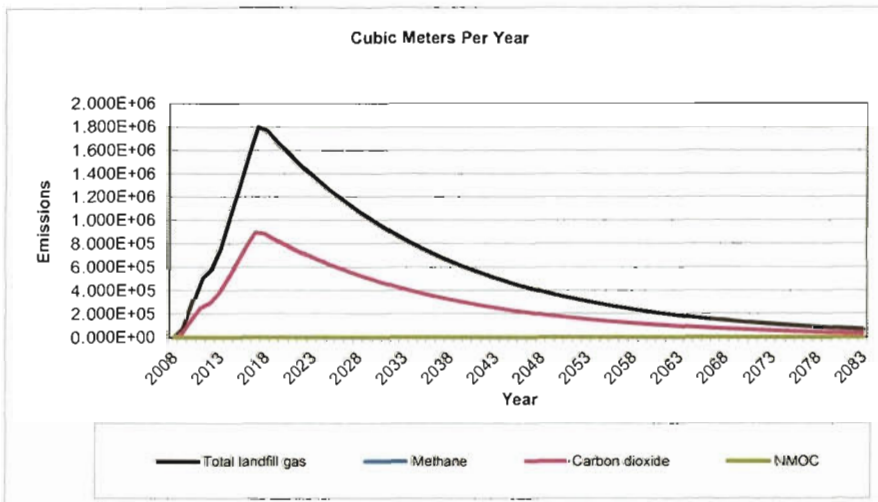
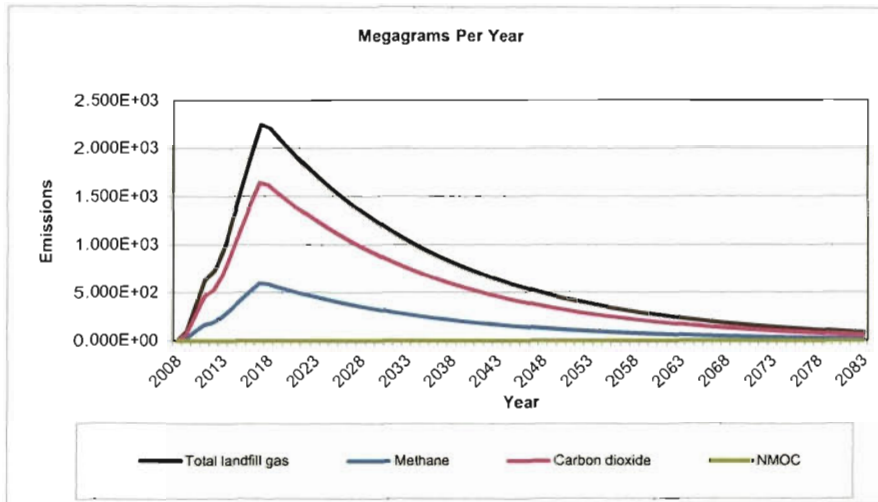
**Pollutant Parameters****Gas / Pollutant Default Parameters:****User-specified Pollutant Parameters:**

	Compound	Concentration (ppmv)	Molecular Weight	Concentration (ppmv)	Molecular Weight
<b>Cases</b>	Total landfill gas		0.00		
	Methane		16.04		
	Carbon dioxide		44.01		
	NMOC	4,000	86.18		
<b>Pollutants</b>	1,1,1-Trichloroethane (methyl chloroform) - HAP	0.48	133.41		
	1,1,2,2- Tetrachloroethane - HAP/VOC	1.1	167.85		
	1,1-Dichloroethane (ethylidene dichloride) - HAP/VOC	2.4	98.97		
	1,1-Dichloroethene (vinylidene chloride) - HAP/VOC	0.20	96.94		
	1,2-Dichloroethane (ethylene dichloride) - HAP/VOC	0.41	98.96		
	1,2-Dichloropropane (propylene dichloride) - HAP/VOC	0.18	112.99		
	2-Propanol (isopropyl alcohol) - VOC	50	60.11		
	Acetone	7.0	58.08		
	Acrylonitrile - HAP/VOC	6.3	53.06		
	Benzene - No or Unknown Co-disposal - HAP/VOC	1.9	78.11		
	Benzene - Co-disposal - HAP/VOC	11	78.11		
	Bromodichloromethane - VOC	3.1	163.83		
	Butane - VOC	5.0	58.12		
	Carbon disulfide - HAP/VOC	0.58	76.13		
	Carbon monoxide	140	28.01		
	Carbon tetrachloride - HAP/VOC	4.0E-03	153.84		
	Carbonyl sulfide - HAP/VOC	0.49	60.07		
	Chlorobenzene - HAP/VOC	0.25	112.56		
	Chlorodifluoromethane	1.3	86.47		
	Chloroethane (ethyl chloride) - HAP/VOC	1.3	64.52		
	Chloroform - HAP/VOC	0.03	119.39		
	Chloromethane - VOC	1.2	50.49		
	Dichlorobenzene - (HAP for para isomer/VOC)	0.21	147		
	Dichlorodifluoromethane	16	120.91		
	Dichlorofluoromethane - VOC	2.6	102.92		
	Dichloromethane (methylene chloride) - HAP	14	84.94		
	Dimethyl sulfide (methyl sulfide) - VOC	7.8	62.13		
	Ethane	890	30.07		
	Ethanol - VOC	27	46.08		





**Graphs**



**Results**

Year	Total landfill gas			Methane		
	(Mg/year)	(m <sup>3</sup> /year)	(av ft <sup>3</sup> /min)	(Mg/year)	(m <sup>3</sup> /year)	(av ft <sup>3</sup> /min)
2008	0	0	0	0	0	0
2009	9.222E+01	7.385E+04	4.962E+00	2.463E+01	3.692E+04	2.481E+00
2010	3.770E+02	3.019E+05	2.028E+01	1.007E+02	1.509E+05	1.014E+01
2011	6.375E+02	5.105E+05	3.430E+01	1.703E+02	2.552E+05	1.715E+01
2012	7.306E+02	5.851E+05	3.931E+01	1.952E+02	2.925E+05	1.966E+01
2013	9.501E+02	7.608E+05	5.112E+01	2.538E+02	3.804E+05	2.556E+01
2014	1.281E+03	1.026E+06	6.893E+01	3.422E+02	5.130E+05	3.447E+01
2015	1.607E+03	1.287E+06	8.649E+01	4.294E+02	6.436E+05	4.324E+01
2016	1.930E+03	1.545E+06	1.038E+02	5.154E+02	7.725E+05	5.191E+01
2017	2.248E+03	1.800E+06	1.209E+02	6.004E+02	9.000E+05	6.047E+01
2018	2.209E+03	1.769E+06	1.189E+02	5.901E+02	8.844E+05	5.943E+01
2019	2.101E+03	1.683E+06	1.131E+02	5.613E+02	8.413E+05	5.653E+01
2020	1.999E+03	1.601E+06	1.075E+02	5.339E+02	8.003E+05	5.377E+01
2021	1.901E+03	1.523E+06	1.023E+02	5.079E+02	7.613E+05	5.115E+01
2022	1.809E+03	1.448E+06	9.731E+01	4.831E+02	7.241E+05	4.865E+01
2023	1.720E+03	1.378E+06	9.256E+01	4.595E+02	6.888E+05	4.628E+01
2024	1.636E+03	1.310E+06	8.805E+01	4.371E+02	6.552E+05	4.402E+01
2025	1.557E+03	1.247E+06	8.375E+01	4.158E+02	6.233E+05	4.188E+01
2026	1.481E+03	1.186E+06	7.967E+01	3.955E+02	5.929E+05	3.983E+01
2027	1.409E+03	1.128E+06	7.578E+01	3.762E+02	5.639E+05	3.789E+01
2028	1.340E+03	1.073E+06	7.209E+01	3.579E+02	5.364E+05	3.604E+01
2029	1.275E+03	1.021E+06	6.857E+01	3.404E+02	5.103E+05	3.429E+01
2030	1.212E+03	9.708E+05	6.523E+01	3.238E+02	4.854E+05	3.261E+01
2031	1.153E+03	9.234E+05	6.205E+01	3.080E+02	4.617E+05	3.102E+01
2032	1.097E+03	8.784E+05	5.902E+01	2.930E+02	4.392E+05	2.951E+01
2033	1.043E+03	8.356E+05	5.614E+01	2.787E+02	4.178E+05	2.807E+01
2034	9.926E+02	7.948E+05	5.340E+01	2.651E+02	3.974E+05	2.670E+01
2035	9.442E+02	7.561E+05	5.080E+01	2.522E+02	3.780E+05	2.540E+01
2036	8.981E+02	7.192E+05	4.832E+01	2.399E+02	3.596E+05	2.416E+01
2037	8.543E+02	6.841E+05	4.596E+01	2.282E+02	3.421E+05	2.298E+01
2038	8.127E+02	6.507E+05	4.372E+01	2.171E+02	3.254E+05	2.186E+01
2039	7.730E+02	6.190E+05	4.159E+01	2.065E+02	3.095E+05	2.080E+01
2040	7.353E+02	5.888E+05	3.956E+01	1.964E+02	2.944E+05	1.978E+01
2041	6.995E+02	5.601E+05	3.763E+01	1.868E+02	2.800E+05	1.882E+01
2042	6.654E+02	5.328E+05	3.580E+01	1.777E+02	2.664E+05	1.790E+01
2043	6.329E+02	5.068E+05	3.405E+01	1.691E+02	2.534E+05	1.703E+01
2044	6.020E+02	4.821E+05	3.239E+01	1.608E+02	2.410E+05	1.620E+01
2045	5.727E+02	4.586E+05	3.081E+01	1.530E+02	2.293E+05	1.541E+01
2046	5.447E+02	4.362E+05	2.931E+01	1.455E+02	2.181E+05	1.465E+01
2047	5.182E+02	4.149E+05	2.788E+01	1.384E+02	2.075E+05	1.394E+01
2048	4.929E+02	3.947E+05	2.652E+01	1.317E+02	1.973E+05	1.326E+01
2049	4.689E+02	3.754E+05	2.523E+01	1.252E+02	1.877E+05	1.261E+01
2050	4.460E+02	3.571E+05	2.400E+01	1.191E+02	1.786E+05	1.200E+01
2051	4.242E+02	3.397E+05	2.283E+01	1.133E+02	1.699E+05	1.141E+01
2052	4.036E+02	3.231E+05	2.171E+01	1.078E+02	1.616E+05	1.086E+01
2053	3.839E+02	3.074E+05	2.065E+01	1.025E+02	1.537E+05	1.033E+01
2054	3.652E+02	2.924E+05	1.965E+01	9.754E+01	1.462E+05	9.823E+00
2055	3.473E+02	2.781E+05	1.869E+01	9.278E+01	1.391E+05	9.344E+00
2056	3.304E+02	2.646E+05	1.778E+01	8.825E+01	1.323E+05	8.888E+00
2057	3.143E+02	2.517E+05	1.691E+01	8.395E+01	1.258E+05	8.455E+00

**Results (Continued)**

Year	Total landfill gas			Methane		
	(Mg/year)	(m <sup>3</sup> /year)	(av ft <sup>3</sup> /min)	(Mg/year)	(m <sup>3</sup> /year)	(av ft <sup>3</sup> /min)
2058	2.990E+02	2.394E+05	1.608E+01	7.986E+01	1.197E+05	8.042E+00
2059	2.844E+02	2.277E+05	1.530E+01	7.596E+01	1.139E+05	7.650E+00
2060	2.705E+02	2.166E+05	1.455E+01	7.226E+01	1.083E+05	7.277E+00
2061	2.573E+02	2.060E+05	1.384E+01	6.873E+01	1.030E+05	6.922E+00
2062	2.448E+02	1.960E+05	1.317E+01	6.538E+01	9.800E+04	6.585E+00
2063	2.328E+02	1.864E+05	1.253E+01	6.219E+01	9.322E+04	6.263E+00
2064	2.215E+02	1.773E+05	1.192E+01	5.916E+01	8.867E+04	5.958E+00
2065	2.107E+02	1.687E+05	1.133E+01	5.627E+01	8.435E+04	5.667E+00
2066	2.004E+02	1.605E+05	1.078E+01	5.353E+01	8.024E+04	5.391E+00
2067	1.906E+02	1.526E+05	1.026E+01	5.092E+01	7.632E+04	5.128E+00
2068	1.813E+02	1.452E+05	9.756E+00	4.843E+01	7.260E+04	4.878E+00
2069	1.725E+02	1.381E+05	9.280E+00	4.607E+01	6.906E+04	4.640E+00
2070	1.641E+02	1.314E+05	8.828E+00	4.383E+01	6.569E+04	4.414E+00
2071	1.561E+02	1.250E+05	8.397E+00	4.169E+01	6.249E+04	4.199E+00
2072	1.485E+02	1.189E+05	7.988E+00	3.966E+01	5.944E+04	3.994E+00
2073	1.412E+02	1.131E+05	7.598E+00	3.772E+01	5.654E+04	3.799E+00
2074	1.343E+02	1.076E+05	7.227E+00	3.588E+01	5.378E+04	3.614E+00
2075	1.278E+02	1.023E+05	6.875E+00	3.413E+01	5.116E+04	3.437E+00
2076	1.215E+02	9.733E+04	6.540E+00	3.247E+01	4.867E+04	3.270E+00
2077	1.156E+02	9.258E+04	6.221E+00	3.088E+01	4.629E+04	3.110E+00
2078	1.100E+02	8.807E+04	5.917E+00	2.938E+01	4.403E+04	2.959E+00
2079	1.046E+02	8.377E+04	5.629E+00	2.794E+01	4.189E+04	2.814E+00
2080	9.952E+01	7.969E+04	5.354E+00	2.658E+01	3.984E+04	2.677E+00
2081	9.466E+01	7.580E+04	5.093E+00	2.529E+01	3.790E+04	2.547E+00
2082	9.005E+01	7.210E+04	4.845E+00	2.405E+01	3.605E+04	2.422E+00
2083	8.565E+01	6.859E+04	4.608E+00	2.288E+01	3.429E+04	2.304E+00
2084	8.148E+01	6.524E+04	4.384E+00	2.176E+01	3.262E+04	2.192E+00
2085	7.750E+01	6.206E+04	4.170E+00	2.070E+01	3.103E+04	2.085E+00
2086	7.372E+01	5.903E+04	3.966E+00	1.969E+01	2.952E+04	1.983E+00
2087	7.013E+01	5.615E+04	3.773E+00	1.873E+01	2.808E+04	1.887E+00
2088	6.671E+01	5.342E+04	3.589E+00	1.782E+01	2.671E+04	1.795E+00
2089	6.345E+01	5.081E+04	3.414E+00	1.695E+01	2.541E+04	1.707E+00
2090	6.036E+01	4.833E+04	3.247E+00	1.612E+01	2.417E+04	1.624E+00
2091	5.742E+01	4.598E+04	3.089E+00	1.534E+01	2.299E+04	1.545E+00
2092	5.462E+01	4.373E+04	2.938E+00	1.459E+01	2.187E+04	1.469E+00
2093	5.195E+01	4.160E+04	2.795E+00	1.388E+01	2.080E+04	1.398E+00
2094	4.942E+01	3.957E+04	2.659E+00	1.320E+01	1.979E+04	1.329E+00
2095	4.701E+01	3.764E+04	2.529E+00	1.256E+01	1.882E+04	1.265E+00
2096	4.472E+01	3.581E+04	2.406E+00	1.194E+01	1.790E+04	1.203E+00
2097	4.253E+01	3.406E+04	2.288E+00	1.136E+01	1.703E+04	1.144E+00
2098	4.046E+01	3.240E+04	2.177E+00	1.081E+01	1.620E+04	1.088E+00
2099	3.849E+01	3.082E+04	2.071E+00	1.028E+01	1.541E+04	1.035E+00
2100	3.661E+01	2.932E+04	1.970E+00	9.779E+00	1.466E+04	9.848E-01
2101	3.482E+01	2.789E+04	1.874E+00	9.302E+00	1.394E+04	9.368E-01
2102	3.313E+01	2.653E+04	1.782E+00	8.848E+00	1.326E+04	8.911E-01
2103	3.151E+01	2.523E+04	1.695E+00	8.417E+00	1.262E+04	8.477E-01
2104	2.997E+01	2.400E+04	1.613E+00	8.006E+00	1.200E+04	8.063E-01
2105	2.851E+01	2.283E+04	1.534E+00	7.616E+00	1.142E+04	7.670E-01
2106	2.712E+01	2.172E+04	1.459E+00	7.244E+00	1.086E+04	7.296E-01
2107	2.580E+01	2.066E+04	1.388E+00	6.891E+00	1.033E+04	6.940E-01
2108	2.454E+01	1.965E+04	1.320E+00	6.555E+00	9.825E+03	6.602E-01

**Results (Continued)**

Year	Total landfill gas			Methane		
	(Mg/year)	(m <sup>3</sup> /year)	(av ft <sup>3</sup> /min)	(Mg/year)	(m <sup>3</sup> /year)	(av ft <sup>3</sup> /min)
2109	2.334E+01	1.869E+04	1.256E+00	6.235E+00	9.346E+03	6.280E-01
2110	2.220E+01	1.778E+04	1.195E+00	5.931E+00	8.890E+03	5.973E-01
2111	2.112E+01	1.691E+04	1.136E+00	5.642E+00	8.457E+03	5.682E-01
2112	2.009E+01	1.609E+04	1.081E+00	5.367E+00	8.044E+03	5.405E-01
2113	1.911E+01	1.530E+04	1.028E+00	5.105E+00	7.652E+03	5.141E-01
2114	1.818E+01	1.456E+04	9.781E-01	4.856E+00	7.279E+03	4.891E-01
2115	1.729E+01	1.385E+04	9.304E-01	4.619E+00	6.924E+03	4.652E-01
2116	1.645E+01	1.317E+04	8.850E-01	4.394E+00	6.586E+03	4.425E-01
2117	1.565E+01	1.253E+04	8.419E-01	4.180E+00	6.265E+03	4.209E-01
2118	1.488E+01	1.192E+04	8.008E-01	3.976E+00	5.959E+03	4.004E-01
2119	1.416E+01	1.134E+04	7.618E-01	3.782E+00	5.669E+03	3.809E-01
2120	1.347E+01	1.078E+04	7.246E-01	3.597E+00	5.392E+03	3.623E-01
2121	1.281E+01	1.026E+04	6.893E-01	3.422E+00	5.129E+03	3.446E-01
2122	1.219E+01	9.758E+03	6.557E-01	3.255E+00	4.879E+03	3.278E-01
2123	1.159E+01	9.282E+03	6.237E-01	3.096E+00	4.641E+03	3.118E-01
2124	1.103E+01	8.830E+03	5.933E-01	2.945E+00	4.415E+03	2.966E-01
2125	1.049E+01	8.399E+03	5.643E-01	2.802E+00	4.199E+03	2.822E-01
2126	9.977E+00	7.989E+03	5.368E-01	2.665E+00	3.995E+03	2.684E-01
2127	9.491E+00	7.600E+03	5.106E-01	2.535E+00	3.800E+03	2.553E-01
2128	9.028E+00	7.229E+03	4.857E-01	2.411E+00	3.615E+03	2.429E-01
2129	8.588E+00	6.877E+03	4.620E-01	2.294E+00	3.438E+03	2.310E-01
2130	8.169E+00	6.541E+03	4.395E-01	2.182E+00	3.271E+03	2.197E-01
2131	7.770E+00	6.222E+03	4.181E-01	2.076E+00	3.111E+03	2.090E-01
2132	7.391E+00	5.919E+03	3.977E-01	1.974E+00	2.959E+03	1.988E-01
2133	7.031E+00	5.630E+03	3.783E-01	1.878E+00	2.815E+03	1.891E-01
2134	6.688E+00	5.355E+03	3.598E-01	1.786E+00	2.678E+03	1.799E-01
2135	6.362E+00	5.094E+03	3.423E-01	1.699E+00	2.547E+03	1.711E-01
2136	6.052E+00	4.846E+03	3.256E-01	1.616E+00	2.423E+03	1.628E-01
2137	5.756E+00	4.609E+03	3.097E-01	1.538E+00	2.305E+03	1.549E-01
2138	5.476E+00	4.385E+03	2.946E-01	1.463E+00	2.192E+03	1.473E-01
2139	5.209E+00	4.171E+03	2.802E-01	1.391E+00	2.085E+03	1.401E-01
2140	4.955E+00	3.967E+03	2.666E-01	1.323E+00	1.984E+03	1.333E-01
2141	4.713E+00	3.774E+03	2.536E-01	1.259E+00	1.887E+03	1.268E-01
2142	4.483E+00	3.590E+03	2.412E-01	1.197E+00	1.795E+03	1.206E-01
2143	4.264E+00	3.415E+03	2.294E-01	1.139E+00	1.707E+03	1.147E-01
2144	4.056E+00	3.248E+03	2.182E-01	1.084E+00	1.624E+03	1.091E-01
2145	3.859E+00	3.090E+03	2.076E-01	1.031E+00	1.545E+03	1.038E-01
2146	3.670E+00	2.939E+03	1.975E-01	9.804E-01	1.470E+03	9.874E-02
2147	3.491E+00	2.796E+03	1.878E-01	9.326E-01	1.398E+03	9.392E-02
2148	3.321E+00	2.659E+03	1.787E-01	8.871E-01	1.330E+03	8.934E-02

**Results (Continued)**

Year	Carbon dioxide			NMOC		
	(Mg/year)	(m <sup>3</sup> /year)	(av ft <sup>3</sup> /min)	(Mg/year)	(m <sup>3</sup> /year)	(av ft <sup>3</sup> /min)
2008	0	0	0	0	0	0
2009	6.759E+01	3.692E+04	2.481E+00	1.323E-02	3.692E+00	2.481E-04
2010	2.763E+02	1.509E+05	1.014E+01	5.410E-02	1.509E+01	1.014E-03
2011	4.672E+02	2.552E+05	1.715E+01	9.149E-02	2.552E+01	1.715E-03
2012	5.355E+02	2.925E+05	1.966E+01	1.049E-01	2.925E+01	1.966E-03
2013	6.963E+02	3.804E+05	2.556E+01	1.363E-01	3.804E+01	2.556E-03
2014	9.390E+02	5.130E+05	3.447E+01	1.839E-01	5.130E+01	3.447E-03
2015	1.178E+03	6.436E+05	4.324E+01	2.307E-01	6.436E+01	4.324E-03
2016	1.414E+03	7.725E+05	5.191E+01	2.769E-01	7.725E+01	5.191E-03
2017	1.647E+03	9.000E+05	6.047E+01	3.226E-01	9.000E+01	6.047E-03
2018	1.619E+03	8.844E+05	5.943E+01	3.170E-01	8.844E+01	5.943E-03
2019	1.540E+03	8.413E+05	5.653E+01	3.016E-01	8.413E+01	5.653E-03
2020	1.465E+03	8.003E+05	5.377E+01	2.869E-01	8.003E+01	5.377E-03
2021	1.393E+03	7.613E+05	5.115E+01	2.729E-01	7.613E+01	5.115E-03
2022	1.326E+03	7.241E+05	4.865E+01	2.596E-01	7.241E+01	4.865E-03
2023	1.261E+03	6.888E+05	4.628E+01	2.469E-01	6.888E+01	4.628E-03
2024	1.199E+03	6.552E+05	4.402E+01	2.349E-01	6.552E+01	4.402E-03
2025	1.141E+03	6.233E+05	4.188E+01	2.234E-01	6.233E+01	4.188E-03
2026	1.085E+03	5.929E+05	3.983E+01	2.125E-01	5.929E+01	3.983E-03
2027	1.032E+03	5.639E+05	3.789E+01	2.021E-01	5.639E+01	3.789E-03
2028	9.820E+02	5.364E+05	3.604E+01	1.923E-01	5.364E+01	3.604E-03
2029	9.341E+02	5.103E+05	3.429E+01	1.829E-01	5.103E+01	3.429E-03
2030	8.885E+02	4.854E+05	3.261E+01	1.740E-01	4.854E+01	3.261E-03
2031	8.452E+02	4.617E+05	3.102E+01	1.655E-01	4.617E+01	3.102E-03
2032	8.040E+02	4.392E+05	2.951E+01	1.574E-01	4.392E+01	2.951E-03
2033	7.648E+02	4.178E+05	2.807E+01	1.498E-01	4.178E+01	2.807E-03
2034	7.275E+02	3.974E+05	2.670E+01	1.424E-01	3.974E+01	2.670E-03
2035	6.920E+02	3.780E+05	2.540E+01	1.355E-01	3.780E+01	2.540E-03
2036	6.582E+02	3.596E+05	2.416E+01	1.289E-01	3.596E+01	2.416E-03
2037	6.261E+02	3.421E+05	2.298E+01	1.226E-01	3.421E+01	2.298E-03
2038	5.956E+02	3.254E+05	2.186E+01	1.166E-01	3.254E+01	2.186E-03
2039	5.665E+02	3.095E+05	2.080E+01	1.109E-01	3.095E+01	2.080E-03
2040	5.389E+02	2.944E+05	1.978E+01	1.055E-01	2.944E+01	1.978E-03
2041	5.126E+02	2.800E+05	1.882E+01	1.004E-01	2.800E+01	1.882E-03
2042	4.876E+02	2.664E+05	1.790E+01	9.549E-02	2.664E+01	1.790E-03
2043	4.638E+02	2.534E+05	1.703E+01	9.083E-02	2.534E+01	1.703E-03
2044	4.412E+02	2.410E+05	1.620E+01	8.640E-02	2.410E+01	1.620E-03
2045	4.197E+02	2.293E+05	1.541E+01	8.219E-02	2.293E+01	1.541E-03
2046	3.992E+02	2.181E+05	1.465E+01	7.818E-02	2.181E+01	1.465E-03
2047	3.798E+02	2.075E+05	1.394E+01	7.437E-02	2.075E+01	1.394E-03
2048	3.612E+02	1.973E+05	1.326E+01	7.074E-02	1.973E+01	1.326E-03
2049	3.436E+02	1.877E+05	1.261E+01	6.729E-02	1.877E+01	1.261E-03
2050	3.269E+02	1.786E+05	1.200E+01	6.401E-02	1.786E+01	1.200E-03
2051	3.109E+02	1.699E+05	1.141E+01	6.089E-02	1.699E+01	1.141E-03
2052	2.958E+02	1.616E+05	1.086E+01	5.792E-02	1.616E+01	1.086E-03
2053	2.813E+02	1.537E+05	1.033E+01	5.509E-02	1.537E+01	1.033E-03
2054	2.676E+02	1.462E+05	9.823E+00	5.240E-02	1.462E+01	9.823E-04
2055	2.546E+02	1.391E+05	9.344E+00	4.985E-02	1.391E+01	9.344E-04
2056	2.421E+02	1.323E+05	8.888E+00	4.742E-02	1.323E+01	8.888E-04
2057	2.303E+02	1.258E+05	8.455E+00	4.510E-02	1.258E+01	8.455E-04

**Results (Continued)**

Year	Carbon dioxide			NMOC		
	(Mg/year)	(m <sup>3</sup> /year)	(av ft <sup>3</sup> /min)	(Mg/year)	(m <sup>3</sup> /year)	(av ft <sup>3</sup> /min)
2058	2.191E+02	1.197E+05	8.042E+00	4.291E-02	1.197E+01	8.042E-04
2059	2.084E+02	1.139E+05	7.650E+00	4.081E-02	1.139E+01	7.650E-04
2060	1.983E+02	1.083E+05	7.277E+00	3.882E-02	1.083E+01	7.277E-04
2061	1.886E+02	1.030E+05	6.922E+00	3.693E-02	1.030E+01	6.922E-04
2062	1.794E+02	9.800E+04	6.585E+00	3.513E-02	9.800E+00	6.585E-04
2063	1.706E+02	9.322E+04	6.263E+00	3.341E-02	9.322E+00	6.263E-04
2064	1.623E+02	8.867E+04	5.958E+00	3.178E-02	8.867E+00	5.958E-04
2065	1.544E+02	8.435E+04	5.667E+00	3.023E-02	8.435E+00	5.667E-04
2066	1.469E+02	8.024E+04	5.391E+00	2.876E-02	8.024E+00	5.391E-04
2067	1.397E+02	7.632E+04	5.128E+00	2.736E-02	7.632E+00	5.128E-04
2068	1.329E+02	7.260E+04	4.878E+00	2.602E-02	7.260E+00	4.878E-04
2069	1.264E+02	6.906E+04	4.640E+00	2.475E-02	6.906E+00	4.640E-04
2070	1.202E+02	6.569E+04	4.414E+00	2.355E-02	6.569E+00	4.414E-04
2071	1.144E+02	6.249E+04	4.199E+00	2.240E-02	6.249E+00	4.199E-04
2072	1.088E+02	5.944E+04	3.994E+00	2.131E-02	5.944E+00	3.994E-04
2073	1.035E+02	5.654E+04	3.799E+00	2.027E-02	5.654E+00	3.799E-04
2074	9.845E+01	5.378E+04	3.614E+00	1.928E-02	5.378E+00	3.614E-04
2075	9.365E+01	5.116E+04	3.437E+00	1.834E-02	5.116E+00	3.437E-04
2076	8.908E+01	4.867E+04	3.270E+00	1.744E-02	4.867E+00	3.270E-04
2077	8.474E+01	4.629E+04	3.110E+00	1.659E-02	4.629E+00	3.110E-04
2078	8.060E+01	4.403E+04	2.959E+00	1.578E-02	4.403E+00	2.959E-04
2079	7.667E+01	4.189E+04	2.814E+00	1.501E-02	4.189E+00	2.814E-04
2080	7.293E+01	3.984E+04	2.677E+00	1.428E-02	3.984E+00	2.677E-04
2081	6.938E+01	3.790E+04	2.547E+00	1.359E-02	3.790E+00	2.547E-04
2082	6.599E+01	3.605E+04	2.422E+00	1.292E-02	3.605E+00	2.422E-04
2083	6.277E+01	3.429E+04	2.304E+00	1.229E-02	3.429E+00	2.304E-04
2084	5.971E+01	3.262E+04	2.192E+00	1.169E-02	3.262E+00	2.192E-04
2085	5.680E+01	3.103E+04	2.085E+00	1.112E-02	3.103E+00	2.085E-04
2086	5.403E+01	2.952E+04	1.983E+00	1.058E-02	2.952E+00	1.983E-04
2087	5.140E+01	2.808E+04	1.887E+00	1.006E-02	2.808E+00	1.887E-04
2088	4.889E+01	2.671E+04	1.795E+00	9.573E-03	2.671E+00	1.795E-04
2089	4.650E+01	2.541E+04	1.707E+00	9.107E-03	2.541E+00	1.707E-04
2090	4.424E+01	2.417E+04	1.624E+00	8.662E-03	2.417E+00	1.624E-04
2091	4.208E+01	2.299E+04	1.545E+00	8.240E-03	2.299E+00	1.545E-04
2092	4.003E+01	2.187E+04	1.469E+00	7.838E-03	2.187E+00	1.469E-04
2093	3.807E+01	2.080E+04	1.398E+00	7.456E-03	2.080E+00	1.398E-04
2094	3.622E+01	1.979E+04	1.329E+00	7.092E-03	1.979E+00	1.329E-04
2095	3.445E+01	1.882E+04	1.265E+00	6.746E-03	1.882E+00	1.265E-04
2096	3.277E+01	1.790E+04	1.203E+00	6.417E-03	1.790E+00	1.203E-04
2097	3.117E+01	1.703E+04	1.144E+00	6.104E-03	1.703E+00	1.144E-04
2098	2.965E+01	1.620E+04	1.088E+00	5.807E-03	1.620E+00	1.088E-04
2099	2.821E+01	1.541E+04	1.035E+00	5.523E-03	1.541E+00	1.035E-04
2100	2.683E+01	1.466E+04	9.848E-01	5.254E-03	1.466E+00	9.848E-05
2101	2.552E+01	1.394E+04	9.368E-01	4.998E-03	1.394E+00	9.368E-05
2102	2.428E+01	1.326E+04	8.911E-01	4.754E-03	1.326E+00	8.911E-05
2103	2.309E+01	1.262E+04	8.477E-01	4.522E-03	1.262E+00	8.477E-05
2104	2.197E+01	1.200E+04	8.063E-01	4.302E-03	1.200E+00	8.063E-05
2105	2.090E+01	1.142E+04	7.670E-01	4.092E-03	1.142E+00	7.670E-05
2106	1.988E+01	1.086E+04	7.296E-01	3.892E-03	1.086E+00	7.296E-05
2107	1.891E+01	1.033E+04	6.940E-01	3.702E-03	1.033E+00	6.940E-05
2108	1.799E+01	9.825E+03	6.602E-01	3.522E-03	9.825E-01	6.602E-05

**Results (Continued)**

Year	Carbon dioxide			NMOC		
	(Mg/year)	(m <sup>3</sup> /year)	(av ft <sup>3</sup> /min)	(Mg/year)	(m <sup>3</sup> /year)	(av ft <sup>3</sup> /min)
2109	1.711E+01	9.346E+03	6.280E-01	3.350E-03	9.346E-01	6.280E-05
2110	1.627E+01	8.890E+03	5.973E-01	3.187E-03	8.890E-01	5.973E-05
2111	1.548E+01	8.457E+03	5.682E-01	3.031E-03	8.457E-01	5.682E-05
2112	1.473E+01	8.044E+03	5.405E-01	2.883E-03	8.044E-01	5.405E-05
2113	1.401E+01	7.652E+03	5.141E-01	2.743E-03	7.652E-01	5.141E-05
2114	1.332E+01	7.279E+03	4.891E-01	2.609E-03	7.279E-01	4.891E-05
2115	1.267E+01	6.924E+03	4.652E-01	2.482E-03	6.924E-01	4.652E-05
2116	1.206E+01	6.586E+03	4.425E-01	2.361E-03	6.586E-01	4.425E-05
2117	1.147E+01	6.265E+03	4.209E-01	2.246E-03	6.265E-01	4.209E-05
2118	1.091E+01	5.959E+03	4.004E-01	2.136E-03	5.959E-01	4.004E-05
2119	1.038E+01	5.669E+03	3.809E-01	2.032E-03	5.669E-01	3.809E-05
2120	9.871E+00	5.392E+03	3.623E-01	1.933E-03	5.392E-01	3.623E-05
2121	9.389E+00	5.129E+03	3.446E-01	1.839E-03	5.129E-01	3.446E-05
2122	8.931E+00	4.879E+03	3.278E-01	1.749E-03	4.879E-01	3.278E-05
2123	8.496E+00	4.641E+03	3.118E-01	1.664E-03	4.641E-01	3.118E-05
2124	8.081E+00	4.415E+03	2.966E-01	1.582E-03	4.415E-01	2.966E-05
2125	7.687E+00	4.199E+03	2.822E-01	1.505E-03	4.199E-01	2.822E-05
2126	7.312E+00	3.995E+03	2.684E-01	1.432E-03	3.995E-01	2.684E-05
2127	6.956E+00	3.800E+03	2.553E-01	1.362E-03	3.800E-01	2.553E-05
2128	6.616E+00	3.615E+03	2.429E-01	1.296E-03	3.615E-01	2.429E-05
2129	6.294E+00	3.438E+03	2.310E-01	1.232E-03	3.438E-01	2.310E-05
2130	5.987E+00	3.271E+03	2.197E-01	1.172E-03	3.271E-01	2.197E-05
2131	5.695E+00	3.111E+03	2.090E-01	1.115E-03	3.111E-01	2.090E-05
2132	5.417E+00	2.959E+03	1.988E-01	1.061E-03	2.959E-01	1.988E-05
2133	5.153E+00	2.815E+03	1.891E-01	1.009E-03	2.815E-01	1.891E-05
2134	4.902E+00	2.678E+03	1.799E-01	9.598E-04	2.678E-01	1.799E-05
2135	4.663E+00	2.547E+03	1.711E-01	9.130E-04	2.547E-01	1.711E-05
2136	4.435E+00	2.423E+03	1.628E-01	8.685E-04	2.423E-01	1.628E-05
2137	4.219E+00	2.305E+03	1.549E-01	8.261E-04	2.305E-01	1.549E-05
2138	4.013E+00	2.192E+03	1.473E-01	7.858E-04	2.192E-01	1.473E-05
2139	3.817E+00	2.085E+03	1.401E-01	7.475E-04	2.085E-01	1.401E-05
2140	3.631E+00	1.984E+03	1.333E-01	7.111E-04	1.984E-01	1.333E-05
2141	3.454E+00	1.887E+03	1.268E-01	6.764E-04	1.887E-01	1.268E-05
2142	3.286E+00	1.795E+03	1.206E-01	6.434E-04	1.795E-01	1.206E-05
2143	3.125E+00	1.707E+03	1.147E-01	6.120E-04	1.707E-01	1.147E-05
2144	2.973E+00	1.624E+03	1.091E-01	5.822E-04	1.624E-01	1.091E-05
2145	2.828E+00	1.545E+03	1.038E-01	5.538E-04	1.545E-01	1.038E-05
2146	2.690E+00	1.470E+03	9.874E-02	5.268E-04	1.470E-01	9.874E-06
2147	2.559E+00	1.398E+03	9.392E-02	5.011E-04	1.398E-01	9.392E-06
2148	2.434E+00	1.330E+03	8.934E-02	4.766E-04	1.330E-01	8.934E-06



**ATTACHMENT III.1.2**

**FUEL ANALYSIS OR SPECIFICATION**

**ATTACHMENT III.1.2  
FUEL ANALYSIS OR SPECIFICATION**

The Fuel Analysis or Specification is not applicable for a municipal solid waste landfill with no landfill gas collection system.

**ATTACHMENT III.I.3**

**DETAILED DESCRIPTION OF CONTROL EQUIPMENT**

**ATTACHMENT III.1.3**  
**DETAILED DESCRIPTION OF CONTROL EQUIPMENT**

The Detailed Description of Control Equipment is not applicable for a municipal solid waste landfill with no landfill gas collection system.

**ATTACHMENT III.I.4**

**PROCEDURES FOR STARTUP AND SHUTDOWN**

**ATTACHMENT III.I.4  
PROCEDURES FOR STARTUP AND SHUTDOWN**

The Procedures for Startup and Shutdown are not applicable for a municipal solid waste landfill with no landfill gas collection system.

**ATTACHMENT III.1.5**  
**OPERATION AND MAINTENANCE PLAN**

**ATTACHMENT III.I.5  
OPERATION AND MAINTENANCE PLAN**

The Operation and Maintenance Plan is not applicable for a municipal solid waste landfill with no landfill gas collection system.



**APPENDIX A**

**PROPOSED DESIGN CAPACITY INCREASE  
NOTIFICATION, LETTER TO SYED ARIF DATED  
JUNE 27, 2013**

June 27, 2013

Syed Arif  
Program Administrator  
Office of Permitting and Compliance  
Division of Air Resource Management  
Florida Department of Environmental Protection  
2600 Blair Stone Road MS 5500  
Tallahassee, Florida 32399-2400

RE: Lee County Solid Waste Division  
Lee/Hendry County Regional Solid Waste Disposal Facility  
Proposed Design Capacity Increase Notification  
Title V Permit No.: 0510030-003-AV  
Jones Edmunds Project No.: 12345-007-01

Dear Mr. Arif:

On behalf of the Lee County Solid Waste Division (LCSWD), Jones Edmunds & Associates, Inc. is providing this notification of proposed increase in the design capacity of the Lee/Hendry County Regional Solid Waste Disposal Facility. On May 6, 2013, Jones Edmunds submitted a permit application on behalf of the LCSWD to the FDEP Solid Waste Section to laterally expand the facility's Ash Monofill by 20.6 acres.

As you know, the facility is subject to the requirements of 40 CFR 60 Subpart WWW for nonmethane organic compound (NMOC) emissions and operates under Title V Permit 0510030-003-AV. We understand that since the facility previously exceeded the 2.5-million-megagram design capacity threshold in 2007 and obtained a Title V operating permit, an amended design capacity report is not required in accordance with 40 CFR 60.757(a)(3). However, we are providing this notification of the proposed change that may increase the emission rate of a regulated air pollutant in accordance with Rule 40 CFR 60.7(a)(4) and direction provided by USEPA Applicability Determination Index 1000022, dated July 9, 2009. The existing design capacity and the proposed design capacity of the Ash Monofill Expansion are summarized in the table below. The expansion adds an additional 1.91 million cubic yards, which adds an estimated 2.1 million megagrams of waste to the facility's design capacity.

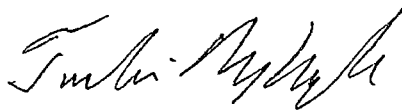
Lee/Hendry County Regional Solid Waste Disposal Facility Design Capacity Update						
Landfill	Total Volume [cy]	Cover Soil (5%) [cy]	Waste Volume [cy]	Waste Density [lb/cy]	Waste Mass [tn]	Waste Mass [Mg]
Existing Design Capacity (March 4, 2008)			0			
Class I Landfill	2,513,000	125,650	2,387,350	1,350	1,611,461	1,461,595
Ash Monofill	1,179,167	58,958	1,120,209	2,500	1,400,261	1,270,037
Class III Landfill	2,011,929	100,596	1,911,333	1,300	1,242,366	1,126,826
<i>Subtotal</i>	<i>5,704,096</i>	<i>285,205</i>	<i>5,418,891</i>		<i>4,254,088</i>	<i>3,858,458</i>
Proposed Ash Monofill Expansion (2013)	1,909,663	95,483	1,814,180	2,500	2,267,725	2,056,826
Total	7,613,759	380,688	7,233,071		6,521,813	5,915,284

The facility is required to calculate the NMOC emission rate annually using the procedures specified in 40 CFR 60.754. Based on a site-specific NMOC concentration obtained by Tier 2 sampling and analysis in accordance with 40 CFR 60.754(a)(3), the NMOC emission rate has not exceeded the 50 megagrams of NMOCs per year threshold. Therefore, a collection and control system is not required by 40 CFR 60 Subpart WWW. These calculations are submitted to the South District Air Program Administrator.

The permit for the proposed Ash Monofill Expansion is under review by the FDEP Solid Waste Section. We expect the permit authorizing the Ash Monofill Expansion construction and operation to be issued sometime during the 3<sup>rd</sup> quarter 2013.

If you have any questions or comments, please contact me at (352) 377-5821 or [tmcknight@jonesedmunds.com](mailto:tmcknight@jonesedmunds.com).

Sincerely,



Tobin McKnight, PE  
 Project Engineer

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XC: Keith Howard, Lee County  
 Laura Gray, Lee County  
 Ajaya Satyal, FDEP

**APPENDIX B**

**TIER 2 SAMPLING AND ANALYSIS RESULTS AND  
NMOC EMISSION RATE RECALCULATION,  
LETTER TO AJAYA SATYAL DATED JUNE 27, 2013**



June 27, 2013

Ajaya Satyal  
Air Program Environmental Administrator  
Florida Department of Environmental Protection  
South District Office  
PO Box 2549  
Fort Myers, Florida 33902

RE: Lee County Solid Waste Division  
Lee/Hendry County Regional Solid Waste Disposal Facility  
Tier 2 Sampling and Analysis Results and NMOC Emission Rate Recalculation  
Title V Permit No.: 0510030-003-AV  
Jones Edmunds Project No.: 12345-007-01

Dear Mr. Satyal:

On behalf of the Lee County Solid Waste Division (LCSWD), Jones Edmunds & Associates, Inc. is submitting the results of recent Tier 2 sampling and analysis and nonmethane organic compound (NMOC) emission rate recalculation for the Lee/Hendry County Regional Solid Waste Disposal Facility. Tier 2 sampling and analysis were conducted in accordance with 40 CFR 60, Subpart W, *Standards of Performance for Municipal Solid Waste Landfills*, to determine a site-specific NMOC concentration and recalculate the NMOC emission rate. The results of the recalculation were compared to the 50-megagram-per-year NMOC emission threshold for designing, installing, and operating a collection and control system. The calculations show that the facility's NMOC emission rate will not exceed 50 megagrams per year for the next 5 years and collection and control system design, installation, and operation are not required according to 40 CFR 60, Subpart W. This letter summarizes the Tier 2 sampling and analysis and NMOC emission rate recalculation.

#### BACKGROUND

LCSWD owns and operates the Lee/Hendry County Regional Solid Waste Disposal Facility near Felda, Florida. The facility includes a Class I landfill, Ash Monofill, and Class III landfill as shown in Figure 1. It became subject to the NMOC emission rate calculation requirements of 40 CFR 60, Subpart W in 2007 when the facility's design capacity exceeded 2.5 million megagrams with the addition of the Ash Monofill and Class III landfill. The initial Tier 1 NMOC

emission rate calculation submitted March 4, 2008 resulted in NMOC emissions greater than 50 megagrams per year. The facility elected to perform Tier 2 sampling and analysis on the existing Class I landfill, which was completed May 22, 2008. The Tier 2 NMOC emission rate calculation resulted in emissions less than 50 megagrams per year through 2013.<sup>1</sup> LCSWD obtained Title V construction and operating permits for the facility and operates under Title V Permit No. 0510030-003-AV.

In accordance with 40 CFR 60.754(a)(3)(iii), LCSWD is required to retest the site-specific NMOC concentration every 5 years using the methods specified in that section. Additional Tier 2 sampling and analysis were required by May 22, 2013. Jones Edmunds assisted LCSWD with Tier 2 sampling and analysis and NMOC emission rate recalculation.

### TIER 2 SAMPLING AND ANALYSIS

Tier 2 sampling and analysis were performed in accordance with 40 CFR 60.754(a)(3) at the Lee/Hendry County Regional Solid Waste Disposal Facility by TRC Air Measurements. Samples were obtained from 42 locations in the Class I landfill, Ash Monofill, and Class III landfill from April 15 to April 18, 2013. Sample probes were installed in areas of the landfills that have retained waste for at least 2 years at a frequency of at least two sample probes per hectare. Figures 2 through 4 show the probe locations, and Table 1 provides the landfill areas and number of samples.

Landfill	Area [ac]	Area [ha]	No. Sample Probes
Class I landfill	31.25	12.64	26
Ash Monofill	8.99	3.64	8
Class III landfill	5.11	2.07	8
Total	43.35	18.35	42

Samples were collected in accordance with US Environmental Protection Agency (USEPA) Method 25C. Forty-two samples were collected and composited into 15 canisters with equal volume from each probe and two or three probes per canister. Canisters were analyzed by Air Technology Laboratories, Inc. according to Methods 3C and 25C. The results of these analyses are provided in the May 28, 2013 *Test Report Landfill Tier II Sampling for Landfill Gas NMOC Analysis* prepared by TRC and provided in Attachment 1. The results of the Tier 2 sampling and

<sup>1</sup> Tier 2 sampling and analysis were conducted in 2008 resulted in an average NMOC concentration of 445 ppmv as Hexane for the Class I landfill. The NMOC emission rate calculation used the default NMOC concentration of 4,000 ppmv as Hexane for the Class III landfill because no waste had been accepted at that time. The Ash Monofill was not included in the 2008 NMOC emission calculation because all waste was assumed to be nondegradable.

analysis are provided in Table 2 with the weighted average (based on number of samples per canister) NMOC concentration for each landfill.

Table 2 Tier 2 Sampling and Analysis Results				
Landfill	Lab Sample ID	Canister ID	Sample Location	NMOC [ppmv as Hexane]
Class I Landfill	E042405-03	6009	GP-7, 10, and 8	767
	E042405-01	1374	GP-3, 2, and 1	217
	E042405-02	1415	GP-6 and 5	147
	E042405-05	1416	GP-4, 11, and 12	267
	E042405-04	3563	GP-26, 25, and 24	160
	E042405-06	1383	GP-23, 18, and 17	158
	E042405-07	1235	GP-13, 14, and 15	137
	E042405-08	1446	GP-20, 19, and 16	300
	E042405-14	1454	GP-21, 22, and 9	883
<i>Class I Landfill Weighted Average</i>				<b>345</b>
Ash Monofill	E042405-10	1479	GP-33, 34, and 32	39
	E042405-09	3097	GP-31, 29, and 28	30
	E042405-11	3745	GP-30 and 27	119
	<i>Ash Monofill Weighted Average</i>			
Class III Landfill	E042405-12	1344	GP-39, 40, and 37	1,650
	E042405-15	5416	GP-36, 38, and 41	550
	E042405-13	1459	GP-42 and 35	1,033
	<i>Class III Landfill Weighted Average</i>			

#### NMOC EMISSION RECALCULATION

The site-specific NMOC concentrations determined through Tier 2 sampling and analysis were used to recalculate the NMOC emission rate using the procedures provided in 40 CFR 60.754(a)(3). USEPA's Land Gas Emissions Model (LandGEM, Version 3.02) was used to calculate the NMOC emission rate.

#### LANDGEM USER INPUT PARAMETERS

The LandGEM user input parameters include methane generation rate ( $k$ ), potential methane generation capacity ( $L_0$ ), NMOC concentration ( $C_{NMOC}$ ), and historical and projected waste acceptance rates. The parameters used in LandGEM were 0.05 per year for  $k$  and 170 cubic meters per megagram for  $L_0$  as specified in 40 CFR 60.754(a)(1). The weighted average of the NMOC concentrations from the Tier 2 sampling and analysis were used for each landfill.

## HISTORICAL WASTE ACCEPTANCE RATES

LCSWD's historical waste acceptance data were reviewed as part of the NMOC emission rate recalculation. A significant amount of the waste accepted at the facility is municipal solid waste (MSW) combustor ash from the Lee County Resource Recovery Facility in Fort Myers, Florida. This ash is specifically defined as *nondegradable waste* by 40 CFR 60.751 and may be subtracted from the total mass of solid waste according to 40 CFR 60.754(a)(1). Attachment 2 provides the historical tonnage records with a summary of the degradable and nondegradable tonnage for each landfill. In addition to MSW combustor ash, tires, asbestos, and glass were considered nondegradable. Table 3 summarizes historical waste acceptance rates.

## PROJECTED WASTE ACCEPTANCE RATES

The projected waste acceptance rates for each landfill were estimated based on recent waste acceptance rates, an assumed annual growth rate, and the remaining capacity of each cell. The projections were based on conservative estimates of degradable waste accepted at each landfill for 2013—25,000 tons for the Class I landfill, 20,000 tons for the Ash Monofill, and 35,000 tons for the Class III landfill. We assumed that all Class I and Class III waste is degradable and 10% of the Ash Monofill waste is degradable, consistent with recent waste acceptance data. The projected waste acceptance rates were calculated using typical values for apparent density for each landfill and an annual waste acceptance rate increase that is consistent with projected population growth. The calculations and assumptions are provided in Attachment 3 and summarized through 2020 in Table 3.

Year	Class I Landfill [tons]	Ash Monofill [tons]	Class III Landfill [tons]
2002	9,127	-	-
2003	122,195	-	-
2004	150,700	-	-
2005	219,409	-	-
2006	247,713	-	-
2007	161,669	-	-
2008	27,423	4,575	-
2009	96	15,328	22,925
2010	-	14,777	36,078
2011	-	6,584	30,344
2012	-	13,515	21,030
2013	25,000	20,000	35,000
2014	25,750	20,600	36,050
2015	26,523	21,218	37,132

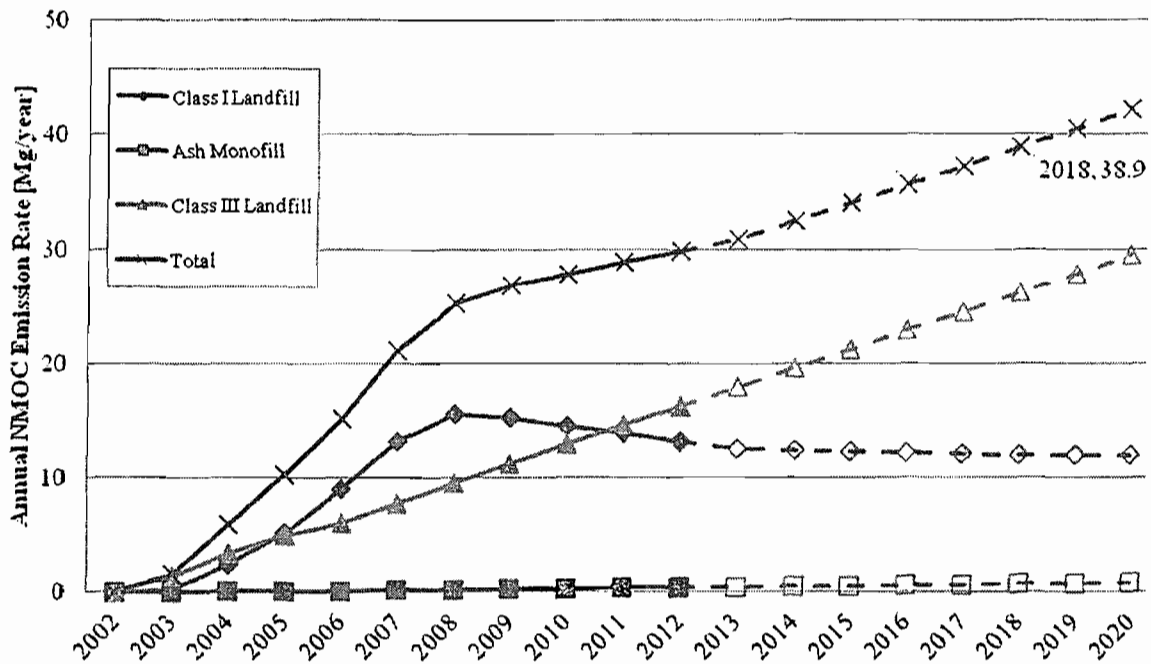


Year	Class I Landfill [tons]	Ash Monofill [tons]	Class III Landfill [tons]
2016	27,318	21,855	38,245
2017	28,138	22,510	39,393
2018	28,982	23,185	40,575
2019	29,851	23,881	41,792
2020	30,747	24,597	43,046

### RESULTS AND DISCUSSION

The annual NMOC emission rate was calculated for the three landfills and summed to determine the facility-wide NMOC emission rate. Attachment 4 provides the LandGEM Summary Reports for each landfill. The results are tabulated and summarized in Attachment 5 and illustrated in Figure 5. The peak NMOC emission rate during the next 5 years is 38.9 megagrams per year in 2018. These NMOC emission calculations are based on conservative estimates of future tonnage. Actual NMOC emission rates will likely be lower than predicted below.

Figure 5 NMOC Emission Rate (2002–2020)

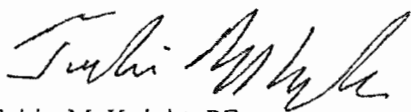


## SUMMARY AND CONCLUSIONS

Based on the Tier 2 sampling and analysis and the NMOC emission rate recalculation provided in this letter, the Lee/Hendry County Regional Solid Waste Disposal Facility is not required to design, install, and operate a collection and control system in accordance with 40 CFR 60, Subpart WWW. These calculations demonstrate that the NMOC mass emission rates will be less than 50 megagrams per year in each of the next 5 consecutive years. LCSWD is submitting this report as a periodic estimate of the emission rate and will conduct additional Tier 2 sampling and analysis before April 18, 2018 to determine the site-specific NMOC concentration in accordance with 40 CFR 60.754(a)(3)(iii).

If you have any questions or comments, please contact me at (352) 377-5821 or [tmcknight@jonesedmunds.com](mailto:tmcknight@jonesedmunds.com).

Sincerely,



Tobin McKnight, PE  
Project Engineer

\\Gnv-projects\projects\12345-LeeCounty\007-01-AshMonofillExpansion\1000-Title\VCORR\2013-06-27-LTR-ASatyal-Tier2ResultsNMOCCalcs-TMcKnight.doc

XC: Keith Howard, Lee County  
Laura Gray, Lee County  
Syed Arif, FDEP

NOTE:  
AERIAL PHOTOGRAPH BY PICKETT AND ASSOCIATES, INC.  
FLIGHT DATE 01/23/13.

12345-007-01

\\JECAD\DRAWING\12345 LEE COUNTY\007 LEE HENDRY TITLE V\PERMIT FIGURES\EMISSION REPORT\12345007ER-FIG1.DWG

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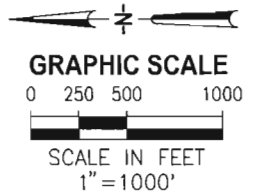
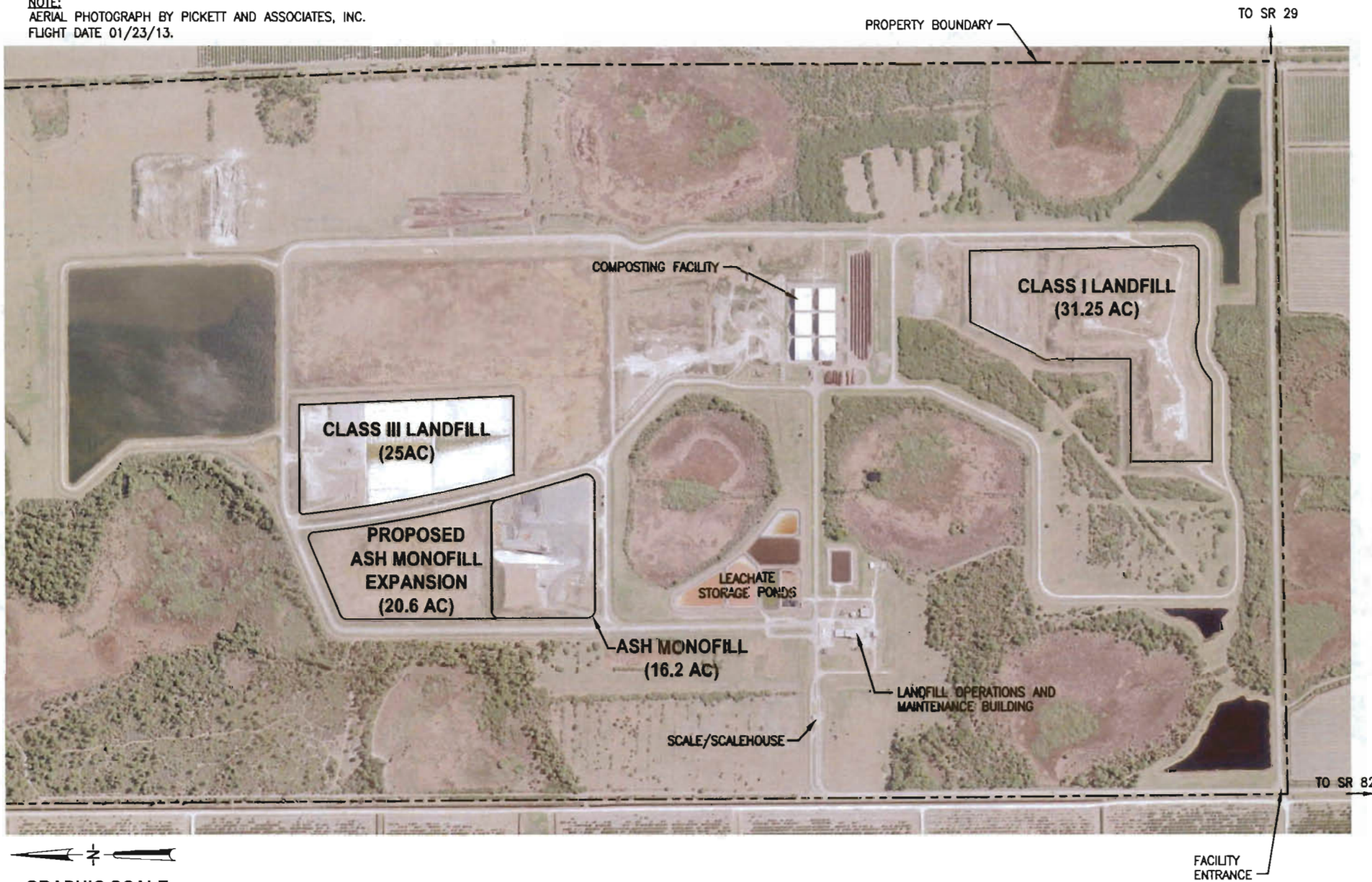


FIGURE 1  
SITE PLAN  
LEE/HENDRY COUNTY REGIONAL SOLID WASTE DISPOSAL FACILITY

**LEGEND**

X<sub>GP-22</sub> LANDFILL GAS SAMPLE LOCATION POINTS (2 GAS SAMPLES PER HECTARE)

[Solid Line] LANDFILL GAS SAMPLING AREA (31.25 ACRES = 12.64 HECTARES)

[Dashed Line] EDGE OF LANDFILL LINER

**NOTES:**

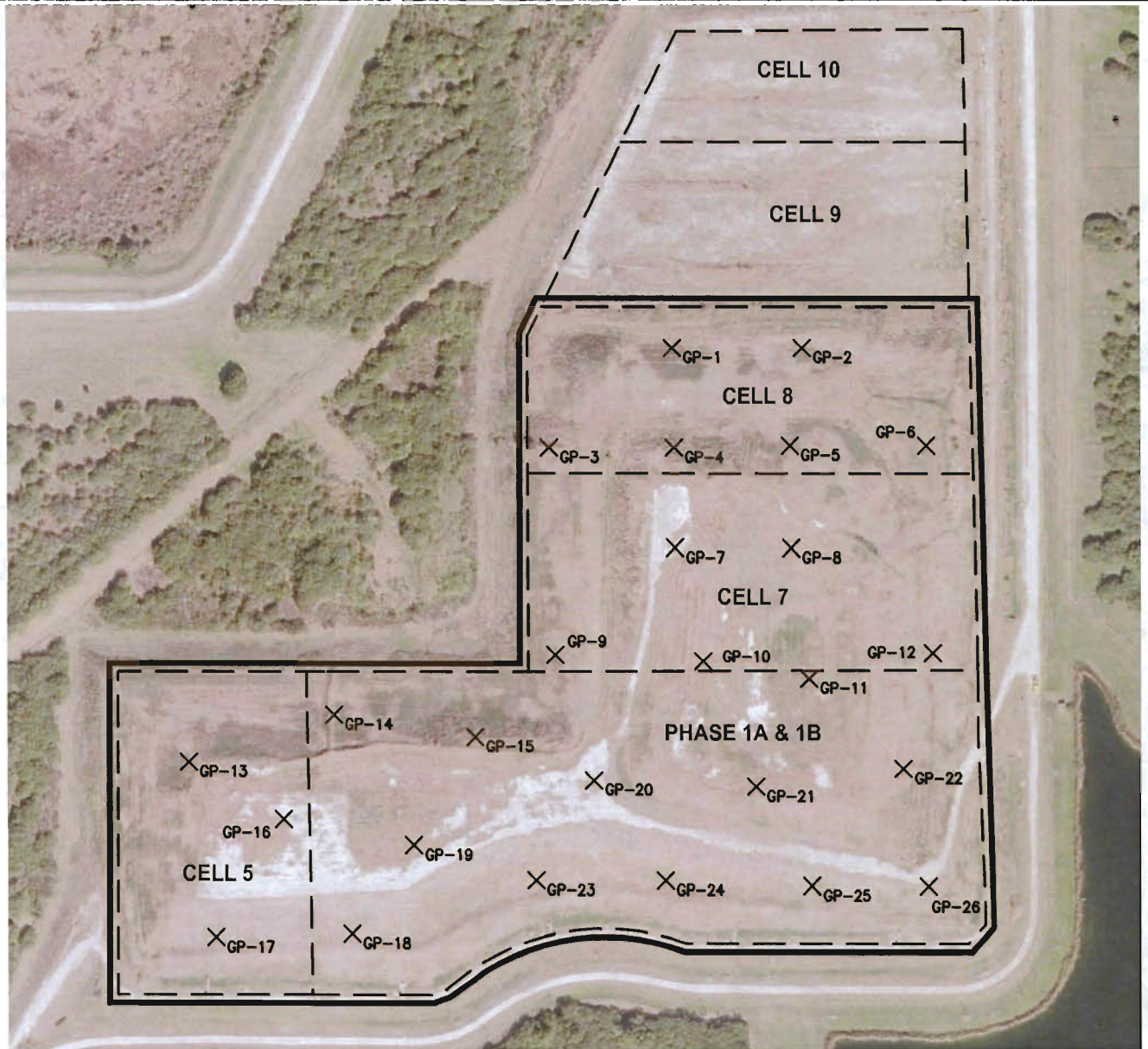
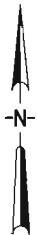
1. AERIAL PHOTOGRAPH BY PICKETT AND ASSOCIATES, INC. FLIGHT DATE 01/23/13.
2. SAMPLING LOCATIONS ARE APPROXIMATE.
3. LANDFILL GAS SAMPLING AREA IS AREA THAT HAS RETAINED WASTE FOR AT LEAST 2 YEARS.

**GRAPHIC SCALE**

0 75 150 300



SCALE IN FEET  
1" = 300'



**FIGURE 2**  
**TIER 2 SAMPLING PLAN**  
**CLASS I LANDFILL**

LEE/HENDRY COUNTY REGIONAL SOLID WASTE DISPOSAL FACILITY

**LEGEND**

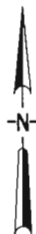
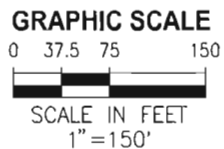
X GP-30 LANDFILL GAS SAMPLE LOCATION POINTS (2 GAS SAMPLES PER HECTARE)

[Solid Line Box] LANDFILL GAS SAMPLING AREA (8.99 ACRES = 3.64 HECTARES)

[Dashed Line Box] ACTIVE DISPOSAL AREA

--- EDGE OF LANDFILL LINER

- NOTES:**
1. AERIAL PHOTOGRAPH BY PICKETT AND ASSOCIATES, INC. FLIGHT DATE 01/23/13.
  2. SAMPLING LOCATIONS ARE APPROXIMATE.
  3. LANDFILL GAS SAMPLING AREA IS AREA THAT HAS RETAINED WASTE FOR AT LEAST 2 YEARS.



**FIGURE 3**  
**TIER 2 SAMPLING PLAN**  
**ASH MONOFILL**  
**LEE/HENDRY COUNTY REGIONAL SOLID WASTE DISPOSAL FACILITY**

**LEGEND**



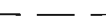
LANDFILL GAS SAMPLE LOCATION POINTS  
(2 GAS SAMPLES PER HECTARE)



LANDFILL GAS SAMPLING AREA  
(5.11 ACRES = 2.07 HECTARES)



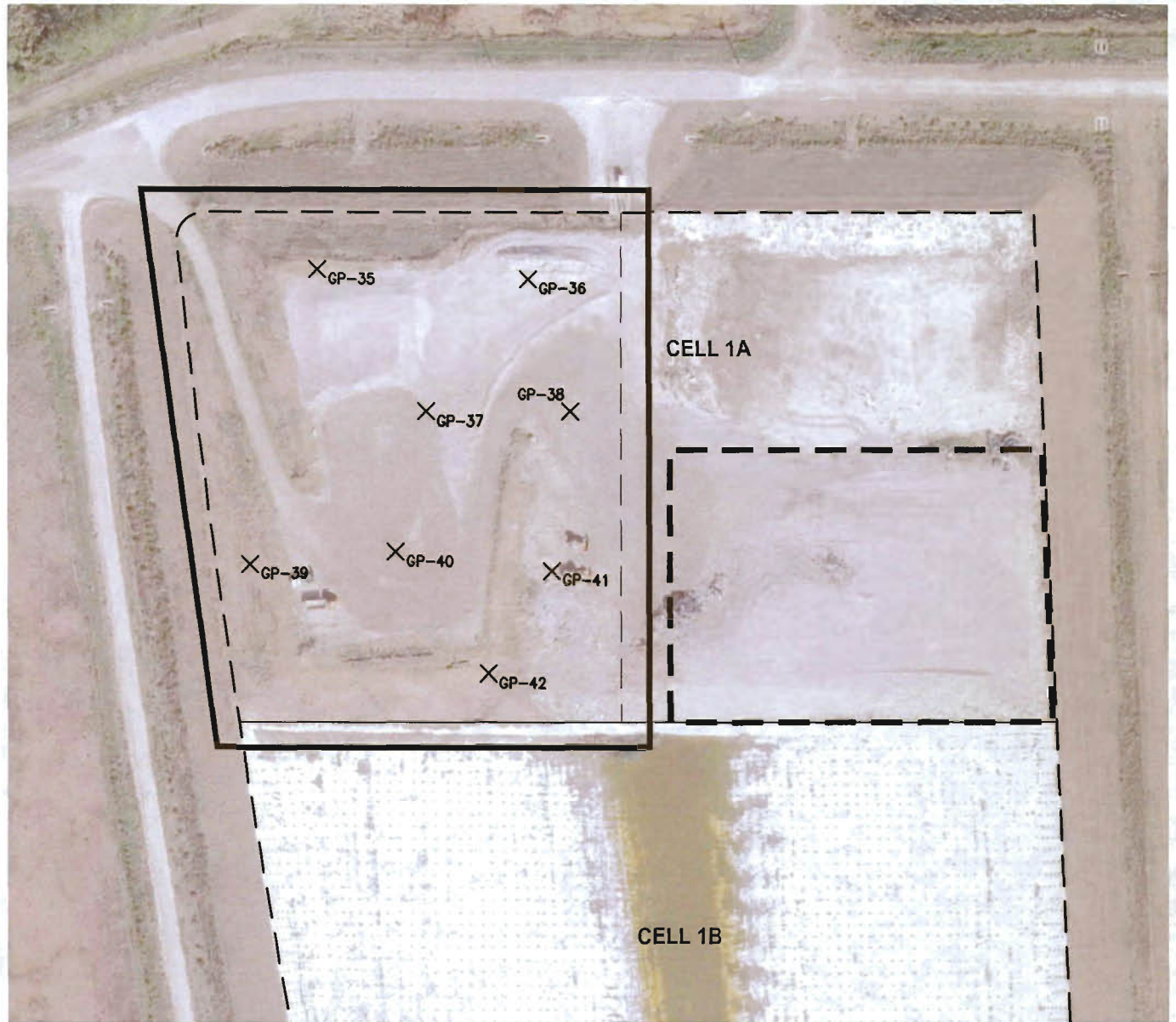
ACTIVE DISPOSAL AREA



EDGE OF LANDFILL LINER

**NOTES:**

1. AERIAL PHOTOGRAPH BY PICKETT AND ASSOCIATES, INC. FLIGHT DATE 01/23/13.
2. SAMPLING LOCATIONS ARE APPROXIMATE.
3. LANDFILL GAS SAMPLING AREA IS AREA THAT HAS RETAINED WASTE FOR AT LEAST 2 YEARS.

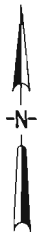


**GRAPHIC SCALE**

0 37.5 75 150



SCALE IN FEET  
1" = 150'



**FIGURE 4**  
**TIER 2 SAMPLING PLAN**  
**CLASS III LANDFILL**  
**LEE/HENDRY COUNTY REGIONAL SOLID WASTE DISPOSAL FACILITY**

**ATTACHMENT 1**

**TEST REPORT  
LANDFILL TIER II SAMPLING  
FOR LANDFILL GAS NMOC ANALYSIS  
PREPARED BY TRC AIR MEASUREMENTS  
MAY 28, 2013**

**(COMPLETE REPORT WITH APPENDICES PROVIDED  
UNDER SEPARATE COVER)**



**TEST REPORT**  
**LANDFILL TIER II SAMPLING**

For  
**LANDFILL GAS NMOC ANALYSIS**

From the  
**CLASS I LANDFILL, CLASS III LANDFILL, AND THE ASH MONOFILL**

In service at the  
**LEE/HENDRY COUNTY**  
**REGIONAL SOLID WASTE DISPOSAL FACILITY**

Located in  
**FELDA, HENDRY COUNTY, FLORIDA**

Prepared for the  
**LEE COUNTY BOARD OF COUNTY COMMISSIONERS**

Test Completion Date: April 18, 2013  
Report Submittal Date: May 28, 2013

This Report Includes 190 Total Pages Including Cover

TRC Project No. 198755.0000.0000

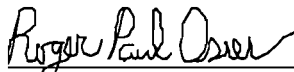


Lee County Board of County Commissioners  
Lee/Hendry County Solid Waste Disposal Facility  
FDEP Title V Permit No. 0510030-002-AV  
FDEP Emissions Unit ID No. 001  
TRC Project Number 198755.0000.0000  
Report Submittal Date: May 28, 2013

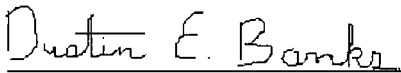
### Report Certification

I certify that to the best of my knowledge:

- Testing data and all corresponding information have been checked for accuracy and completeness.
- Sampling and analysis have been conducted in accordance with the approved protocol and applicable reference methods (as applicable).
- All deviations, method modifications, or sampling and analytical anomalies are summarized in the appropriate report narrative(s).



Roger Osier  
Roger Osier  
Environmental Scientist II



Dustin Banks  
Dustin Banks  
Environmental Scientist II

May 28, 2013

Date

TRC was operating in conformance with the requirements of ASTM D7036-04 during this test program.



Jeffrey W. Burdette  
Jeffrey W. Burdette  
TRC Air Measurements Technical Director

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## INTRODUCTION

Landfill gases and emissions from sections of the Lee County Solid Waste Division – Lee/Hendry County Regional Solid Waste Disposal Facility were tested in Felda, Hendry County, Florida. Tier II sampling was conducted for non-methane organic compounds (NMOC), oxygen (O<sub>2</sub>), and nitrogen (N<sub>2</sub>) at the Lee/Hendry County Regional Solid Waste Disposal Facility. Testing was conducted at the request of Jones Edmunds & Associates (Jones Edmunds). TRC – Air Measurements, Gainesville Office conducted these tests from April 15 through 18, 2013.

The purpose of this testing was to determine NMOC concentrations from the landfill for use in determination of NMOC emission rates for the facility. The NMOC concentration of the landfill gases were collected per Tier II specifications as specified in 40 CFR 60, Subpart WWW. These conditions are set forth in the Florida Department of Environmental Protection (FDEP) Title V Air Operation Permit Number 0510030-002-AV with Administrative Correction Project Number 0510030-003-AV. Jones Edmunds shall use the data from this report for the use in calculation of NMOC emission rates from the landfill. The NMOC concentrations shall be used to determine the Environmental Protection Agency (EPA) Code of Federal Regulations, Title 40, Part 60, Subpart WWW emission status.

The test methods followed the procedures set forth in United States Code of Federal Regulations, Title 40, Part 60 (40 CFR 60), Appendix A Methods 3C and 25C. Table 1 summarizes the background information pertinent to these tests.

**TABLE 1  
BACKGROUND DATA**

Source Owner: **Lee County Board of County Commissioners**  
10500 Buckingham Road  
Fort Myers, Florida 33905

Consultant: **Jones Edmunds & Associates**  
730 NE Waldo Road  
Gainesville, Florida 32641  
(352) 377-5821 x1342 Phone  
(352) 377-3166 Facsimile  
Attn: Tobin McKnight, Project Engineer  
Email: [tmcknight@jonesedmunds.com](mailto:tmcknight@jonesedmunds.com)

Test Subcontractor: **TRC – Air Measurements, Gainesville Office**  
6312 NW 18<sup>th</sup> Drive, Suite 100  
Gainesville, Florida 32653  
Attention: Leonard Brenner,  
Manager, Air Measurements  
(352) 378-0332 Phone  
(352) 378-0354 Facsimile  
Email: [lbrenner@trcsolutions.com](mailto:lbrenner@trcsolutions.com)

Regulatory Application: This facility is state regulated under FDEP Title V Air Operation Permit No.0510030-002-AV. The facility is federally regulated as a Municipal Solid Waste Landfill under EPA 40 CFR 60, Subpart and WWWW.

Process Description: An existing municipal solid waste landfill has sections of the landfill that have been made temporarily inactive. As landfills decompose methane, VOC, and other bacteriological waste gases are produced.

Test Date(s): May 15 through 18, 2013.

Location: Lee/Hendry County  
Regional Solid Waste Disposal Facility  
5500 Church Road  
Felda, Florida 33930

Sampling Points: Forty-two (42) stainless steel perforated landfill gas sampling probes were situated across the landfill; see Figures 1 through 4 for sample locations.

Test Participants: **Lee County Solid Waste Division**  
Ron Penoyer, Crew Supervisor

**Jones Edmunds & Associates**  
Steven M. Messick, Sr. Field Technician

**TRC – Air Measurements**  
Roger Paul Osier, Environmental Scientist II  
Dustin Banks, Environmental Scientist II

Test Methods: EPA Method 3C was used to determine nitrogen (N<sub>2</sub>) and oxygen (O<sub>2</sub>) in the landfill gas for use in correction of non-methane organic compounds.

EPA Method 25C was used to determine LFG non-methane organic compound (NMOC) concentrations.

## SUMMARY OF RESULTS

The Lee/Hendry County Regional Solid Waste Disposal Facility is located in Felda, Hendry County, Florida. There are ten areas or cells at this facility that contain Class I or Class III regulated waste. The Class I Landfill waste disposal cells consist of Cells 5, 7, 8, and Phase IA and IB with future expansion planned for Cells 9 and 10. The Class III Landfill waste disposal cells consist of Cells 1A, 1B, and 1C. In addition, the facility has an Ash Monofill that contains small amounts of Class I waste. Sampling was conducted from six areas; Cells 1A, 5, 7, 8, Phase 1A and 1B, and the Ash Monofill under direction of Jones Edmunds. Landfill gas NMOC concentrations from these tests are the subject of this report.

Table 2 contains the results of the Tier II sampling. Composite samples from two to three locations were each collected into a SUMMA passivated stainless steel canister pre-charged halfway with Helium. The locations of the sample probes in the cells are depicted in Figures 2 through 4 with an overview of the facility depicted in Figure 1. The samples were analyzed for non-methane organic compounds (NMOC), oxygen ( $O_2$ ), and nitrogen ( $N_2$ ). NMOC emissions were reported in terms of parts per million by volume (ppmv) as carbon on a wet basis. NMOC emissions were corrected from ppmv as carbon on a wet basis to ppmv as hexane on a dry basis at 0% excess  $N_2$  per Equation 25C-2 located in Method 25C, Section 12.3. For the three samples that had a reported  $N_2$  content greater than 78%, NMOC emissions were corrected from ppmv as carbon on a wet basis to ppmv as carbon, and ppmv as hexane on a dry basis at 0% excess  $O_2$  per modified Equation 25C-2 using oxygen instead of nitrogen for diluent correction. Average emissions for these tests were 430 ppmv NMOC as hexane on a dry basis.

Some of the samples for these tests had a  $N_2$  content of greater than 20% in the samples. These samples are still allowable samples per the method as the  $O_2$  content was less than 5%  $O_2$ . Equation 25C-2 uses an equation based upon the assumption that air intrusion into the landfill or during sampling can be corrected using the  $N_2$  content measured in the canister. However, since  $N_2$  naturally occurs in the landfill gas a part of the microbial decomposition process, using the  $N_2$

correction for samples that report a  $N_2$  concentration greater than 20% can result in either a high bias of NMOC emissions or negative NMOC once the combined  $N_2$  and moisture content exceed 78.8%. For these tests, when the combined  $N_2$  and moisture content exceeded 78.8%, Equation 25C-2 was modified for the use of  $O_2$  in lieu of  $N_2$ .

Composite samples were collected from the six areas of the facility with a total of 42 sampling locations using perforated sample probes installed per the auguring procedure. The six areas were selected by Jones, Edmunds, and Associates. Class III Landfill samples were collected from Cell 1A; Class I Landfill samples were collected from Cells 5, 7, 8, and Phase IA and IB; and samples were also collected from the Ash Monofill which contains small amounts of Class I waste. After placement, sampling from each probe site did not commence until after a 24-hour equilibration period. Each composite sample consisted of metering equal volumes of landfill gas from each of either two or three sample sites. A total of 42 samples were collected into 15 canisters. After test completion, samples were shipped with chain-of-custody forms to Air Technology Laboratories, Inc. in City of Industry, California for analysis per EPA Methods 3C and 25C.

Appendix A contains the field data sheets used during these tests. Examples of calculations used to present the results of this section are contained in Appendix B. Documentation of calibration certifications for TRC sampling equipment is presented in Appendix C. The results of the laboratory analysis for the EPA Method 3C and EPA Method 25C are in Appendix D. The FDEP permit for this facility is presented in Appendix E for reference purposes.

## TABLE 2 Summary of Results

**Company:** Lee County Board of County Commissioners

**Facility:** Lee/Hendry County Regional Solid Waste Disposal Facility

**Location:** Felda, Florida

**Sampling Technicians:** RPO, DEB

**Source:** Cells 1A, 5, 7, 8, Phase 1A & 1B, and Ash Monofill

Date/ Start Time Collected	Lab ID Number	Canister Sample ID No.	Sample Location Description	Field CH <sub>4</sub> (% vol)	Field N <sub>2</sub> (% vol)	Field O <sub>2</sub> (% vol)	Barometric Pressure (mm Hg)	Lab N <sub>2</sub> (% vol)	Lab O <sub>2</sub> (% vol)	Moisture Content (% vol)	Lab NMOC*	Lab NMOC	†NMOC
											(ppmv as C) uncorrected	(ppmv as C) dry, N <sub>2</sub> corr	ppmv as Hexane
04/17/13 08:37	E042405-03	6009	GP-7, 10, & 8	80.1	10.0	0.0	760.2	13	< 2.8	2.8	3700	4600	767
04/17/13 09:56	E042405-01	1374	GP-3, 2, & 1	44.0	29.6	0.0	760.0	33	< 3.2	3.7	730	1300	217
04/17/13 10:57	E042405-02	1415	GP-6 & 5	45.6	17.4	0.0	760.5	16	< 2.3	4.2	680	880	147
04/17/13 11:49	E042405-05	1416	GP-4, 11, & 12	45.7	36.7	0.0	760.5	35	< 1.9	4.4	830	1600	267
04/17/13 12:51	E042405-04	3563	GP-26, 25, & 24	56.7	25.8	0.0	759.7	22	< 1.4	6.1	660	960	160
04/17/13 13:53	E042405-06	1383	GP-23, 18, & 17	41.5	48.3	0.6	758.4	43	< 2.5	5.7	400	950	158
04/17/13 14:47	E042405-07	1235	GP-13, 14, & 15	63.1	7.1	0.0	759.7	9.6	< 1.8	6.1	700	820	137
04/17/13 15:45	E042405-08	1446	GP-20, 19, & 16	73.9	0.1	0.0	757.7	< 3.9	< 1.9	5.0	1700	1800	300
04/17/13 16:42	E042405-10	1479	GP-33, 34, & 32	2.5	95.6	2.0	757.9	91	4.8	5.3	170	236**	39**
04/17/13 17:36	E042405-09	3097	GP-31, 29, & 28	2.3	97.7	0.0	757.9	88	2.7	4.0	150	180**	30**
04/18/13 08:50	E042405-11	3745	GP-30 & 27	0.2	97.7	2.2	760.0	82	3.8	3.4	560	712**	119**
04/18/13 09:35	E042405-12	1344	GP-39, 40, & 37	5.5	64.7	0.0	759.2	66	< 2.7	3.9	1300	9900	1650
04/18/13 10:28	E042405-15	5416	GP-36, 38, & 41	32.3	31.2	0.0	759.2	35	< 2.5	4.3	1700	3300	550
04/18/13 11:21	E042405-13	1459	GP-42 & 35	9.8	57.7	0.1	759.0	53	< 4.6	4.8	1900	6200	1033
04/18/13 12:10	E042405-14	1454	GP-21, 22, & 9	51.1	25.4	0.1	757.9	31	< 2.1	5.7	3000	5300	883
<b>Averages</b>				<b>36.9</b>	<b>43.0</b>	<b>0.3</b>	<b>759.2</b>	<b>41.4</b>	<b>2.7</b>	<b>4.6</b>	<b>1212</b>	<b>2583</b>	<b>430</b>

†Please see Figures 2 through 4 for sampling locations.

\*Uncorrected NMOC sample concentrations are reported above as ppmv as Carbon on a wet basis and uncorrected for LFG nitrogen content. Samples were collected into 6 liter SUMMA passivated stainless steel canisters.

†NMOC emissions reported as ppmv as hexane are corrected for moisture content and LFG nitrogen content as per EPA Method 25C, Equation 25C-2 by Air Technology Labs with the exception of the samples that reported a concentration greater than 78% N<sub>2</sub>, where the equation fails to report NMOC results.

\*\*NMOC emissions reported as ppmv as hexane are corrected for moisture content and LFG oxygen content as per EPA Method 25C, Equation 25C-2 as modified to use O<sub>2</sub> in lieu of N<sub>2</sub> for dilution correction since high N<sub>2</sub> in the sample is not always a result of air dilution into the landfill, but rather a product from older landfills or sections that have low amounts of decomposable waste.



FIGURE 1: Facility Overview

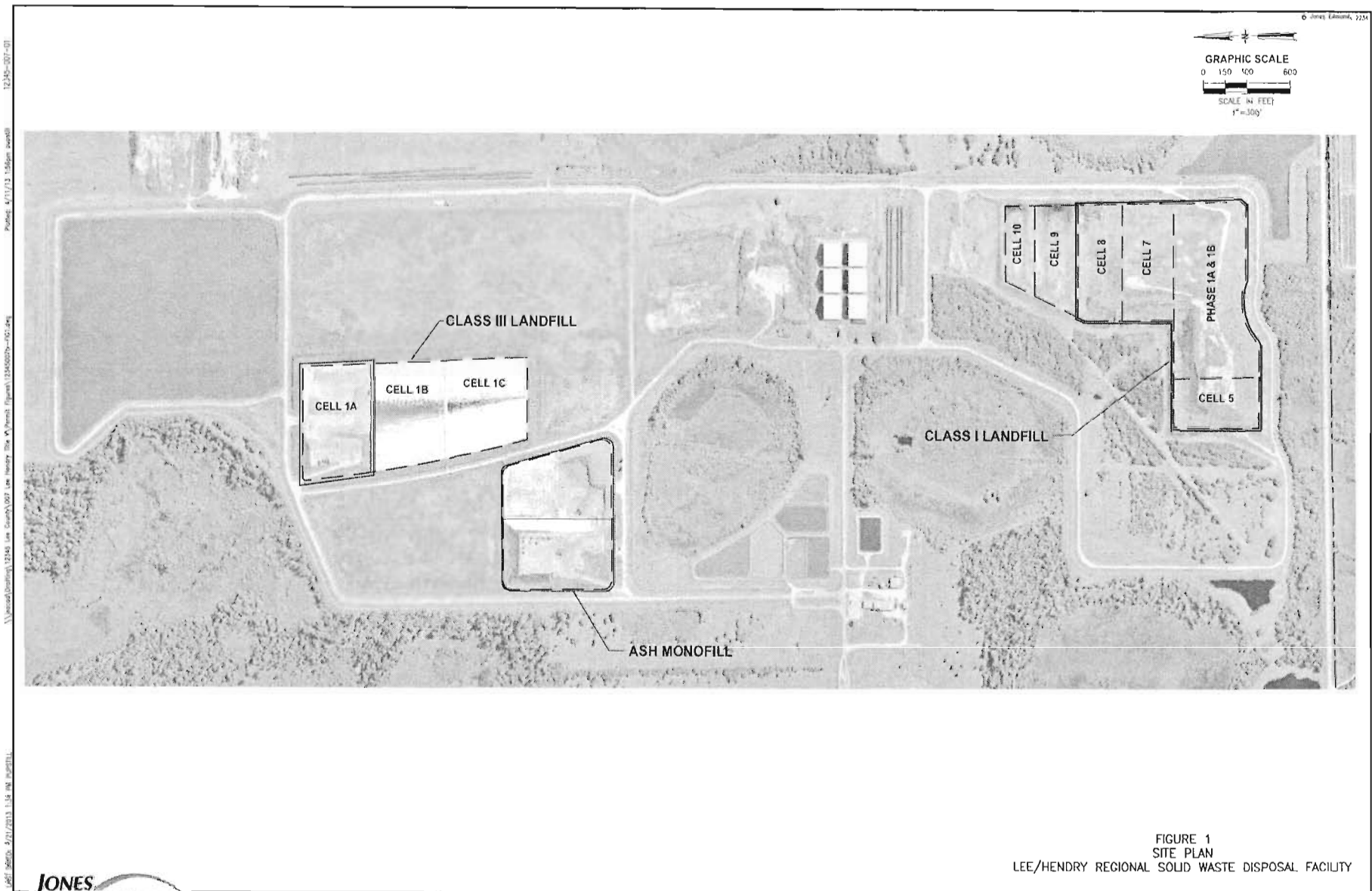


FIGURE 2: Class I Landfill

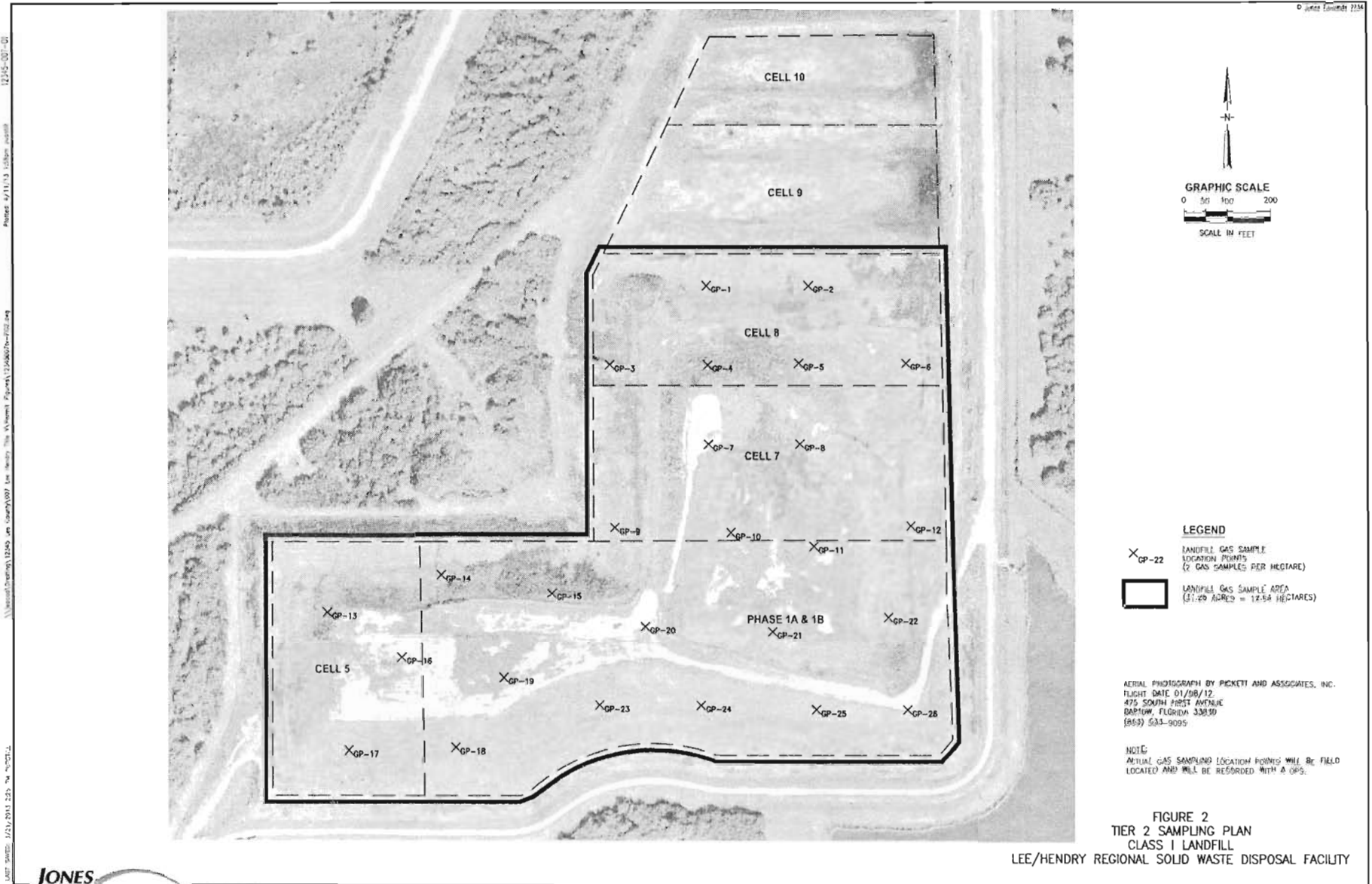


FIGURE 3: Class III Landfill

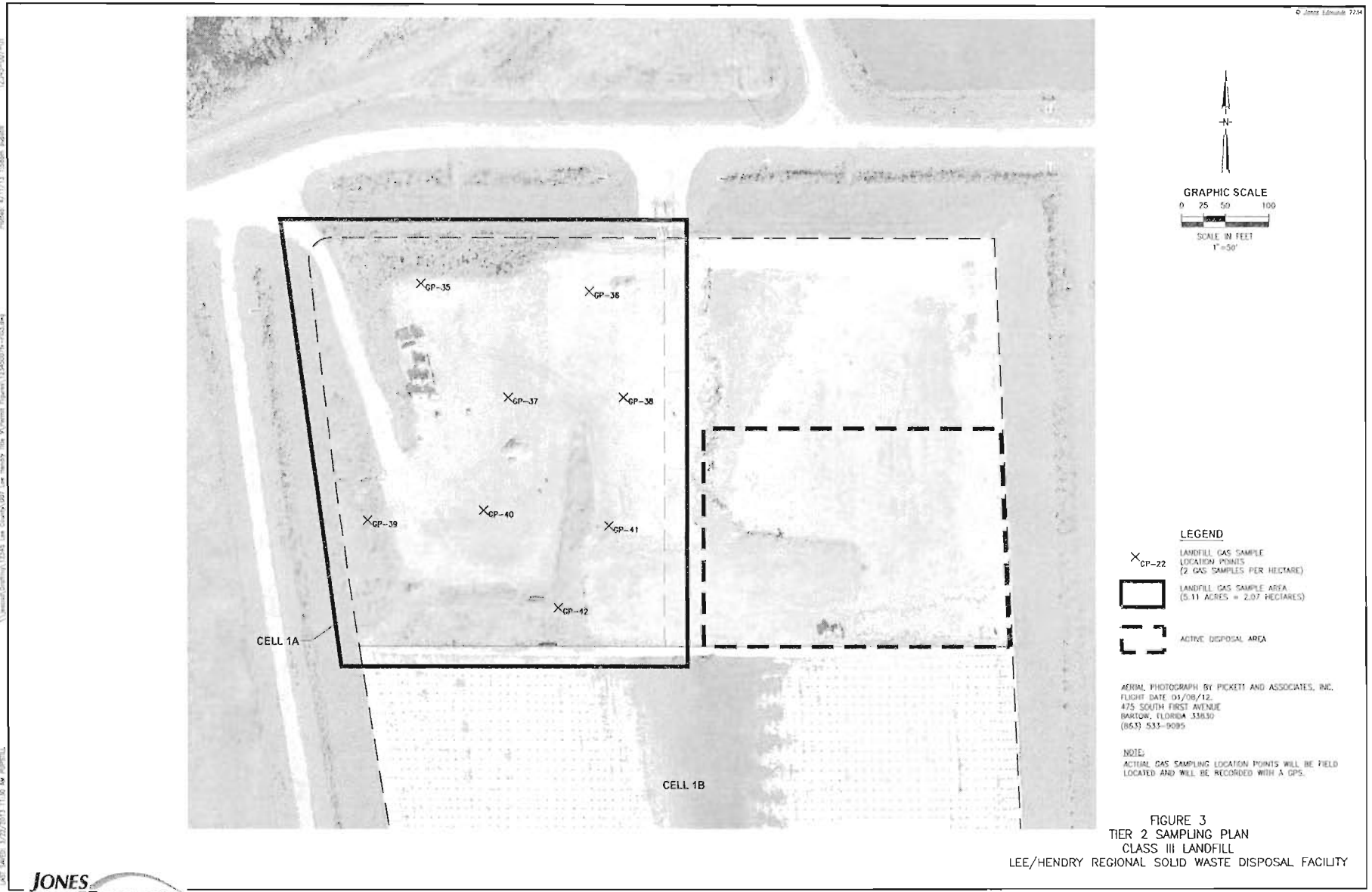


FIGURE 4: Ash Monofill



## ANALYTICAL TECHNIQUE

Landfill emissions were measured to determine the NMOC concentration per Tier II sampling as specified in 40 CFR 60, Subpart WWW. The sampling and analysis procedures used during these tests conformed to those outlined in 40 CFR 60, Appendix A, Methods 3C and 25C. This section of the report describes the analytical techniques and procedures used during the testing.

Forty-two (42) stainless steel probes were located across Cells 1A, 5, 7, 8, Phase IA and IB, and the Ash Monofill sections of the landfill. Sample site locations were selected by Jones Edmunds personnel. Sample probes were 6.5 feet in length and placed a minimum of 5 feet into the landfill. The bottom 1-foot of the sample probes were perforated per EPA Method 25C requirements. These 42 sample locations were collected according to composite sampling procedures. The 42 sample locations were collected into a total of fifteen (15) SUMMA passivated canisters pre-charged halfway with Helium with two of three sampling locations combined into the sample canisters.

Sample probes were installed in the landfill using the auguring procedure of EPA Method 25C, Section 8.2.2. Probes were sealed with bentonite, capped, and allowed to equilibrate for at least 24 hours prior to sampling. Before the probes were capped, the suitability of the probe location was verified. Sometimes, probes can be placed where leachate or non-degradable waste is located and where no landfill gas is present. A portable landfill gas analyzer was used to determine that methane was present at the sample location and that either the N<sub>2</sub> concentration was less than 20% or that the O<sub>2</sub> concentration was less than 5%. For the Ash Monofill, sampling was conducted regardless of low methane readings due to the nature of that section of the landfill.

Landfill gas samples were collected into SUMMA passivated stainless steel canisters at a sample flow rate of approximately 202 milliliters per minute and analyzed for O<sub>2</sub> and N<sub>2</sub> in accordance with EPA Method 3C. O<sub>2</sub> and N<sub>2</sub> measurements were necessary for determination of the acceptability of NMOC samples. Air Technology Laboratories, Inc. supplied the sample canisters and TRC manufactured the canister sampling train. The sampling train consisted of a stainless steel probe, flow controller, vacuum gauge, and a SUMMA passivated canisters pre-charged halfway with Helium. The flow controller attached to the

sample tank through the use of stainless steel fitting and Teflon tubing. In addition, the canister surface temperature was measured by a K-type thermocouple/thermometer assembly, supplied by TRC. Air Technology Laboratories, Inc. of City of Industry, California conducted the laboratory analysis of the samples. Field sampling sheets are in Appendix A. Results of the analysis are in Appendix D.

NMOC samples were collected during the testing with Method 25C procedures using the same sampling equipment and canisters as the Method 3C testing. The sample train was purged for a minimum of 10 minutes prior to sampling at a rate of 250 milliliters per minute (ml/min). The sample probe volume was approximately 1000 ml so that a minimum of 2.5 sample probe volumes was purged prior to sampling. The sampling flow rate was set to approximately 20 ml/min with approximately 1 liter of landfill gas from each of two or three sites collected into a canister. Air Technology Laboratories, Inc. of City of Industry, California conducted the laboratory analysis of the samples. Field sampling sheets are in Appendix A. Results of the analysis are in Appendix D.

TRC personnel collected additional data during each test run. Additional data collected included portable GEM 2000 analyzer measurements of CH<sub>4</sub>, CO<sub>2</sub>, O<sub>2</sub>, and balance gas (N<sub>2</sub>) conducted both during initial probe placement and after the probes were purged and before sampling was initiated, ambient absolute pressure data, and canister temperature data. The GEM 2000 analyzer results were collected for use as a diagnostic tool only and were not used in NMOC concentration determinations. A portable digital weather station was used to measure ambient conditions.

Emission calculations were conducted by a computer spreadsheet as shown in Table 2 of this report. Example calculations were performed manually using a hand-held calculator in order to verify the formulas used in the spreadsheet. Example calculations are in Appendix B of this report.

## QUALITY ASSURANCE ACTIVITIES

A number of quality assurance activities were undertaken before, during, and after this testing project to ensure the accuracy of results obtained. This section of the report, in conjunction with the documentation in Appendix D, describes each quality assurance activity that was performed.

Quality assurance activities for the NMOC sampling began during test preparation. All sample probes were presoaked, steam cleaned, and rinsed with distilled, de-ionized water and packed to prevent contamination. Sampling canisters were received from Air Technology Laboratories, Inc. partially pre-charged with helium and leak checked per the specifications of EPA Method 25C. Results of the leak checks are located in Appendix A with the field data sheets.

Quality assurance procedures for laboratory analysis of the landfill gas for NMOC, O<sub>2</sub>, and N<sub>2</sub> were conducted in accordance with EPA Method 3C and Method 25C protocols. Calibration of analyzers consisted of a system performance check (Method 25C only), catalyst efficiency checks (Method 25C only), linearity checks, sample analysis in triplicate, and a sample blank. Results of the quality assurance activities are kept on file at the analytical laboratory.

The absence of air intrusion leaks into the sampling probes and sampling systems was verified by the determination of N<sub>2</sub> and O<sub>2</sub> content in the sample canisters. EPA Method 25C requires that either the N<sub>2</sub> content not exceed 20% by volume or the O<sub>2</sub> content not exceed 5% by volume. All sample results met the method specifications.

Appendix C contains calibration data for the landfill gas analyzer calibration gas, thermometers, and weather station used during the testing. Accuracy of the combined thermometer and thermocouple assemblies was verified with an ASTM reference thermometer traceable to NIST.

TRC collected and reported the enclosed test data in accordance with the procedures and quality assurance activities described in this test report. TRC makes no warranty as to the suitability of the test methods. TRC assumes no liability relating to the interpretation and use of the test data by others.

**ATTACHMENT 2**

**HISTORICAL TONNAGE RECORDS AND SUMMARY**



LEE/HENDRY COUNTY REGIONAL SOLID WASTE DISPOSAL FACILITY

SUMMARY

LANDFILL DISPOSAL AND RECYCLING TONNAGES

Obtained from FDEP Quarterly Reporting Forms and County Records 2002-2012

CLASS I LANDFILL	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	TOTAL
Household waste (MSW/Class I waste)	9,120.10	115,659.08	142,913.32	202,517.73	226,058.64	145,357.96	3,032.31	95.62	-	-	-	844,754.76
Commercial waste	6.99	-	-	-	-	-	-	-	-	-	-	6.99
Ash residue	21,427.44	104,295.73	122,391.02	125,595.57	123,024.52	116,296.85	26,631.58	-	10,161.54	27,062.99	-	676,867.24
Construction and demolition debris	-	-	-	7,213.51	11,467.16	185.46	252.03	-	-	-	-	19,118.16
Agricultural waste	-	-	-	-	-	-	100.06	-	-	-	-	100.06
Industrial waste	-	484.10	247.18	332.45	174.93	45.87	9,816.99	-	-	-	-	11,101.52
Yard trash	-	-	-	-	-	-	5.84	-	-	-	-	5.84
Sewage sludge	-	6,051.96	6,635.49	6,309.08	10,012.54	15,843.99	-	-	-	-	-	44,853.06
Waste tires	25.62	800.22	134.71	335.71	321.94	-	-	-	-	-	-	1,618.20
Shredded tires (for drainage)	3,110.32	7,656.43	671.64	-	3,434.57	1,483.43	-	-	-	-	-	16,356.39
Rough shred tires (2004)	-	-	515.06	3,035.80	-	235.29	-	-	-	-	-	3,786.15
Other Wastes to Class I (2008)	-	-	-	-	-	-	10,174.92	-	-	-	-	10,174.92
Mulch Used in Topsoil/Erosion Ctrl	-	-	389.39	-	-	-	4,041.30	-	-	-	-	4,430.69
<b>Total Class I Landfill</b>	<b>33,690.47</b>	<b>234,947.52</b>	<b>273,897.81</b>	<b>345,339.85</b>	<b>374,494.30</b>	<b>279,448.85</b>	<b>54,055.03</b>	<b>95.62</b>	<b>10,161.54</b>	<b>27,062.99</b>	<b>-</b>	<b>1,633,193.98</b>
<b>Total Class I Degradable</b>	<b>9,127.09</b>	<b>122,195.14</b>	<b>150,700.44</b>	<b>219,408.57</b>	<b>247,713.27</b>	<b>161,668.57</b>	<b>27,423.45</b>	<b>95.62</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>938,332.15</b>
<b>Total Class I Non-Degradable</b>	<b>24,563.38</b>	<b>112,752.38</b>	<b>123,197.37</b>	<b>125,931.28</b>	<b>126,781.03</b>	<b>117,780.28</b>	<b>26,631.58</b>	<b>-</b>	<b>10,161.54</b>	<b>27,062.99</b>	<b>-</b>	<b>694,861.83</b>
<b>Total Class I Landfill</b>	<b>33,690.47</b>	<b>234,947.52</b>	<b>273,897.81</b>	<b>345,339.85</b>	<b>374,494.30</b>	<b>279,448.85</b>	<b>54,055.03</b>	<b>95.62</b>	<b>10,161.54</b>	<b>27,062.99</b>	<b>-</b>	<b>1,633,193.98</b>
ASH MONOFILL	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	TOTAL
Ash residue	-	-	-	-	-	-	51,774.01	146,806.88	134,907.04	112,602.09	146,707.08	592,797.10
Ash transferred from Class I (2008)	-	-	-	-	-	-	61,292.84	-	-	-	-	61,292.84
Class I waste	-	-	-	-	-	-	-	-	-	-	2,029.22	2,029.22
Sewage sludge	-	-	-	-	-	-	-	-	-	5,466.30	10,306.89	15,773.19
Other Wastes to ASH (2008-2010)	-	-	-	-	-	-	4,575.35	15,294.48	14,776.53	1,117.38	1,178.85	36,942.59
Shredded Tires	-	-	-	-	-	-	311.14	-	-	-	-	311.14
Mulch Used in Topsoil/Erosion Control	-	-	-	-	-	-	-	33.55	-	-	-	33.55
Glass	-	-	-	-	-	-	-	-	-	-	1,039.99	1,039.99
<b>Total Ash Monofill</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>117,953.34</b>	<b>162,134.91</b>	<b>149,683.57</b>	<b>119,185.77</b>	<b>161,262.03</b>	<b>710,219.62</b>
<b>Total Ash Monofill Degradable</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>4,575.35</b>	<b>15,328.03</b>	<b>14,776.53</b>	<b>6,583.68</b>	<b>13,514.96</b>	<b>55,089.69</b>
<b>Total Ash Monofill Non-Degradable</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>113,377.99</b>	<b>146,806.88</b>	<b>134,907.04</b>	<b>112,802.09</b>	<b>147,747.07</b>	<b>655,129.93</b>
<b>Total Ash Monofill</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>117,953.34</b>	<b>162,134.91</b>	<b>149,683.57</b>	<b>119,185.77</b>	<b>161,262.03</b>	<b>710,219.62</b>
CLASS III LANDFILL	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	TOTAL
Class III waste	-	-	-	-	-	-	-	-	-	2,265.18	2,017.33	4,282.51
Construction and demolition debris	-	-	-	-	-	-	-	22,925.07	36,078.20	13,978.95	-	100,402.35
RSM	-	-	-	-	-	-	-	-	-	659.06	5,033.73	5,692.79
Asbestos	-	-	-	-	-	-	-	100.52	51.84	203.16	1.75	357.27
Shredded Tires	-	-	-	-	-	-	4,234.70	-	-	-	-	4,234.70
<b>Total Class III Landfill</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>4,234.70</b>	<b>23,025.59</b>	<b>36,130.04</b>	<b>30,547.53</b>	<b>21,031.76</b>	<b>114,969.62</b>
<b>Total Class III Degradable</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>22,925.07</b>	<b>36,078.20</b>	<b>30,344.37</b>	<b>21,030.01</b>	<b>110,377.65</b>
<b>Total Class III Non-Degradable</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>4,234.70</b>	<b>100.52</b>	<b>51.84</b>	<b>203.16</b>	<b>1.75</b>	<b>4,591.97</b>
<b>Total Class III Landfill</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>4,234.70</b>	<b>23,025.59</b>	<b>36,130.04</b>	<b>30,547.53</b>	<b>21,031.76</b>	<b>114,969.62</b>



**LEE COUNTY**  
SOUTHWEST FLORIDA

**BOARD OF COUNTY COMMISSIONERS**

(239)-338-3302

Writer's Direct Dial Number: \_\_\_\_\_

Bob Janes  
District One

January 10, 2003

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Ray Judah  
District Three

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District Four

John E. Albion  
District Five

Donald D. Stilwell  
County Manager

James G. Yaeger  
County Attorney

Diana M. Parker  
County Hearing  
Examiner

Mr. Bill Krumbholtz  
Florida Department of Environmental Protection  
2295 Victoria Avenue, Suite 364  
Fort Myers, Florida 33901

**SUBJECT: Lee/Hendry County Regional Solid Waste Disposal Facility  
Permit No. 0130719-001-SO  
Quarterly Tonnage Report – Fourth Quarter 2002**

Dear Mr. Krumbholtz:

In accordance with Florida Administrative Code (F.A.C.), Rule 62-701.500(4), attached please find the tonnage report for the fourth quarter of 2002.

If you have any questions, please call me.

Sincerely,

Jason Fournier, Coordinator  
Solid Waste Division

cc: Lindsey J. Sampson P.E., Director LCSW  
Laura Gray, P.E., LCSW  
IVA216

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FDEP Quarterly Reporting Form – Lee/Hendry County Regional Solid Waste Disposal Facility  
 Landfill disposal and Recycling Tonnages  
 2002

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Totals (YTD)
<b>Category 1</b>													
Household Waste							0.00	0.00	828.26	4793.05	3482.77	16.02	9120.10
Commercial Waste							0.00	0.00	0.00			6.99	6.99
Incinerator By-Pass Waste							0.00	0.00	0.00				0.00
Construction and Demolition Waste							0.00	0.00	0.00				0.00
Treated Biomedical Waste							0.00	0.00	0.00				0.00
Agricultural Waste							0.00	0.00	0.00				0.00
Industrial Waste							0.00	0.00	0.00				0.00
Sewage Sludge							0.00	0.00	0.00				0.00
Off Road Tires							0.00	0.00	0.00			25.62	25.62
Industrial Sludge							0.00	0.00	0.00				0.00
Water/Air Treatment Sludges							0.00	0.00	0.00				0.00
<b>Total Category 1</b>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	828.26	4793.05	3482.77	48.63	9152.71
<b>Category 2</b>													0.00
Yard Trash							0.00	0.00	0.00				0.00
Waste Tires													0.00
<b>Total Category 2</b>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Category 3</b>													0.00
Ash Residue							0.00	0.00	1341.94	4501.07	6283.25	9301.18	21427.44
<b>Total Category 3</b>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1341.94	4501.07	6283.25	9301.18	21427.44
<b>Category 4</b>													0.00
Shredded Tires *							265.25	362.96	218.81	516.16	613.19	1133.95	3110.32
<b>Total Category 4</b>	0.00	0.00	0.00	0.00	0.00	0.00	265.25	362.96	218.81	516.16	613.19	1133.95	3110.32
<b>Category 5</b>													0.00
Mulch Given Away													0.00
Mulch Sent out for Fuel													0.00
Mulch/suppl. Intermediate cover													0.00
Mulch Used in Topsoil/Erosion Ctrl													0.00
<b>Total Category 5</b>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total Lined Disposal (1+3+4)</b>	0.00	0.00	0.00	0.00	0.00	0.00	265.25	362.96	2389.01	9810.28	10379.21	10483.76	33690.47
<b>Total Recycled (4+5)</b>	0.00	0.00	0.00	0.00	0.00	0.00	265.25	362.96	218.81	516.16	613.19	1133.95	3110.32

\* Recycled shredded tire chips were used as a Leachate drainage media.

Categories:

1. All solid waste passing over the landfill scales and going directly to the lined disposal unit working face for disposal.
2. All solid waste passing over the landfill scales and going to a special waste storage (or disposal) area.
3. Processed special waste going back into the lined disposal unit for disposal.
4. Processed special waste going back into the lined disposal unit for recycling purposes.
5. Processed special waste recycled outside the lined disposal unit.

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JAN 15 2004

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January 8, 2004

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Mr. Bill Krumbholtz  
Florida Department of Environmental Protection  
2295 Victoria Avenue, Suite 364  
Fort Myers, Florida 33901

**SUBJECT: Lee/Hendry County Regional Solid Waste Disposal Facility  
Permit No. 0130719-001-SO; GMS LD. No. 5226C01001  
Quarterly Tonnage Report - Fourth Quarter 2003**

Dear Mr. Krumbholtz:

In accordance with Florida Administrative Code (F.A.C.), Rule 62-701.500(4), attached please find the tonnage report for the third quarter of 2003.

If you have any questions, please call me.

Sincerely,

Jason Fournier  
Solid Waste Coordinator  
Solid Waste Division

cc: Lindsey J. Sampson P.E., LCSW  
Laura A. Gray, P.E., LCSW  
IVA216  
LHLF File

S:\JASON FOURNIER\LHLF\QUARTERLY TONNAGE DEP REPORTS\FY03\FDEP TONNAGE REPORT LETTER 4TH QTR  
03.DOC

FDEP Quarterly Reporting Form - Lee/Hendry County Regional Solid Waste Disposal Facility  
 Landfill disposal and Recycling Tonnages  
 2003

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Totals (YTD)
<b>Category 1</b>													
Household Waste	1240.83	6202.49	9098.33	21522.12	19024.48	6331.71	4018.51	6823.67	3998.07	8236.87	20529.14	8632.86	115659.08
Commercial Waste													0.00
Incinerator By-Pass Waste													0.00
Construction and Demolition Waste													0.00
Treated Biomedical Waste													0.00
Agricultural Waste													0.00
Industrial Waste (Waste/Sand)	54.46	0.00	45.10	40.08	14.71	46.72	42.28	27.17	68.00	23.87	11.36	110.35	484.10
Sewage Sludge	27.03	474.38	789.36	394.79	453.96	302.19	247.23	419.71	381.85	456.78	890.37	1214.31	6051.96
Off Road Tires	11.46	45.11	11.09	56.72	12.88	33.20	14.55	52.92	13.01	40.75	161.43	347.10	800.22
Industrial Sludge													0.00
Water/Air Treatment Sludges													0.00
<b>Total Category 1</b>	<b>1333.78</b>	<b>6721.98</b>	<b>9943.88</b>	<b>22013.71</b>	<b>19506.03</b>	<b>6713.82</b>	<b>4322.57</b>	<b>7323.47</b>	<b>4460.93</b>	<b>8758.27</b>	<b>21592.30</b>	<b>10304.62</b>	<b>122995.36</b>
<b>Category 2</b>													0.00
Yard Trash													0.00
Waste Tires													0.00
<b>Total Category 2</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Category 3</b>													0.00
Ash Residue	9693.57	8441.80	9539.86	8274.36	5133.58	8008.77	9649.97	9235.87	9921.12	9297.00	5622.49	11477.34	104295.73
<b>Total Category 3</b>	<b>9693.57</b>	<b>8441.80</b>	<b>9539.86</b>	<b>8274.36</b>	<b>5133.58</b>	<b>8008.77</b>	<b>9649.97</b>	<b>9235.87</b>	<b>9921.12</b>	<b>9297.00</b>	<b>5622.49</b>	<b>11477.34</b>	<b>104295.73</b>
<b>Category 4</b>													0.00
Shredded Tires *	347.36	258.27	787.99	378.92	538.78	743.73	227.89	419.71	887.24	877.92	1224.28	964.34	7656.43
<b>Total Category 4</b>	<b>347.36</b>	<b>258.27</b>	<b>787.99</b>	<b>378.92</b>	<b>538.78</b>	<b>743.73</b>	<b>227.89</b>	<b>419.71</b>	<b>887.24</b>	<b>877.92</b>	<b>1224.28</b>	<b>964.34</b>	<b>7656.43</b>
<b>Category 5</b>													0.00
Mulch Given Away													0.00
Mulch Sent out for Fuel													0.00
Mulch/suppl. Intermediate cover													0.00
Mulch Used in Topsoil/Erosion Ctrl													0.00
<b>Total Category 5</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Total Lined Disposal (1+3+4)</b>	<b>11374.71</b>	<b>15422.05</b>	<b>20271.73</b>	<b>30666.99</b>	<b>25178.39</b>	<b>15466.32</b>	<b>14200.43</b>	<b>16979.05</b>	<b>15269.29</b>	<b>18933.19</b>	<b>28439.07</b>	<b>22746.30</b>	<b>234947.52</b>
<b>Total Recycled (4+5)</b>	<b>347.36</b>	<b>258.27</b>	<b>787.99</b>	<b>378.92</b>	<b>538.78</b>	<b>743.73</b>	<b>227.89</b>	<b>419.71</b>	<b>887.24</b>	<b>877.92</b>	<b>1224.28</b>	<b>964.34</b>	<b>7656.43</b>
<b>Quarterly Total (lined disposal)</b>			<b>47068.49</b>			<b>71311.70</b>			<b>46448.77</b>			<b>70118.56</b>	<b>234947.52</b>

\* Recycled shredded tire chips were used as a Leachate drainage media.

Categories:

1. All solid waste passing over the landfill scales and going directly to the lined disposal unit working face for disposal.
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3. Processed special waste going back into the lined disposal unit for disposal.
4. Processed special waste going back into the lined disposal unit for recycling purposes.
5. Processed special waste recycled outside the lined disposal unit.

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JAN 15 2004

D.E.P. - South District



# LEE COUNTY

SOUTH WEST FLORIDA

BOARD OF COUNTY COMMISSIONERS

(239)-338-3302

Writer's Direct Dial Number: \_\_\_\_\_

Bob Janes  
District One

Douglas R. St. Cerny  
District Two

Ray Judah  
District Three

Andrew W. Coy  
District Four

John E. Albion  
District Five

Donald D. Stilwell  
County Manager

Robert W. Gray  
Deputy County Attorney

Diana M. Parker  
County Hearing  
Examiner

January 10, 2005

Mr. Bill Krumbholtz  
Florida Department of Environmental Protection  
2295 Victoria Avenue, Suite 364  
Fort Myers, Florida 33901

**SUBJECT: Lee/Hendry County Regional Solid Waste Disposal Facility  
GMS I.D. No. 5226C01001  
WACS ID No. 00074766  
Permit No. 0130719-003-SC/00  
Fourth Quarter 2004 Tonnage Report**

Dear Mr. Krumbholtz:

As required by Florida Administrative Code (F.A.C.), Rule 62-701.500(4), attached please find the subject tonnage report. Upon review of the third quarter report, an error in the total lined disposal was found. Category 2 (special waste storage) was inadvertently included in the lined disposal total when it should not have been. The totals for the third quarter have been corrected in the attached report.

If you have any questions, please call me.

Sincerely,

Laura A. Gray, PE  
Engineering Manager  
Solid Waste Division

Attachment

cc: Lindsey J. Sampson P.E., LCSW  
Jason Fournier, LCSW  
John Wong, WMIF  
File IV A216

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**FDEP Quarterly Reporting Form - Lee/Hendry County Regional Solid Waste Disposal Facility**  
**Landfill Disposal and Recycling Tonnages**  
**2004 Tonnage**

	Jan	Feb	Mar	First Qtr Total	Apr	May	Jun	Second Qtr Total	Jul	Aug	Sept	Third Qtr Total	Oct	Nov	Dec	Fourth Qtr Total	Annual Total
<b>Category 1</b>																	
Household Waste	8,544.51	10,168.63	13,567.08	32,280.22	13,040.86	24,183.88	10,502.35	47,727.09	5,810.75	9,669.53	7,142.14	22,622.42	7,845.61	22,269.36	10,168.62	40,280.59	142,913.32
Commercial Waste																	
Incinerator By-Pass Waste																	
Construction and Demolition Waste																	
Treated Biomedical Waste																	
Agricultural Waste																	
Industrial Waste (Waste/Sand)	16.21	12.49	15.57	44.27	30.54	24.39	48.33	103.26	13.81	8.00	31.77	53.58	43.74	2.33		46.07	201.11
Sewage Sludge	1,363.44	1,186.85	709.48	3,259.77	662.41	446.99	472.01	1,581.41	389.49	258.74	178.59	826.82	246.90	397.60	322.99	967.49	5,668.00
Off Road Tires	49.20	50.40	18.22	117.82	16.89			16.89									134.71
Industrial Sludge																	
Water/Air Treatment Sludges																	
Rough shred tires			515.06	515.06													515.06
<b>Total Category 1</b>	<b>9,973.36</b>	<b>11,418.37</b>	<b>14,825.41</b>	<b>36,217.14</b>	<b>13,750.70</b>	<b>24,655.26</b>	<b>11,022.69</b>	<b>49,428.65</b>	<b>6,214.05</b>	<b>9,936.27</b>	<b>7,352.50</b>	<b>23,502.82</b>	<b>8,136.25</b>	<b>22,669.29</b>	<b>10,491.61</b>	<b>41,297.15</b>	<b>150,445.76</b>
<b>Category 2</b>																	
Yard Trash *																	
Mulch from Hurricane Debris **																	
Waste Tires/Rough Shred Tires***					438.40	644.17	204.62	1,287.19	222.60	295.55	0.00	518.15	478.81	167.70		646.51	2,451.89
<b>Total Category 2</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>438.40</b>	<b>644.17</b>	<b>204.62</b>	<b>1,287.19</b>	<b>222.60</b>	<b>295.55</b>	<b>0.00</b>	<b>518.15</b>	<b>478.81</b>	<b>167.70</b>	<b>0.00</b>	<b>646.51</b>	<b>2,451.89</b>
<b>Category 3</b>																	
Ash Residue	10,341.35	8,431.15	10,612.35	29,384.85	10,529.01	5,725.05	10,807.93	27,061.99	11,580.02	11,734.91	11,089.04	34,403.97	11,506.39	8,495.93	11,537.89	31,540.21	122,391.02
<b>Total Category 3</b>	<b>10,341.35</b>	<b>8,431.15</b>	<b>10,612.35</b>	<b>29,384.85</b>	<b>10,529.01</b>	<b>5,725.05</b>	<b>10,807.93</b>	<b>27,061.99</b>	<b>11,580.02</b>	<b>11,734.91</b>	<b>11,089.04</b>	<b>34,403.97</b>	<b>11,506.39</b>	<b>8,495.93</b>	<b>11,537.89</b>	<b>31,540.21</b>	<b>122,391.02</b>
<b>Category 4</b>																	
Shredded Tires ****	671.64			671.64				0.00									671.64
<b>Total Category 4</b>	<b>671.64</b>	<b>0.00</b>	<b>0.00</b>	<b>671.64</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>671.64</b>
<b>Category 5</b>																	
Mulch Given Away																	
Mulch Sent out for Fuel																	
Mulch/suppl. Intermediate cover																	
Mulch Used in Topsoil/Erosion Ctrl					389.39			389.39									389.39
<b>Total Category 5</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>389.39</b>	<b>0.00</b>	<b>0.00</b>	<b>389.39</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>389.39</b>
<b>Total Lined Disposal (1+3+4)</b>	<b>20,986.35</b>	<b>19,849.52</b>	<b>25,437.76</b>	<b>66,273.63</b>	<b>24,279.71</b>	<b>30,380.31</b>	<b>21,830.62</b>	<b>76,490.64</b>	<b>17,794.07</b>	<b>21,671.18</b>	<b>18,441.54</b>	<b>57,906.79</b>	<b>19,642.64</b>	<b>31,165.22</b>	<b>22,029.50</b>	<b>72,837.36</b>	<b>273,508.42</b>
<b>Total Recycled (4+5)</b>	<b>671.64</b>	<b>0.00</b>	<b>0.00</b>	<b>671.64</b>	<b>389.39</b>	<b>0.00</b>	<b>0.00</b>	<b>389.39</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>1,061.03</b>

\* Yard Trash from Hendry County Transfer Stations brought to Landfill due to space concerns at WTB facility

\*\* Mulched Yard Trash from hurricane debris sites brought to landfill for spreading

\*\*\* Rough shred tires stockpiled for future disposal and/or use in terms per FDEP approval.

\*\*\*\* Recycled shredded tire chips were used as a Leachate drainage media.

Categories:

1. All solid waste passing over the landfill scales and going directly to the lined disposal unit working face for disposal.
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4. Processed special waste going back into the lined disposal unit for recycling purposes.
5. Processed special waste recycled outside the lined disposal unit.

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D.E.P. - South District



**LEE COUNTY**  
SOUTHWEST FLORIDA

**BOARD OF COUNTY COMMISSIONERS**

(239)-338-3302

Writer's Direct Dial Number: \_\_\_\_\_

Bob Janes  
District One

Douglas R. St. Cemy  
District Two

Ray Judah  
District Three

Tammy Hall  
District Four

John E. Albion  
District Five

Donald D. Stilwell  
County Manager

Diana M. Parker  
County Hearing  
Examiner

January 12, 2006

Mr. Bill Krumbholtz  
Florida Department of Environmental Protection  
2295 Victoria Avenue, Suite 364  
Fort Myers, Florida 33901

**SUBJECT: Lee/Hendry County Regional Solid Waste Disposal Facility  
GMS I.D. No. 5226C01001  
WACS ID No. 00074766  
Permit No. 0130719-003-SC/00  
Fourth Quarter 2005 Tonnage Report**

Dear Mr. Krumbholtz:

As required by Florida Administrative Code (F.A.C.), Rule 62-701.500(4), attached please find the subject tonnage report.

If you have any questions, please call me.

Sincerely,

Laura A. Gray, PE  
Engineering Manager  
Solid Waste Division

Attachment

cc: Lindsey J. Sampson P.E., LCSW  
Jason Fournier, LCSW  
John Wong, WMIF  
File IV A216

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**FDEP Quarterly Reporting Form – Lec/Hendry County Regional Solid Waste Disposal Facility  
Landfill Disposal and Recycling Tonnages  
2005 Tonnage**

	Jan	Feb	Mar	First Qtr Total	Apr	May	Jun	Second	Jul	Aug	Sept	Third	Oct	Nov	Dec	Fourth	Annual Total
								Qtr Total				Qtr Total					
<b>Category 1</b>																	
Household Waste	12,474.80	14,116.29	15,444.31	42,035.40	15,350.87	21,436.07	26,775.47	63,562.41	15,943.63	15,024.91	12,348.61	43,317.15	15,622.92	22,920.98	15,058.87	53,602.77	202,517.73
Commercial Waste																	
Incinerator By-Pass Waste																	
Construction/Demolition														556.59	6,656.92	7,213.51	7,213.51
Treated Biomedical Waste																	
Agricultural Waste																	
Industrial Waste	42.34	41.56	15.90	99.80	14.28	58.04	-	72.32	-	97.78	45.84	143.62	-	16.71	-	16.71	332.45
Sewage Sludge	435.65	602.23	721.32	1,759.20	637.30	309.66	351.69	1,298.65	300.02	504.40	630.97	1,435.39	552.50	788.61	474.73	1,815.84	6,309.08
Off Road Tires	21.90	24.15	57.99	104.04	38.24	32.59	17.46	88.29	28.35	35.79	20.30	84.44	24.82	-	34.12	58.94	335.71
Industrial Sludge																	
Water/Air Treatment Sludges																	
Rough shred tires	320.22	-	493.43	813.65	-	-	239.14	-	444.67	-	671.71	1,116.38	243.82	80.31	542.50	866.63	2,796.66
<b>Total Category 1</b>	<b>13,294.91</b>	<b>14,784.23</b>	<b>16,732.95</b>	<b>44,812.09</b>	<b>16,040.69</b>	<b>21,836.36</b>	<b>27,383.76</b>	<b>65,021.67</b>	<b>16,716.67</b>	<b>15,662.88</b>	<b>13,717.43</b>	<b>46,096.98</b>	<b>16,444.06</b>	<b>24,363.20</b>	<b>22,767.14</b>	<b>63,574.40</b>	<b>219,505.14</b>
<b>Category 2</b>																	
Yard Trash *																	
Mulch from Hurricane Debris																	
Waste Tires/Rough Shred			178.28	178.28	673.58	415.35	-	1,088.93								0.00	1,267.21
<b>Total Category 2</b>	<b>0.00</b>	<b>0.00</b>	<b>178.28</b>	<b>178.28</b>	<b>673.58</b>	<b>415.35</b>	<b>0.00</b>	<b>1,088.93</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>-</b>	<b>1,267.21</b>
<b>Category 3</b>																	
Ash Residue	11,436.60	10,558.71	12,007.63	34,002.94	10,786.28	7,534.47	9,202.49	27,523.24	11,134.30	11,404.69	10,751.99	33,290.98	10,308.18	8,256.39	12,213.84	30,778.41	125,595.57
<b>Total Category 3</b>	<b>11,436.60</b>	<b>10,558.71</b>	<b>12,007.63</b>	<b>34,002.94</b>	<b>10,786.28</b>	<b>7,534.47</b>	<b>9,202.49</b>	<b>27,523.24</b>	<b>11,134.30</b>	<b>11,404.69</b>	<b>10,751.99</b>	<b>33,290.98</b>	<b>10,308.18</b>	<b>8,256.39</b>	<b>12,213.84</b>	<b>30,778.41</b>	<b>125,595.57</b>
<b>Category 4</b>																	
Shredded Tires ****				0.00													
<b>Total Category 4</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>-</b>
<b>Category 5</b>																	
Mulch Given Away																	
Mulch Sent out for Fuel																	
Mulch/suppl. Intermediate																	
Mulch Used in																	
<b>Total Category 5</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0</b>
<b>Total Lined Disposal</b>	<b>24,731.51</b>	<b>25,342.94</b>	<b>28,740.58</b>	<b>78,815.03</b>	<b>26,826.97</b>	<b>29,370.83</b>	<b>36,586.25</b>	<b>92,784.05</b>	<b>27,850.97</b>	<b>27,067.57</b>	<b>24,469.42</b>	<b>79,387.96</b>	<b>26,752.24</b>	<b>32,619.59</b>	<b>34,980.98</b>	<b>94,352.81</b>	<b>345,339.85</b>
<b>Total Recycled (4+5)</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0</b>

\* Yard Trash from Hendry County Transfer Stations brought to Landfill due to space concerns at WTE facility

\*\* Mulched Yard Trash from hurricane debris sites brought to landfill for spreading

\*\*\* Rough shred tires stockpiled for future disposal and/or use in berms and/or roads.

\*\*\*\* Recycled shredded tire chips were used as a Leachate drainage media.

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JAN 13 2006  
D.E.P. - SOUTH DISTRICT



**LEE COUNTY**  
SOUTH WEST FLORIDA  
BOARD OF COUNTY COMMISSIONERS

Bob Janes  
District One

January 15, 2007

A. Brian Bigelow  
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County Hearing  
Examiner

Mr. Bill Krumbholtz  
Florida Department of Environmental Protection  
2295 Victoria Avenue, Suite 364  
Fort Myers, Florida 33901

**SUBJECT: Lee/Hendry County Regional Solid Waste Disposal Facility  
GMS I.D. No. 5226C01001  
WACS ID No. 00074766  
Permit No. 0130719-003-SC/00  
Fourth Quarter 2006 Tonnage Report**

Dear Mr. Krumbholtz:

As required by Florida Administrative Code (F.A.C.), Rule 62-701.500(4), attached please find the subject tonnage report.

If you have any questions, please call me.

Sincerely,

Laura A. Gray, PE  
Engineering Manager  
Solid Waste Division

Attachment

cc: Lindsey J. Sampson P.E., LCSW  
Keith Howard, LCSW  
Jason Fournier, LCSW  
John Wong, WMIF  
File IV A216  
Landfill File

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JAN 17 2007

SOUTH DISTRICT

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**FDEP Quarterly Reporting Form - Lee/Hendry County Regional Solid Waste Disposal Facility**  
**Landfill Disposal and Recycling Tonnages**  
**2006 Tonnage**

	Jan	Feb	Mar	First Qtr Total	Apr	May	Jun	Second Qtr Total	Jul	Aug	Sept	Third Qtr Total	Oct	Nov	Dec	Fourth Qtr Total	Annual Total
<b>Category 1</b>																	
Household Waste	19,681.28	19,396.38	21,298.47	60,376.13	22,369.77	36,823.14	24,093.55	83,286.46	10,868.54	9,460.53	7,620.61	27,949.68	15,022.07	13,468.49	25,955.81	54,446.37	226,058.64
Commercial Waste																	
Incinerator By-Pass Waste																	
Construction and Demolition		10,437.42	167.21	10,604.63	375.09	201.99	75.01	652.09	95.99	23.46	19.69	139.14	25.64	29.31	16.35	71.30	11,467.16
Treated Biomedical Waste																	
Agricultural Waste																	
Industrial Waste		32.39	3.64	36.03					120.43	18.47		138.90					174.93
Sewage Sludge	648.61	740.08	860.55	2,249.24	407.90	369.59	624.05	1,401.54	720.78	808.81	1,008.99	2,538.58	1,396.08	1,127.47	1,299.63	3,823.18	10,012.54
Off Road Tires		58.51	2.49	61.00		34.29	49.83	84.12	13.73	44.35	49.10	107.18	44.99	11.82	12.83	69.64	321.94
Industrial Sludge																	
Water/Air Treatment Sludges																	
Cut tires for disposal																	
<b>Total Category 1</b>	<b>20,329.89</b>	<b>30,664.78</b>	<b>22,332.36</b>	<b>73,327.03</b>	<b>23,152.76</b>	<b>37,429.01</b>	<b>24,842.44</b>	<b>85,424.21</b>	<b>11,819.47</b>	<b>10,355.62</b>	<b>8,698.39</b>	<b>30,873.48</b>	<b>16,488.78</b>	<b>14,637.09</b>	<b>27,284.62</b>	<b>58,410.49</b>	<b>248,035.21</b>
<b>Category 2</b>																	
Yard Trash *																	
Mulch from Hurricane Debris **																	
Cut Tires Used Outside Cell																	
<b>Total Category 2</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Category 3</b>																	
Ash Residue	11,649.98	10,437.42	10,719.55	32,806.95	8,146.23	3,131.07	8,058.25	19,335.55	11,639.11	10,272.69	10,774.59	32,686.39	16,488.78	14,636.99	7,069.86	38,195.63	123,024.52
<b>Total Category 3</b>	<b>11,649.98</b>	<b>10,437.42</b>	<b>10,719.55</b>	<b>32,806.95</b>	<b>8,146.23</b>	<b>3,131.07</b>	<b>8,058.25</b>	<b>19,335.55</b>	<b>11,639.11</b>	<b>10,272.69</b>	<b>10,774.59</b>	<b>32,686.39</b>	<b>16,488.78</b>	<b>14,636.99</b>	<b>7,069.86</b>	<b>38,195.63</b>	<b>123,024.52</b>
<b>Category 4</b>																	
Cut tires as suppl. Drainage	291.75	493.84	439.09	1224.68	0.00	885.43	352.64	1238.07	44.76			44.76	319.40	0.00	607.66	927.06	3,434.57
<b>Total Category 4</b>	<b>291.75</b>	<b>493.84</b>	<b>439.09</b>	<b>1224.68</b>	<b>0.00</b>	<b>885.43</b>	<b>352.64</b>	<b>1238.07</b>	<b>44.76</b>	<b>0.00</b>	<b>0.00</b>	<b>44.76</b>	<b>319.40</b>	<b>0.00</b>	<b>607.66</b>	<b>927.06</b>	<b>3,434.57</b>
<b>Category 5</b>																	
Mulch Given Away																	
Mulch Sent out for Fuel																	
Mulch/suppl. intermediate cover																	
Mulch Used in Topsoil/Erosion																	
Waste Tires Pulled from waste			14.24	14.24													
White Goods Pulled from Waste					9.87			9.87									
<b>Total Category 5</b>	<b>0.00</b>	<b>0.00</b>	<b>14.24</b>	<b>14.24</b>	<b>9.87</b>	<b>0.00</b>	<b>0.00</b>	<b>9.87</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>24.11</b>
<b>Total Lined Disposal (1+3+4)</b>	<b>32,271.62</b>	<b>41,596.04</b>	<b>33,491.00</b>	<b>107,358.66</b>	<b>31,298.99</b>	<b>41,445.51</b>	<b>33,253.33</b>	<b>105,997.83</b>	<b>23,503.34</b>	<b>20,628.31</b>	<b>19,472.98</b>	<b>63,604.63</b>	<b>33,296.96</b>	<b>29,274.08</b>	<b>34,962.14</b>	<b>97,533.18</b>	<b>374,494.30</b>
<b>Total Recycled (4+5)</b>	<b>291.75</b>	<b>493.84</b>	<b>453.33</b>	<b>1238.92</b>	<b>9.87</b>	<b>885.43</b>	<b>352.64</b>	<b>1247.94</b>	<b>44.76</b>	<b>0.00</b>	<b>0.00</b>	<b>44.76</b>	<b>319.40</b>	<b>0.00</b>	<b>607.66</b>	<b>927.06</b>	<b>3458.68</b>

**Categories:**

1. All solid waste passing over the landfill scales and going directly to the lined disposal unit working face for disposal.
2. All solid waste passing over the landfill scales and going to a special waste storage (or disposal) area.
3. Processed special waste going back into the lined disposal unit for disposal.
4. Processed special waste going back into the lined disposal unit for recycling purposes.
5. Processed special waste recycled outside the lined disposal unit.

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JAN 17 2007

SOUTH DISTRICT



**LEE COUNTY**  
SOUTHWEST FLORIDA  
BOARD OF COUNTY COMMISSIONERS

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January 10, 2008

A. Brian Bigelow  
District Two

Ray Judah  
District Three

Tammy Hall  
District Four

Frank Mann  
District Five

Donald D. Stilwell  
County Manager

David M. Owen  
County Attorney

Diana M. Parker  
County Hearing  
Examiner

Mr. Bill Krumbholtz  
Florida Department of Environmental Protection  
P.O. Box 2549  
Fort Myers, Florida 33902-2549

**Re: Lee/Hendry County Regional Solid Waste Disposal Facility  
Permit No. 0130719-003-SC/00;  
WACS ID No. 00074766  
Fourth Quarter 2007 Tonnage Report**

Dear Mr. Krumbholtz:

In accordance with Rule 62-701.500(4), Florida Administrative Code (F.A.C.), enclosed please find the referenced tonnage report for the Lee/Hendry Landfill.


Please call me at (239) 461-3023 if you have any questions pertaining to the enclosed.

Sincerely,

Laura A. Gray, PE  
Engineering Manager  
Solid Waste Division

Enclosure

cc: Lindsey J. Sampson, Lee County  
Keith Howard, Lee County  
Jason Fournier, Lee County  
John Monaco, WM  
Duda & Sons, Inc.  
Consolidated Citrus  
CPI  
File IV A216  
Landfill File

  
Entered into  
OCULUS  
South District

FDEP Quarterly Reporting Form - Lee/Hendry County Regional Solid Waste Disposal Facility  
 Landfill Disposal and Recycling Tonnages  
 2007 Tonnage

	Jan	Feb	Mar	First Qtr Total	Apr	May	Jun	Second Qtr Total	Jul	Aug	Sept	Third Qtr Total	Oct	Nov	Dec	Fourth Qtr Total	Annual Total
<b>Category 1</b>																	
Household Waste (MSW)	25,469.51	15,336.44	17,815.18	58,621.13	14,502.33	22,894.03	13,373.93	50,769.31	9,646.34	9,882.81	2,545.98	22,075.13	2,079.08	8,421.67	3,400.64	13,901.39	145,357.96
Commercial Waste																	
Incinerator By-Pass Waste																	
Construction and Demolition Waste	15.66	16.33	19.71	51.70	4.78	29.29	9.75	43.83	14.81	14.33	3.82	32.98	4.83	33.60	18.51	56.95	185.96
Treated Biomedical Waste																	
Agricultural Waste																	
Industrial Waste (Waste/Sand)						6.34		6.34	39.53			39.53					45.87
Sewage Sludge	1,695.39	1,784.90	1,877.90	5,358.19	1,566.01	1,466.62	982.84	4,015.47	1,040.97	1,031.60	895.51	2,968.08	1,176.98	1,069.52	1,255.75	3,502.25	15,843.99
Off Road Tires			80.00	80.00		14.34	15.40	29.74	10.30			46.85	32.22	12.56	33.92	78.70	235.29
Industrial Sludge																	
Water/Air Treatment Sludges																	
Cut tires for disposal																	
<b>Total Category 1</b>	<b>27,180.56</b>	<b>17,137.67</b>	<b>19,792.79</b>	<b>64,111.02</b>	<b>16,073.14</b>	<b>24,400.62</b>	<b>14,381.93</b>	<b>54,855.69</b>	<b>10,751.15</b>	<b>10,918.76</b>	<b>3,481.66</b>	<b>25,162.57</b>	<b>3,291.11</b>	<b>9,637.35</b>	<b>4,708.83</b>	<b>17,539.29</b>	<b>161,668.57</b>
<b>Category 2</b>																	
Yard Trash *																	
Mulch from Hurricane Debris **																	
Cut Tires Used Outside Cell																	
<b>Total Category 2</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Category 3</b>																	
Ash Residue	7,573.15	9,850.74	10,275.62	27,699.51	9,869.62	7,534.36	9,242.57	26,646.55	9,382.35	9,422.75	11,197.41	30,002.51	11,585.37	8,290.14	12,072.77	31,948.28	116,296.85
<b>Total Category 3</b>	<b>7,573.15</b>	<b>9,850.74</b>	<b>10,275.62</b>	<b>27,699.51</b>	<b>9,869.62</b>	<b>7,534.36</b>	<b>9,242.57</b>	<b>26,646.55</b>	<b>9,382.35</b>	<b>9,422.75</b>	<b>11,197.41</b>	<b>30,002.51</b>	<b>11,585.37</b>	<b>8,290.14</b>	<b>12,072.77</b>	<b>31,948.28</b>	<b>116,296.85</b>
<b>Category 4</b>																	
Cut tires as suppl. Drainage	373.41	424.58	0.00	797.99	0.00	685.44	0.00	685.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,483.43
<b>Total Category 4</b>	<b>373.41</b>	<b>424.58</b>	<b>0.00</b>	<b>797.99</b>	<b>0.00</b>	<b>685.44</b>	<b>0.00</b>	<b>685.44</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>1,483.43</b>
<b>Category 5</b>																	
Mulch Given Away																	
Mulch Sent out for Road																	
Mulch/suppl. Intermediate cover																	
Mulch Used in Topsoil/Erosion Ctrl																	
Waste Tires Pulled from waste																	
White Goods Pulled from Waste																	
<b>Total Category 5</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0</b>
<b>Total Lined Disposal (1+3+4)</b>	<b>35,127.12</b>	<b>27,412.99</b>	<b>30,068.41</b>	<b>92,608.52</b>	<b>25,942.76</b>	<b>32,620.42</b>	<b>23,624.50</b>	<b>82,187.68</b>	<b>20,134.50</b>	<b>20,351.51</b>	<b>14,679.07</b>	<b>55,165.08</b>	<b>14,878.48</b>	<b>17,827.49</b>	<b>16,781.60</b>	<b>49,487.57</b>	<b>279,448.85</b>
<b>Total Recycled (4+5)</b>	<b>373.41</b>	<b>424.58</b>	<b>0.00</b>	<b>797.99</b>	<b>0.00</b>	<b>685.44</b>	<b>0.00</b>	<b>685.44</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>1,483.43</b>

- Categories:
1. All solid waste passing over the landfill scales and going directly to the lined disposal unit working face for disposal.
  2. All solid waste passing over the landfill scales and going to a special waste storage (or disposal) area.
  3. Processed special waste going back into the lined disposal unit for disposal.
  4. Processed special waste going back into the lined disposal unit for recycling purposes.
  5. Processed special waste recycled outside the lined disposal unit.



**LEE COUNTY**  
**SOUTHWEST FLORIDA**  
**BOARD OF COUNTY COMMISSIONERS**

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 District One

January 20, 2009

A. Brian Bigelow  
 District Two

Ray Judah  
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Tammy Hall  
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 County Manager

David M. Owen  
 County Attorney

Diana M. Parker  
 County Hearing Examiner

Mr. Bill Krumbholtz  
 Florida Department of Environmental Protection  
 P.O. Box 2549  
 Fort Myers, Florida 33902-2549

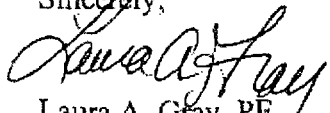
**Re: Lee/Hendry County Regional Solid Waste Disposal Facility  
 Permit No. 0130719-003-SC/00; Permit No. 0130719-007-SC/00  
 WACS ID No. 00074766  
 Revised 2008 Calendar Year Annual Tonnage Report  
 Revised Fourth Quarter 2008 Tonnage Report for Class I Landfill**

Dear Mr. Krumbholtz:

Enclosed please find revised versions of the 2008 Annual Tonnage Report (provides tonnages for all 3 landfills) and the fourth quarter 2008 tonnage report for the Class I (MSW/Ash) Landfill for the referenced Facility. The original reports were submitted under cover letter to the Department dated January 15, 2009. The attached reports were revised to correct errors made in the tonnages reported for two Category 1 materials disposed in the Class I Landfill for the month of December 2008. No errors or revisions were made to the fourth quarter 2008 tonnage report for the Ash Monofill and Class III Landfill also submitted under cover letter to the Department dated January 15, 2009. For convenience, the revised reports show the values that were corrected with underline font formatting.

Please call me at (239) 461-3023 if you have any questions pertaining to the enclosed reports.

Sincerely,

  
 Laura A. Gray, PE  
 Engineering Manager  
 Solid Waste Division



Entered into  
**OCULUS**  
 South District

Enclosure

cc: L. Sampson, K. Howard, J. Fournier, LCSW; J. Monaco, WM; Duda & Sons, Inc., Consolidated Citrus, CPI; File IVA216

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 JAN 20 2009  
 SOUTH DISTRICT

## 2008 ANNUAL TONNAGE REPORT-REVISED 1/20/09

(Revisions to Cat. 1-MSW and Other Wastes to Class I for Dec. 08 only and resulting totals- Revised Numbers Underlined)

Date: January 15, 2009  
(Calendar Year 2008)

Facility: Lee/Hendry County  
Solid Waste Disposal Facility

Permit No.: 0130719-003-SC/00  
Permit No. 0130719-007-SC/00

	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	ANNUAL TOTAL
<b>CATEGORY 1</b>													
MSW to Class I	581.66	132.67	204.14	233.86	199.43	183.94	265.16	176.79	241.95	84.65	215.2	<u>512.86</u>	<u>3032.31</u>
Other Wastes to Class I	1392.85	1592.18	1783.31	1518.63	1290.71	1046.38	1021.01	373.41	107.57	4.93	0	<u>43.94</u>	<u>10174.92</u>
Other Wastes to Ash								503.27	986.55	1506.14	193.95	1385.44	4575.35
<b>Total Category 1</b>	<b>1974.51</b>	<b>1724.85</b>	<b>1987.45</b>	<b>1752.49</b>	<b>1490.14</b>	<b>1230.3</b>	<b>1286.2</b>	<b>1053.5</b>	<b>1336.1</b>	<b>1595.7</b>	<b>409.15</b>	<b>1942.2</b>	<b>17782.6</b>
<b>CATEGORY 2</b>													
Class III													
<b>Total Category 2</b>													
<b>CATEGORY 3</b>													
Ash (WTE) to Class I	12743.9	12257.4	11963.2	13383.1	10336.5	11546.5	11539.8	4153.8					87924.2
Ash Removed from Cl I								-2967.3	-41016.5	-17309.4			-61293.2
Ash (WTE) to Ash								6395.5	11384.3	11142.1	10167.6	12684.5	51774.0
Ash to Ash from Cl I								2967.3	41016.5	17309.4			61293.2
<b>Total Category 3</b>	<b>12743.9</b>	<b>12257.4</b>	<b>11963.2</b>	<b>13383.1</b>	<b>10336.5</b>	<b>11546.5</b>	<b>11539.8</b>	<b>10549.3</b>	<b>11384.3</b>	<b>11142.1</b>	<b>10167.6</b>	<b>12684.5</b>	<b>139698.2</b>
<b>CATEGORY 4</b>													
Waste Tires													
Yard Trash													
<b>Total Category 4</b>													
<b>CATEGORY 5</b>													
Tire chips (drainage-Ash)									195.0	116.1			311.14
Tire chips (drainage-Cl III)												4234.7	4234.7
Mulch-(used as Cvr/E&S in cell)													
<b>Total Category 5</b>									<b>195.0</b>	<b>116.1</b>		<b>4234.7</b>	<b>4545.84</b>
<b>CATEGORY 6</b>													
Mulch Cover/E&S-Class I											1839.8	2201.5	4041.3
Mulch Cover/E&S-Ash													
Mulch Cover/E&S-Class III													
Mulch Sent Out													
White Goods													
Waste Tires													
<b>Total Category 6</b>											<b>1839.8</b>	<b>2201.5</b>	<b>4041.3</b>
<b>TOTAL DISPOSAL (1+2+3+5)</b>	<b>14718.4</b>	<b>13982.3</b>	<b>13950.7</b>	<b>15135.6</b>	<b>11826.6</b>	<b>12776.8</b>	<b>12826.0</b>	<b>11602.8</b>	<b>12915.4</b>	<b>12853.9</b>	<b>10576.8</b>	<b>18861.4</b>	<b>162026.6</b>
<b>TOTAL RECYCLED (5+6)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>195.0</b>	<b>116.1</b>	<b>1839.8</b>	<b>6436.2</b>	<b>8587.1</b>

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JAN 20 2009

SOUTH DISTRICT

1. All solid waste passing over the landfill scales going directly to the Class I working face for disposal.
2. All solid waste passing over the landfill scales going directly to the Class III working face for disposal.
3. All processed special waste in the form of ash going to either the Class I or Ash Monofill for disposal.
4. All solid waste passing over the landfill scales and going to a special waste storage area.
5. Processed special waste going back into a disposal unit for recycling purposes.
6. Processed special waste recycled outside the lined disposal units. Note 1-Mulch recycled by placing on outer slopes for erosion and sedimentation control (E&S) should not be included in disposal volume as it will either be stripped or will degrade and will not affect capacity/airspace calculations; therefore, it is reported in Category 6 versus Cat 5.

Submit to: Florida Department of Environmental Protection – South District, P.O. Box 2549, Fort Myers, Florida 33902-2549



**QUARTERLY TONNAGE REPORT- LEE/HENDRY COUNTY REGIONAL SOLID WASTE DISPOSAL FACILITY  
CLASS I LANDFILL (MSW/ASH)**

Permit No. 0130719-003-SC-00  
2008

REVISED 1/20/09 (Revisions to Col. 1-MSW and C & D quantities for Dec. 2008 only and resulting totals. Revisions shown Underlined)

	First Qtr			Total	Second			Qtr Total	Third			Qtr Total	Fourth			Annual To Date Total	
	Jan	Feb	Mar		Apr	May	Jun		Jul	Aug	Sept		Oct	Nov	Dec		
<b>Category 1</b>																	
Household Waste (MSW)	581.66	132.67	204.14	918.47	253.86	197.43	183.84	617.23	265.16	176.79	241.95	683.90	86.45	215.26	512.86	3,021.31	
Commercial Waste																	
Incurable By-Pass Waste																	
Construction & Demolition	34.95	60.63		95.58	36.20	9.49	22.28	47.97	7.33	24.73	7.31	39.57	4.93	43.74	48.87	252.83	
Treated Biomedical Waste																	
Agricultural Waste																	
Industrial Waste (Waste/Sand)											105.06	105.06				105.06	
Sewage Sludge	1,357.95	1,531.51	1,777.37	4,666.83	1,987.41	1,251.22	1,024.15	3,262.78	1,033.68	348.68		1,382.36				5,916.99	
Off Road Tires			5.84	5.84													5.84
Biological Sludge																	
Water/Air Treatment Sludges																	
Cut tires for disposal																	
<b>Total Category 1</b>	<u>1,974.51</u>	<u>1,724.85</u>	<u>1,987.45</u>	<u>5,686.81</u>	<u>1,752.45</u>	<u>1,270.14</u>	<u>1,230.33</u>	<u>4,272.92</u>	<u>1,286.17</u>	<u>546.20</u>	<u>349.22</u>	<u>2,181.59</u>	<u>89.48</u>	<u>215.26</u>	<u>556.80</u>	<u>861.58</u>	<u>13,207.23</u>
<b>Category 2</b>																	
Yard Trash																	
Mulch from Hurricane Debris																	
Cut Tires Used Chassis Cell																	
<b>Total Category 2</b>	0.09	0.00	0.00	0.09	0.09	0.09	0.09	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Category 3</b>																	
Ash Residue	12,741.91	12,257.38	11,963.18	36,962.47	12,583.12	10,336.54	11,546.77	35,266.41	11,539.78	4,133.78	6.00	15,693.56	4th Qtr ash sent from PTE waste to Ash MP (see Ash cell) now completed			0.00	87,924.42
Ash transferred to Mesofill*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(2,967.20)	(41,014.50)	(43,981.88)	(17,349.84)		0.00	(17,349.84)	(51,292.84)
<b>Total Category 3</b>	<u>12,741.91</u>	<u>12,257.38</u>	<u>11,963.18</u>	<u>36,962.47</u>	<u>12,583.12</u>	<u>10,336.54</u>	<u>11,546.77</u>	<u>35,266.41</u>	<u>11,539.78</u>	<u>1,166.58</u>	<u>(41,014.50)</u>	<u>(28,288.32)</u>	<u>(17,349.84)</u>	<u>0.00</u>	<u>0.00</u>	<u>(17,349.84)</u>	<u>26,631.58</u>
<b>Category 4</b>																	
Waste Tires																	
Yard Trash				0.00					0.00								0.00
<b>Total Category 4</b>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Category 5</b>																	
Tires Churned in driveway																	
Mulch used inside lined area																	
<b>Total Category 5</b>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Category 6</b>																	
Mulch Sent Out																	
White Goods (pulled from waste)																	
Waste Tires (pulled from waste)																	
Mulch used outside lined area															1,839.89	2,281.50	
<b>Total Category 6</b>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,839.89	2,281.50	4,041.39	4,041.39
<b>Total Lined Disposal (1-3-5)</b>	<u>14,718.42</u>	<u>14,982.23</u>	<u>13,950.61</u>	<u>43,651.26</u>	<u>15,135.29</u>	<u>11,826.08</u>	<u>12,777.09</u>	<u>39,739.34</u>	<u>12,825.95</u>	<u>1,736.64</u>	<u>(40,066.98)</u>	<u>(26,114.35)</u>	<u>(17,219.46)</u>	<u>215.26</u>	<u>546.80</u>	<u>(16,447.45)</u>	<u>39,838.61</u>
<b>Total Recycled (5a-f)</b>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,839.89	2,281.50	4,041.39	4,041.39

\* Ash Residue transferred from Class I Landfill to the Ash Mesofill

Categories:

1. All solid waste passing over the landfill scales and going directly to the Class I lined disposal unit working face for disposal.
2. All solid waste passing over the landfill scales and going to a special waste storage (or disposal) area. (DIFFERENT THAN FDEP'S DEFINITION)
3. Processed special waste in the form of ash going to the Class I Landfill
4. Solid Waste coming into the landfill, weighed, and going to a special waste storage area for later processing, recycling, and/or disposal (not currently being taken at the Lee/Hendry Facility)
5. Processed special waste going back into Class I disposal unit for recycling purposes
6. Processed special waste recycled outside the lined disposal unit



**LEE COUNTY**  
SOUTH WEST FLORIDA  
BOARD OF COUNTY COMMISSIONERS

January 8, 2010

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Karen B. Hawes  
County Manager

David M. Owen  
County Attorney

Diana M. Parker  
County Hearing Examiner

Mr. Bill Krumbholtz  
Florida Department of Environmental Protection  
P.O. Box 2549  
Fort Myers, Florida 33902-2549



Entered into  
**OCULUS**  
South District

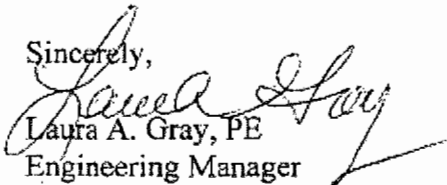
**Re: Lee/Hendry County Regional Solid Waste Disposal Facility  
Permit Nos. 0130719-010-SO/01 and 0130719-007-SC/00  
WACS ID No. 00074766  
Fourth Quarter 2009 Tonnage Report**

Dear Mr. Krumbholtz:

In accordance with Rule 62-701.500(4)(a), F.A.C., attached please find the fourth quarter 2009 tonnage report for the Class I (MSW/Ash) Landfill. The attached report also contains the quarterly tonnages for the Ash Monofill and the Class III Landfill although the Permit for those landfills requires annual tonnage reporting only. Because the Class I Landfill Permit does not specify annual tonnage reporting, the Lee County Solid Waste Division (SWD) will submit quarterly tonnage reports for all three landfills until the pending revisions to Chapter 62-701, F.A.C are effective. Alternately, the Department may inform the SWD in writing that tonnage reports may be submitted on an annual basis prior to the time that the referenced rules become effective. Note that the FDEP Annual Tonnage Report format used herein has been revised slightly. Revised Category descriptions are provided in the footnotes of the attached tonnage report.

Please call me at (239) 533-8930 if you have any questions pertaining to the attached tonnage report.

Sincerely,

  
Laura A. Gray, PE  
Engineering Manager  
Solid Waste Division

Attachment

cc: L. Sampson, K. Howard, J. Fournier, LCSW; B. Tindell, WM; Duda & Sons, Inc.,  
Consolidated Citrus, CPI; File IVA216

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D.E.P. South District

ANNUAL TONNAGE REPORT FOR LEE/HENDRY COUNTY REGIONAL SOLID WASTE DISPOSAL FACILITY - WACS ID NO. 00074766

CLASS I (MSWASH) LANDFILL; PERMIT NO: 0130719-003-SC/00  
 ASH MONOFILL/CLASS III LANDFILL; PERMIT NO: 0130719-007-SC/00

COMPLETE CALENDAR YEAR 2009 TONNAGES; UPDATED WITH FOURTH QUARTER 2009 TONNAGES

	JAN	FEB	MAR	FIRST QTR TOTAL	APR	MAY	JUN	SECOND QTR TOTAL	JUL	AUG	SEPT	THIRD QTR TOTAL	OCT	NOV	DEC	FOURTH QTR TOTAL	ANNUAL TOTAL (thru end of Qtr noted)
<b>CATEGORY 1 (To Class I)</b>																	
MSW TO CLASS I	91.16	431	0.00	95.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	95.62
ASH TO CLASS I FOR COVER	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>TOTAL CATEGORY 1</b>	<b>91.29</b>	<b>432</b>	<b>0.00</b>	<b>95.62</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>95.62</b>
<b>CATEGORY 2 (To Class III)</b>																	
CLASS II (or C & D) WASTE	666.44	1,461.90	1,296.44	3,805.02	1,819.21	1,643.01	2,383.99	5,763.27	2,345.85	2,143.61	2,119.41	6,700.90	2,313.88	2,077.30	2,264.70	6,655.88	22,925.07
ASBESTOS TO CLASS III	0.31	3.00	0.31	0.51	0.00	30.37	16.03	71.80	0.00	0.00	0.00	4.32	4.99	0.00	0.00	23.22	100.52
<b>TOTAL CATEGORY 2</b>	<b>666.44</b>	<b>1,465.30</b>	<b>1,296.75</b>	<b>3,805.53</b>	<b>1,819.21</b>	<b>1,673.38</b>	<b>2,400.00</b>	<b>5,835.07</b>	<b>2,345.85</b>	<b>2,143.61</b>	<b>2,119.41</b>	<b>6,705.89</b>	<b>2,313.88</b>	<b>2,077.30</b>	<b>2,287.92</b>	<b>6,679.10</b>	<b>23,025.59</b>
<b>CATEGORY 3 (To Ash MF)</b>																	
ASH TO ASH MONOFILL	12,775.52	12,882.11	12,458.71	35,771.38	13,514.07	11,149.44	14,912.95	39,699.29	12,879.90	11,892.47	12,495.29	36,245.05	11,881.84	11,396.75	12,512.57	35,091.16	146,806.88
OTHER WASTES TO ASH MONOFILL	1,674.21	1,577.91	1,115.69	4,622.96	1,544.93	1,111.96	949.70	3,702.35	1,551.48	1,292.71	1,476.48	3,779.39	887.93	977.14	1,384.71	31,497.78	15,194.48
<b>TOTAL CATEGORY 3</b>	<b>12,701.29</b>	<b>12,877.64</b>	<b>14,962.71</b>	<b>40,414.34</b>	<b>15,059.00</b>	<b>12,261.40</b>	<b>15,862.65</b>	<b>43,401.64</b>	<b>14,431.38</b>	<b>13,185.18</b>	<b>13,971.77</b>	<b>40,024.44</b>	<b>13,069.77</b>	<b>12,373.89</b>	<b>13,797.28</b>	<b>36,240.94</b>	<b>162,101.36</b>
<b>CATEGORY 4 (Storage)</b>																	
WASTE TIRES																	0.00
YARD TRASH																	0.00
<b>TOTAL CATEGORY 4</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>CATEGORY 5 (Recycled in Cell)</b>																	
TIRES CHIPS USED IN CELL																	
MULCH for COVER/E&S WITH CELL							11.51	33.55									33.55
<b>TOTAL CATEGORY 5</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>33.55</b>	<b>33.55</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>33.55</b>
<b>CATEGORY 6 (Recycled Outside Cell)</b>																	
MULCH for COVER/E&S outside cell													0.00				0.00
WHITE GOODS																	
WASTE TIRES																	
<b>TOTAL CATEGORY 6</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>TOTAL DISPOSED (1+2+3+4+5)</b>	<b>14,206.02</b>	<b>15,631.79</b>	<b>17,479.44</b>	<b>44,335.49</b>	<b>17,416.44</b>	<b>13,958.44</b>	<b>17,812.34</b>	<b>49,270.26</b>	<b>16,802.48</b>	<b>14,279.31</b>	<b>14,971.44</b>	<b>46,730.33</b>	<b>14,383.62</b>	<b>14,451.19</b>	<b>16,085.28</b>	<b>44,920.84</b>	<b>185,156.12</b>
<b>TOTAL RECYCLED (5+6)</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>33.55</b>	<b>33.55</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>33.55</b>

Note: E & S - Erosion and Sedimentation Control

Category Descriptions:

1. All solid waste passing over the landfill scales going directly to Class I working face for disposal (and use if applicable, i.e., Ash for cover).
2. All solid waste passing over the landfill scales going directly to the Class III working face for disposal.
3. All solid waste passing over the landfill scales going directly to the Ash Monofill for disposal (includes non-ash wastes where applicable, e.g. contaminated soil and sludge).
4. All solid waste passing over the landfill scales and going to a special waste storage area (Facility does not accept special waste for storage at this time).
5. Processed special waste going back into a disposal unit for recycling purposes (e.g., tire chips as supplemental drainage in LCS or mulch mixed with initial cover soil, see note below too)
6. Processed special waste recycled outside the lined disposal units (Note that any mulch used on landfill that will not affect airspace volumes, e.g., used on outer landfill slopes or as supplemental intermediate cover which will be removed of later date should be considered as being recycled outside of lined disposal unit and therefore be reported in Cat. 6).



**LEE COUNTY**  
SOUTHWEST FLORIDA

**BOARD OF COUNTY COMMISSIONERS**

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District One

January 7, 2011

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District Two

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District Three

Tammy Hall  
District Four

Frank Mann  
District Five

Mr. Bill Krumbholtz  
Florida Department of Environmental Protection  
P.O. Box 2549  
Fort Myers, Florida 33902-2549

Karen B. Hawes  
County Manager

David M. Owen  
County Attorney

Diana M. Parker  
County Hearing  
Examiner

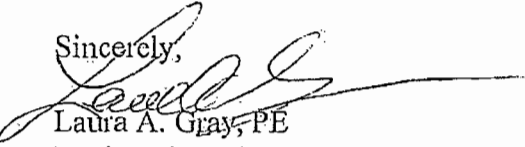
**Re: Lee/Hendry County Regional Solid Waste Disposal Facility  
Permit Nos. 0130719-010-SO/01 and 0130719-007-SC/00  
WACS ID No. 00074766  
Fourth Quarter 2010 Tonnage Report**

Dear Mr. Krumbholtz:

In accordance with Rule 62-701.500(4)(a), F.A.C., attached please find the annual tonnage report for 2010 for the above-referenced Facility. Note that the FDEP Annual Tonnage Report's categories have been revised slightly. Revised category descriptions are provided in the footnotes of the attached tonnage report.

Please call me at (239) 533-8930 if you have any questions pertaining to the attached tonnage report.

Sincerely,



Laura A. Gray, PE

Engineering Manager  
Solid Waste Division

Attachment

cc: L. Sampson, K. Howard, J. Fournier, LCSW; B. Tindell, WM; Duda & Sons, Inc.,  
Consolidated Citrus, CPI; File IVA216

2010 ANNUAL TONNAGE REPORT FOR LEE/HENDRY COUNTY REGIONAL SOLID WASTE DISPOSAL FACILITY - WACS ID NO. 00074766  
 CLASS I (MSW/ASH) LANDFILL; PERMIT NO: 0130719-010-SO/01  
 ASH MONOFILL/CLASS III LANDFILL; PERMIT NO: 0130719-007-SC/00

				FIRST QTR				SECOND QTR				THIRD QTR				FOURTH QTR	ANNUAL
	JAN	FEB.	MAR	TOTAL	APR	MAY	JUN	TOTAL	JUL	AUG	SEPT	TOTAL	OCT	NOV	DEC	TOTAL	TOTAL
<b>CATEGORY 1 (To Class I)</b>																	
MSW TO CLASS I	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ASH FOR COVER	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ASH FOR DISPOSAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,992.05	8,169.49	10,161.54	10,161.54
<b>TOTAL CATEGORY 1</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>1,992.05</b>	<b>8,169.49</b>	<b>10,161.54</b>	<b>10,161.54</b>
<b>CATEGORY 2 (To Class III)</b>																	
CLASS III (or C & D) WASTE	2,209.10	2,351.34	2,991.76	7,552.20	2,425.46	2,654.88	3,895.19	8,975.53	3,084.50	3,928.08	2,773.25	9,785.83	2,998.80	3,271.31	3,494.43	9,764.54	36,078.20
ASBESTOS TO CLASS III	44.88	0.78	3.38	49.04	0.01	0.00	2.79	2.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	51.84
<b>TOTAL CATEGORY 2</b>	<b>2,253.98</b>	<b>2,352.22</b>	<b>2,995.14</b>	<b>7,601.34</b>	<b>2,425.47</b>	<b>2,654.88</b>	<b>3,897.98</b>	<b>8,978.33</b>	<b>3,084.50</b>	<b>3,928.08</b>	<b>2,773.25</b>	<b>9,785.83</b>	<b>2,998.80</b>	<b>3,271.31</b>	<b>3,494.43</b>	<b>9,764.54</b>	<b>36,130.04</b>
<b>CATEGORY 3 (To Ash MF)</b>																	
ASH TO ASH MONOFILL	11,942.64	12,051.11	14,542.21	38,535.96	13,138.87	11,146.83	13,478.11	37,763.81	12,038.14	11,010.45	11,839.89	34,888.48	10,652.99	9,458.41	3,607.39	23,718.79	134,907.04
OTHER WASTES TO ASH MONOFILL	2,942.53	1,166.43	1,712.71	5,821.67	1,541.79	2,327.87	563.68	4,433.34	917.50	1,013.01	730.91	2,661.42	1,100.24	201.57	558.29	1,860.10	14,776.53
<b>TOTAL CATEGORY 3</b>	<b>14,885.17</b>	<b>13,217.54</b>	<b>16,254.92</b>	<b>44,357.63</b>	<b>14,680.66</b>	<b>13,474.70</b>	<b>14,041.79</b>	<b>42,197.15</b>	<b>12,955.64</b>	<b>12,023.46</b>	<b>12,570.80</b>	<b>37,549.90</b>	<b>11,753.23</b>	<b>9,659.98</b>	<b>4,165.68</b>	<b>25,578.89</b>	<b>149,683.57</b>
<b>CATEGORY 4 (Storage)</b>																	
WASTE TIRES				0.00				0.00				0.00				0.00	0.00
YARD TRASH				0.00				0.00				0.00				0.00	0.00
<b>TOTAL CATEGORY 4</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>CATEGORY 5 (Recycled in Cell)</b>																	
TIRES CHIPS USED IN CELL				0.00				0.00				0.00				0.00	0.00
MULCH for COVER/E&S-W/IN				0.00				0.00				0.00				0.00	0.00
<b>TOTAL CATEGORY 5</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>CATEGORY 6 (Recycled Outside Cell)</b>																	
MULCH for COVER/E&S				0.00								0.00				0.00	0.00
WHITE GOODS				0.00								0.00				0.00	0.00
WASTE TIRES				0.00								0.00				0.00	0.00
<b>TOTAL CATEGORY 6</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>TOTAL DISPOSED (1+2+3+5)</b>	<b>17,139.15</b>	<b>15,569.76</b>	<b>19,250.06</b>	<b>51,958.97</b>	<b>17,106.13</b>	<b>16,129.58</b>	<b>17,939.77</b>	<b>51,175.48</b>	<b>16,040.14</b>	<b>15,951.54</b>	<b>15,344.05</b>	<b>47,335.73</b>	<b>14,752.03</b>	<b>14,923.34</b>	<b>15,829.60</b>	<b>45,504.97</b>	<b>195,975.15</b>
<b>TOTAL RECYCLED (5+6)</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

Category Descriptions:

1. All solid waste passing over the landfill scales going directly to Class I working face for disposal (and use if applicable, i.e., Ash for cover).
2. All solid waste passing over the landfill scales going directly to the Class III working face for disposal.
3. All solid waste passing over the landfill scales going directly to the Ash Monofill for disposal (includes non-ash wastes where applicable, e.g., contaminated soil and sludge).
4. All solid waste passing over the landfill scales and going to a special waste storage area (Facility does not accept special waste for storage at this time).
5. Processed special waste going back into a disposal unit for recycling purposes (e.g., tire chips as supplemental drainage in LCRS or mulch mixed with initial cover soil; see note below too).
6. Processed special waste recycled outside the lined disposal units (Note that any mulch used on landfill that will not affect airspace volumes, e.g., used on outer landfill slopes or as supplemental intermediate cover which will be removed at later date should be considered as being recycled outside of lined disposal unit and therefore be reported in Cat. 6).



Florida Department  
of Environmental  
Protection

Bob Martinez Center  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

Rick Scott  
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Herschel T. Vinyard Jr.  
Secretary

---

**Electronic Submission**

**Solid Waste Quantity Report**

You have submitted your Solid Waste Quantity Report as required by Rule 62-701.500 F.A.C. which implements the requirements of the Florida Solid Waste Management Act, § 403.702-.7193 and 403.75-.769, Florida Statutes.

Below is a copy of the information you submitted for your records.

**Facility Information**

**Facility ID:** 74766  
**Facility or Business Name:** LEE/HENDRY CO REGIONAL SW  
DISP FAC  
**Address Line 1:** SOUTH CHURCH RD, HENDRY  
COUNTY  
**Address Line 2:**  
**City/State/Zip Code:** Felda, FL 33930 0  
**County:** Hendry

**Mailing Address**

**Company Name:** LEE COUNTY SOLID WASTE  
DIVISION  
**Address Line 1:** LAURA GRAY  
**Address Line 2:** 10500 BUCKINGHAM ROAD, 2ND  
FLOOR  
**City/State/Zip Code:** FORT MYERS, FL 33905 0

**Site Supervisor**

**Name:** JASON FOURNIER  
**Phone Number:** (239) 533-8920

**Extension:**

**E-mail Address:**

JFOURNIER@LEEGOV.COM

If you have any questions or concerns about the information contained in this report, please contact Chad Fetrow in the Solid Waste Program Office at (850) 245-8785 or send e-mail to Chad.Fetrow@dep.state.fl.us.

**Class I Landfill Report Information (all values in tons)**

<b>Month/Year</b>	<b>Municipal Solid Waste</b>	<b>Class III Waste</b>	<b>Ash Residue</b>	<b>Other Waste</b>
12/2010	0.00	0.00	11776.88	558.29
1/2011	0.00	0.00	11929.98	1400.64
2/2011	0.00	0.00	11638.70	141.29
3/2011	0.00	0.00	12733.24	555.92
4/2011	0.00	0.00	11671.93	249.61
5/2011	0.00	0.00	11937.99	832.11
6/2011	0.00	0.00	12376.78	208.48
7/2011	0.00	0.00	10998.28	253.52
8/2011	0.00	0.00	11021.71	267.75
9/2011	0.00	0.00	10713.32	177.13
10/2011	0.00	0.00	10819.15	1229.64
11/2011	0.00	0.00	11782.87	364.78
12/2011	0.00	0.00	12041.13	902.81
Total	0.00	0.00	151441.96	7141.97

Additional information describing the **Other Waste** disposed of:

Other wastes which were all disposed in the Ash Monofill consisted of WWTP sludge and contaminated soils. Of the total ash disposed in the above reported months or 151,441.96, 35,232.48 tons of ash were placed in the Class I Landfill (MSW/Ash) and the remaining 116,209.48 tons were placed in the Ash Monofill.

**Class III Landfill Report Information (all values in tons)**

Month/Year	Class III Waste	Ash Residue	Other Waste
12/2010	3494.43	0.00	0.00
1/2011	2106.44	0.00	0.00
2/2011	2579.29	0.00	0.00
3/2011	2812.03	0.00	0.00
4/2011	3120.55	0.00	0.00
5/2011	2978.04	0.00	0.00
6/2011	3249.02	0.00	0.00
7/2011	2576.57	0.00	0.00
8/2011	3376.57	0.00	0.00
9/2011	2757.23	0.00	0.00
10/2011	1481.88	0.00	0.00
11/2011	1828.77	0.00	0.00
12/2011	1681.14	0.00	0.00
Total	34041.96	0.00	0.00

Additional information describing the **Other Waste** disposed of:

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**Report Submitted By**

**Name:** Laura Gray  
**Phone Number:** (239) 533-8930  
**Extension:**  
**E-mail Address:** lgray@leegov.com

All information submitted was certified true, accurate, and correct to the best of the knowledge of the person whose name appears above.



2011 ANNUAL TONNAGE REPORT FOR LEEHENDRY COUNTY REGIONAL SOLID WASTE DISPOSAL FACILITY - WACS ID NO. 00074766

CLASS I (MSW/ASH) LANDFILL; PERMIT NO: 0130719-010-SO/01

ASH MONOFILL/CLASS III LANDFILL; PERMIT NO: 0130719-007-SC/00

REVISED JANUARY 12, 2012

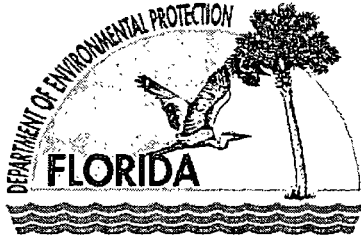
Month-Year	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11	Nov-11	Dec-11	2011 Total
<b>CATEGORY 1 (To Class I)</b>													
MSW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
ASH FOR COVER	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ASH FOR DISPOSAL	6296.13	10381.00	10358.87	26.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	27,062.99
<b>TOTAL CATEGORY 1</b>	<b>6,296.13</b>	<b>10,381.00</b>	<b>10,358.87</b>	<b>26.99</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>27,062.99</b>
<b>CATEGORY 2 (To Class III)</b>													
C & D*	2,106.44	2,579.29	2,812.03	2,955.75	2,951.53	2,963.24	2,438.39	3,134.42	2,260.16	1,083.77	1,121.20	1,013.91	27,420.13
RSM*	NA	NA	NA	NA	IN C&D	IN C&D	IN C&D	IN C&D	494.10	397.72	707.20	666.16	2,266.18
CLASS III WASTE (no C&D or Asbestos)	0.00	0.00	0.00	0.00	0.00	282.15	134.76	242.15	0.00	0.00	0.00	0.00	659.06
ASBESTOS	0.00	0.00	0.00	164.80	26.51	3.63	3.42	0.00	2.97	0.39	0.37	1.07	203.16
<b>TOTAL CATEGORY 2</b>	<b>2,106.44</b>	<b>2,579.29</b>	<b>2,812.03</b>	<b>3,120.55</b>	<b>2,978.04</b>	<b>3,249.02</b>	<b>2,576.57</b>	<b>3,376.57</b>	<b>2,757.23</b>	<b>1,481.88</b>	<b>1,828.77</b>	<b>1,681.14</b>	<b>30,547.53</b>
<b>CATEGORY 3 (To Ash MF)</b>													
ASH	5,633.85	1,257.70	2,374.37	11,644.94	11,937.99	12,376.78	10,998.28	11,021.71	10,713.32	10,819.15	11,782.87	12,041.13	112,602.09
SLUDGE	1,297.24	123.55	437.82	138.48	745.12	115.01	30.90	164.55	141.74	1,191.21	268.92	811.75	5,466.30
OTHER WASTES	103.40	17.74	118.10	111.12	86.99	93.47	222.62	103.20	35.39	38.43	95.86	91.06	1,117.38
<b>TOTAL CATEGORY 3</b>	<b>7,034.49</b>	<b>1,398.99</b>	<b>2,930.29</b>	<b>11,894.56</b>	<b>12,770.10</b>	<b>12,585.26</b>	<b>11,251.80</b>	<b>11,289.46</b>	<b>10,890.45</b>	<b>12,048.79</b>	<b>12,147.65</b>	<b>12,943.94</b>	<b>119,185.77</b>
<b>CATEGORY 4 (Storage)</b>													
WASTE TIRES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
YARD TRASH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MIXED GLASS	1511.09	1489.57	1618.57	1567.12	1145.91	958.47	1037.52	943.10	544.20	0.00	0.00	0.00	10,816.55
<b>TOTAL CATEGORY 4</b>	<b>1511.09</b>	<b>1489.57</b>	<b>1618.57</b>	<b>1567.12</b>	<b>1145.91</b>	<b>958.47</b>	<b>1037.52</b>	<b>943.10</b>	<b>544.20</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>10,816.55</b>
<b>CATEGORY 5 (Recycled in Cell)</b>													
TIRES CHIPS USED IN CELL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MULCH (as cover/E&S)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>TOTAL CATEGORY 5</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>CATEGORY 6 (Recycled Outside Cell)</b>													
MULCH (as cover/E&S)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WHITE GOODS/METAL	0.00	0.00	0.00	0.00	47.48	56.51	141.42	134.00	186.12	0.00	0.00	0.00	565.53
WASTE TIRES	0.00	6.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.28
SCREENED GLASS	0.00	0.00	0.00	153.27	43.19	0.00	0.00	0.00	59.62	135.09	195.22	108.37	694.76
<b>TOTAL CATEGORY 6</b>	<b>0.00</b>	<b>6.28</b>	<b>0.00</b>	<b>153.27</b>	<b>90.67</b>	<b>56.51</b>	<b>141.42</b>	<b>134.00</b>	<b>245.74</b>	<b>135.09</b>	<b>195.22</b>	<b>108.37</b>	<b>1,266.57</b>
<b>TOTAL DISPOSED (1+2+3+5)</b>	<b>15,437.06</b>	<b>14,359.28</b>	<b>16,101.19</b>	<b>15,042.09</b>	<b>15,748.14</b>	<b>15,834.28</b>	<b>13,828.37</b>	<b>14,866.03</b>	<b>13,647.68</b>	<b>13,630.67</b>	<b>13,976.42</b>	<b>14,625.08</b>	<b>176,796.29</b>
<b>TOTAL RECYCLED (6+6)</b>	<b>0.00</b>	<b>6.28</b>	<b>0.00</b>	<b>153.27</b>	<b>90.67</b>	<b>56.51</b>	<b>141.42</b>	<b>134.00</b>	<b>245.74</b>	<b>135.09</b>	<b>195.22</b>	<b>108.37</b>	<b>1,266.57</b>

\* C&D includes RSM from C&D Recycling Facility at WTE (start up in May 2011) through August; RSM reported separately from C&D starting in September when RSM met DEP criteria for cover

Category Descriptions

- All solid waste passing over the landfill scales going directly to Class I working face for disposal (and use if applicable, i.e., Ash for cover).
- All solid waste passing over the landfill scales going directly to the Class III working face for disposal.
- All solid waste passing over the landfill scales going directly to the Ash Monofill for disposal (includes non-ash wastes where applicable, e.g., contaminated soil and sludge).
- All solid waste passing over the landfill scales and going to a storage area.
- Processed special waste going back into a disposal unit for recycling purposes (e.g., tire chips as supplemental drainage in LCRS or mulch mixed with initial cover soil; see note 6).
- Processed special waste recycled outside the lined disposal units (Note that any mulch used on landfill that will not affect airspace volumes, e.g., used on outer landfill slopes or as supplemental intermediate cover which will be removed at later date should be considered as being recycled outside of lined disposal unit and therefore be reported in Cat. 6).

Month	RSM Tons
May	532.39
June	506.31
July	570.48
Aug	978.76



# Florida Department of Environmental Protection

Bob Martinez Center  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

Rick Scott  
Governor

Jennifer Carroll  
Lt. Governor

Herschel T. Vinyard Jr.  
Secretary

## **Electronic Submission Receipt**

### **Solid Waste Quantity Report**

Thank you for submitting a Solid Waste Quantity Report for the facility LEE/HENDRY CO REGIONAL SW DISP FAC with WACS ID 74766.

You have submitted your Solid Waste Quantity Report as required by Rule 62-701.500 F.A.C. which implements the requirements of the Florida Solid Waste Management Act, § 403.702-.7193 and 403.75-.769, Florida Statutes.

A copy of the report has been attached for your records. Should additional information be required, you will be contacted.

If you have any questions regarding your submission, please contact Chad Fetrow with the Solid Waste Program Office at (850) 245-8785 or send e-mail to [Chad.Fetrow@dep.state.fl.us](mailto:Chad.Fetrow@dep.state.fl.us).



# Florida Department of Environmental Protection

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Secretary

## Electronic Submission

### Solid Waste Quantity Report

You have submitted your Solid Waste Quantity Report as required by Rule 62-701.500 F.A.C. which implements the requirements of the Florida Solid Waste Management Act, § 403.702-.7193 and 403.75-.769, Florida Statutes.

Below is a copy of the information you submitted for your records.

#### Facility Information

**Facility ID:** 74766  
**Facility or Business Name:** LEE/HENDRY CO REGIONAL SW DISP FAC  
**Address Line 1:** SOUTH CHURCH RD, HENDRY COUNTY  
**Address Line 2:**  
**City/State/Zip Code:** Felda, FL 33930 0  
**County:** Hendry

#### Mailing Address

**Company Name:** LEE COUNTY SOLID WASTE DIVISION  
**Address Line 1:** 10500 BUCKINGHAM ROAD  
**Address Line 2:**  
**City/State/Zip Code:** FORT MYERS, FL 33905 0

#### Site Supervisor

**Name:** JASON FOURNIER  
**Phone Number:** (239) 533-8920  
**Extension:**  
**E-mail Address:** JFOURNIER@LEEGOV.COM

If you have any questions or concerns about the information contained in this report, please contact Chad Fetrow in the Solid Waste Program Office at (850) 245-8785 or send e-mail to [Chad.Fetrow@dep.state.fl.us](mailto:Chad.Fetrow@dep.state.fl.us).

#### Class I Landfill Report Information (all values in tons)

Month/Year	Municipal Solid Waste	Class III Waste	Ash Residue	Other Waste
1/2012	0.00	0.00	12825.16	1833.16
2/2012	0.00	0.00	12847.82	2746.08
3/2012	0.00	0.00	13445.46	2709.54
4/2012	2029.22	0.00	9593.57	852.64
5/2012	0.00	0.00	14894.77	275.62
6/2012	0.00	0.00	12183.30	457.04
7/2012	0.00	0.00	12431.21	460.18
8/2012	0.00	0.00	12427.30	326.92
9/2012	0.00	0.00	10154.85	190.73
10/2012	0.00	0.00	12866.48	773.96
11/2012	0.00	0.00	11794.56	370.82
12/2012	0.00	0.00	11242.60	489.05
Total	2029.22	0.00	146707.08	11485.74

Additional information describing the **Other Waste** disposed of:

Other wastes consist of sludge, contaminated soil and off-road tires.

**Class III Landfill Report Information (all values in tons)**

Month/Year	Class III Waste	Ash Residue	Other Waste
1/2012	2387.92	0.00	0.00
2/2012	1439.93	0.00	0.00
3/2012	2244.17	0.00	0.00
4/2012	2444.34	0.00	0.00
5/2012	2810.96	0.00	0.00
6/2012	2258.61	0.00	0.00
7/2012	1190.30	0.00	0.00
8/2012	1093.63	0.00	0.00
9/2012	1325.25	0.00	0.00
10/2012	1456.28	0.00	0.00
11/2012	1328.40	0.00	0.00
12/2012	1051.97	0.00	0.00
Total	21031.76	0.00	0.00

Additional information describing the **Other Waste** disposed of:

**Report Submitted By**

Name: Laura Gray

**Phone Number:** (239) 533-8930

**Extension:**

**E-mail Address:** lgray@leegov.com

All information submitted was certified true, accurate, and correct to the best of the knowledge of the person whose name appears above.



Class III Landfill	2,387.92	1,439.93	2,244.17	2,444.34	2,810.96	2,258.61	1,190.30	1,093.63	1,325.25	1,456.28	1,328.40	1,051.97	21,031.76
Ash Monofill***	14,658.32	15,593.90	16,155.00	12,475.43	#####	12,640.34	13,455.24	12,754.22	10,345.58	13,640.44	12,165.38	12,207.79	161,262.03
TOTAL DISPOSED (ALL LF	17,046.24	17,033.83	18,399.17	14,919.77	#####	14,898.95	14,645.54	13,847.85	11,670.83	15,096.72	13,493.78	13,259.76	182,293.79
TOTAL RECYCLED (5+6)	0.00	0.00	0.00	0.00	0.00	0.00	563.85	0.00	0.00	0.00	0.00	476.14	1,039.99

\*MSW diverted to landfill as emergency disposal measure during extended WTE outage (DEP approved); \*\*Other wastes include contaminated soil (waste sand) and Xira large tires

\*\*\* Includes Glass used as drainage in Ash MF reported in Cat. 5

<b>Category Descriptions:</b>	4. All solid waste passing over scales and delivered to storage area.
1. All solid waste going to Class I for disposal or use (Ash for CC	5. Processed special waste recycled within landfill cell(s) e.g., tire chips as drainage media in LCRS, mulch as soil cover supplement).
2. All solid waste going to Class III Landfill cells for disposal.	6. Processed special waste recycled outside landfill cell(s), e.g., mulch used as E&S controls on outer slopes,
3. All solid waste going to Ash Monofill cells for disposal.	mulch as supplemental soil cover IF will be removed such that it does not affect airspace volumes and other processed special waste recycled on site but

**ATTACHMENT 3**

**HISTORICAL AND PROJECTED WASTE  
ACCEPTANCE RATES**





PROJECT NUMBER: 12345-007-01 SHEET: 1 OF 1  
 PROJECT NAME: LEE/HENDRY NMOC EMISSION CALCULATION  
 SUBJECT: HISTORIC AND PROJECTED WASTE ACCEPTANCE RATES  
 BY: TMCKNIGHT Date: 6/18/2013  
 CHECKED BY: DHULLINGS Date: 6/20/2013

**HISTORIC WASTE ACCEPTANCE RATES**

Historic Degradable Waste Acceptance Rates				
Year	Unit	Class I Landfill	Ash Monofill	Class III Landfill
2002	tn/yr	9,127.09	-	-
2003	tn/yr	122,195.14	-	-
2004	tn/yr	150,700.44	-	-
2005	tn/yr	219,408.57	-	-
2006	tn/yr	247,713.27	-	-
2007	tn/yr	161,668.57	-	-
2008	tn/yr	27,423.45	4,886.49	-
2009	tn/yr	95.62	15,328.03	22,925.07
2010	tn/yr	-	14,776.53	36,078.20
2011	tn/yr	-	6,583.68	30,344.37
2012	tn/yr	-	13,514.96	21,030.01
Total	tn	938,332.15	55,089.69	110,377.65

**PROJECTED WASTE ACCEPTANCE RATES**

Waste Acceptance Rate Projection Assumptions				
Parameter	Units	Class I Landfill	Ash Monofill	Class III Landfill
Remaining Volume <sup>1</sup>	cy	1,110,651	2,437,811	1,878,635
Apparent Density <sup>2</sup>	lb/cy	1,350	2,500	1,300
Remaining Capacity	tn	749,689	3,047,264	1,221,113
Annual Growth Rate	%	3.0%	3.0%	3.0%
Nondegradable Fraction	%	0%	90%	0%

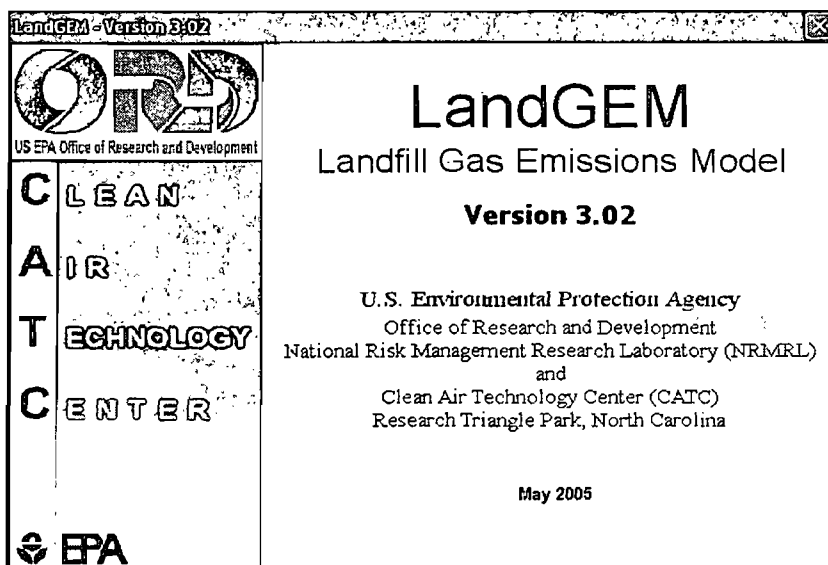
Projected Degradable Waste Acceptance Rates				
Year	Unit	Class I Landfill	Ash Monofill	Class III Landfill
2013	tn/yr	25,000.00	20,000.00	35,000.00
2014	tn/yr	25,750.00	20,600.00	36,050.00
2015	tn/yr	26,522.50	21,218.00	37,131.50
2016	tn/yr	27,318.18	21,854.54	38,245.45
2017	tn/yr	28,137.72	22,510.18	39,392.81
2018	tn/yr	28,981.85	23,185.48	40,574.59
2019	tn/yr	29,851.31	23,881.05	41,791.83
2020	tn/yr	30,746.85	24,597.48	43,045.59
2021	tn/yr	31,669.25	25,335.40	44,336.95
2022	tn/yr	32,619.33	26,095.46	45,667.06
2023	tn/yr	33,597.91	26,878.33	47,037.07
2024	tn/yr	34,605.85	27,684.68	48,448.19
2025	tn/yr	35,644.02	20,885.78	49,901.63
2026	tn/yr	36,713.34		51,398.68
2027	tn/yr	37,814.74		52,940.64
2028	tn/yr	38,949.19		54,528.86
2029	tn/yr	40,117.66		56,164.73
2030	tn/yr	41,321.19		57,849.67
2031	tn/yr	42,560.83		59,585.16
2032	tn/yr	43,837.65		61,372.71
2033	tn/yr	45,152.78		63,213.89
2034	tn/yr	32,777.28		65,110.31
2035	tn/yr			67,063.62
2036	tn/yr			69,075.53
2037	tn/yr			16,186.29
Total	tn	749,689.42	304,726.38	1,221,112.75

**NOTES**

1. Remaining Volume References:  
 Class I - "Annual Remaining Capacity and Site Life as of December 31, 2012" Letter to FDEP dated January 22, 2013, signed by Laura A. Gray, PE  
 Ash Monofill - "Attachment E.4.c - Active Life Calculations" Lee/Hendry Ash Monofill Expansion Permit Application dated May 6, 2013  
 performed March 27, 2013, signed and sealed by Tobin S. McKnight, PE  
 Class III - "Annual Remaining Capacity and Site Life as of December 31, 2012" Letter to FDEP dated January 22, 2013, signed by Laura A. Gray, PE
2. Apparent densities used in 2008 Amended Design Capacity Report

**ATTACHMENT 4**

**LANDGEM SUMMARY REPORTS  
CLASS I LANDFILL  
ASH MONOFILL  
CLASS III LANDFILL**



## Summary Report

**Landfill Name or Identifier:** Lee/Hendry - Class I Landfill

**Date:** Friday, June 21, 2013

### 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	2002	
Landfill Closure Year (with 80-year limit)	2034	
Actual Closure Year (without limit)	2034	
Have Model Calculate Closure Year?	No	
Waste Design Capacity	1,688,022	short tons

## MODEL PARAMETERS

Methane Generation Rate, k	0.050	year <sup>-1</sup>
Potential Methane Generation Capacity, L <sub>0</sub>	170	m <sup>3</sup> /Mg
NMOC Concentration	345	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)
2002	8,297	9,127	0	0
2003	111,086	122,195	8,297	9,127
2004	137,000	150,700	119,384	131,322
2005	199,462	219,409	256,384	282,023
2006	225,194	247,713	455,847	501,431
2007	146,971	161,669	681,040	749,145
2008	24,930	27,423	828,012	910,813
2009	87	96	852,942	938,237
2010	0	0	853,029	938,332
2011	0	0	853,029	938,332
2012	0	0	853,029	938,332
2013	22,727	25,000	853,029	938,332
2014	23,409	25,750	875,757	963,332
2015	24,111	26,523	899,166	989,082
2016	24,835	27,318	923,277	1,015,605
2017	25,580	28,138	948,112	1,042,923
2018	26,347	28,982	973,691	1,071,061
2019	27,138	29,851	1,000,039	1,100,042
2020	27,952	30,747	1,027,176	1,129,894
2021	28,790	31,669	1,055,128	1,160,641
2022	29,654	32,619	1,083,918	1,192,310
2023	30,544	33,598	1,113,572	1,224,929
2024	31,460	34,606	1,144,115	1,258,527
2025	32,404	35,644	1,175,575	1,293,133
2026	33,376	36,713	1,207,979	1,328,777
2027	34,377	37,815	1,241,355	1,365,490
2028	35,408	38,949	1,275,732	1,403,305
2029	36,471	40,118	1,311,140	1,442,254
2030	37,565	41,321	1,347,611	1,482,372
2031	38,692	42,561	1,385,175	1,523,693
2032	39,852	43,838	1,423,867	1,566,254
2033	41,048	45,153	1,463,720	1,610,092
2034	29,798	32,777	1,504,768	1,655,244
2035	0	0	1,534,565	1,688,022
2036	0	0	1,534,565	1,688,022
2037	0	0	1,534,565	1,688,022
2038	0	0	1,534,565	1,688,022
2039	0	0	1,534,565	1,688,022
2040	0	0	1,534,565	1,688,022
2041	0	0	1,534,565	1,688,022

## WASTE ACCEPTANCE RATES (Continued)

Year	Waste Accepted		Waste-In-Place	
	(Mg/year)	(short tons/year)	(Mg)	(short tons)
2042	0	0	1,534,565	1,688,022
2043	0	0	1,534,565	1,688,022
2044	0	0	1,534,565	1,688,022
2045	0	0	1,534,565	1,688,022
2046	0	0	1,534,565	1,688,022
2047	0	0	1,534,565	1,688,022
2048	0	0	1,534,565	1,688,022
2049	0	0	1,534,565	1,688,022
2050	0	0	1,534,565	1,688,022
2051	0	0	1,534,565	1,688,022
2052	0	0	1,534,565	1,688,022
2053	0	0	1,534,565	1,688,022
2054	0	0	1,534,565	1,688,022
2055	0	0	1,534,565	1,688,022
2056	0	0	1,534,565	1,688,022
2057	0	0	1,534,565	1,688,022
2058	0	0	1,534,565	1,688,022
2059	0	0	1,534,565	1,688,022
2060	0	0	1,534,565	1,688,022
2061	0	0	1,534,565	1,688,022
2062	0	0	1,534,565	1,688,022
2063	0	0	1,534,565	1,688,022
2064	0	0	1,534,565	1,688,022
2065	0	0	1,534,565	1,688,022
2066	0	0	1,534,565	1,688,022
2067	0	0	1,534,565	1,688,022
2068	0	0	1,534,565	1,688,022
2069	0	0	1,534,565	1,688,022
2070	0	0	1,534,565	1,688,022
2071	0	0	1,534,565	1,688,022
2072	0	0	1,534,565	1,688,022
2073	0	0	1,534,565	1,688,022
2074	0	0	1,534,565	1,688,022
2075	0	0	1,534,565	1,688,022
2076	0	0	1,534,565	1,688,022
2077	0	0	1,534,565	1,688,022
2078	0	0	1,534,565	1,688,022
2079	0	0	1,534,565	1,688,022
2080	0	0	1,534,565	1,688,022
2081	0	0	1,534,565	1,688,022

**Pollutant Parameters**

<i>Gas / Pollutant Default Parameters:</i>				<i>User-specified Pollutant Parameters:</i>	
	Compound	Concentration (ppmv)	Molecular Weight	Concentration (ppmv)	Molecular Weight
<b>Gases</b>	Total landfill gas		0.00		
	Methane		16.04		
	Carbon dioxide		44.01		
	NMOC	4,000	86.18		
<b>Pollutants</b>	1,1,1-Trichloroethane (methyl chloroform) - HAP	0.48	133.41		
	1,1,2,2-Tetrachloroethane - HAP/VOC	1.1	167.85		
	1,1-Dichloroethane (ethylidene dichloride) - HAP/VOC	2.4	98.97		
	1,1-Dichloroethene (vinylidene chloride) - HAP/VOC	0.20	96.94		
	1,2-Dichloroethane (ethylene dichloride) - HAP/VOC	0.41	98.96		
	1,2-Dichloropropane (propylene dichloride) - HAP/VOC	0.18	112.99		
	2-Propanol (isopropyl alcohol) - VOC	50	60.11		
	Acetone	7.0	58.08		
	Acrylonitrile - HAP/VOC	6.3	53.06		
	Benzene - No or Unknown Co-disposal - HAP/VOC	1.9	78.11		
	Benzene - Co-disposal - HAP/VOC	11	78.11		
	Bromodichloromethane - VOC	3.1	163.83		
	Butane - VOC	5.0	58.12		
	Carbon disulfide - HAP/VOC	0.58	76.13		
	Carbon monoxide	140	28.01		
	Carbon tetrachloride - HAP/VOC	4.0E-03	153.84		
	Carbonyl sulfide - HAP/VOC	0.49	60.07		
	Chlorobenzene - HAP/VOC	0.25	112.56		
	Chlorodifluoromethane	1.3	86.47		
	Chloroethane (ethyl chloride) - HAP/VOC	1.3	64.52		
	Chloroform - HAP/VOC	0.03	119.39		
	Chloromethane - VOC	1.2	50.49		
	Dichlorobenzene - (HAP for para isomer/VOC)	0.21	147		
	Dichlorodifluoromethane	16	120.91		
	Dichlorofluoromethane - VOC	2.6	102.92		
	Dichloromethane (methylene chloride) - HAP	14	84.94		
	Dimethyl sulfide (methyl sulfide) - VOC	7.8	62.13		
	Ethane	890	30.07		
	Ethanol - VOC	27	46.08		

**Pollutant Parameters (Continued)**

*Gas / Pollutant Default Parameters:*

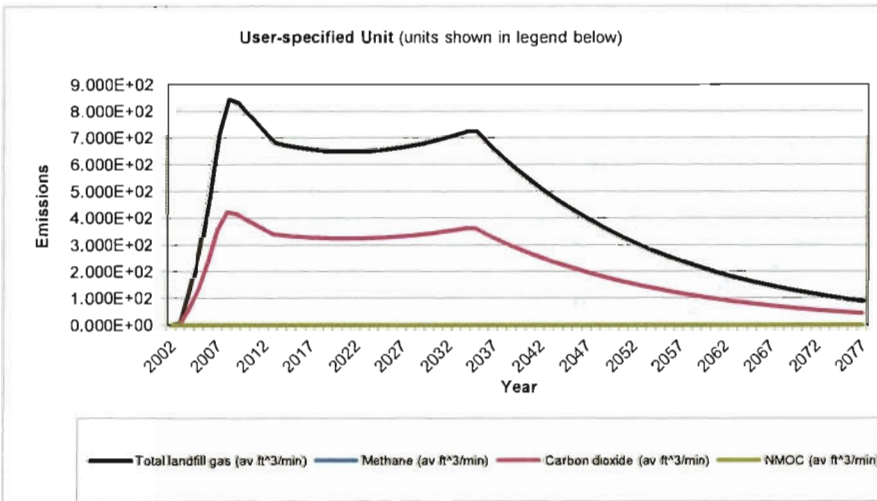
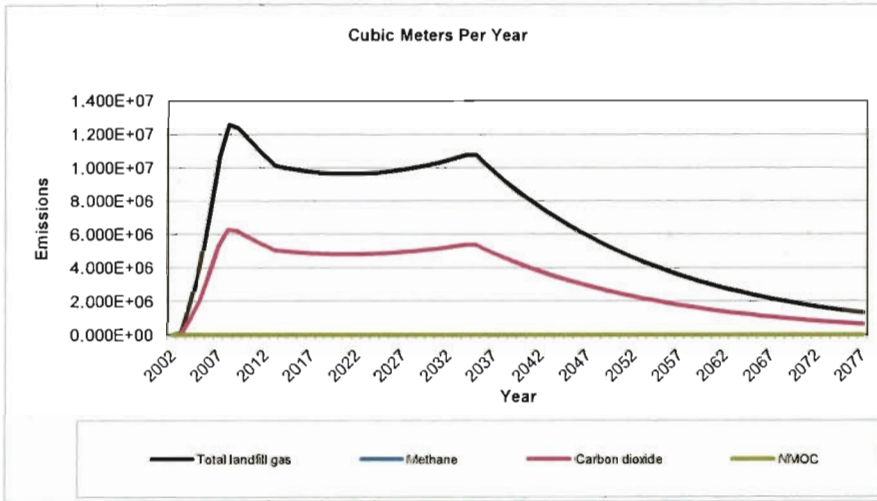
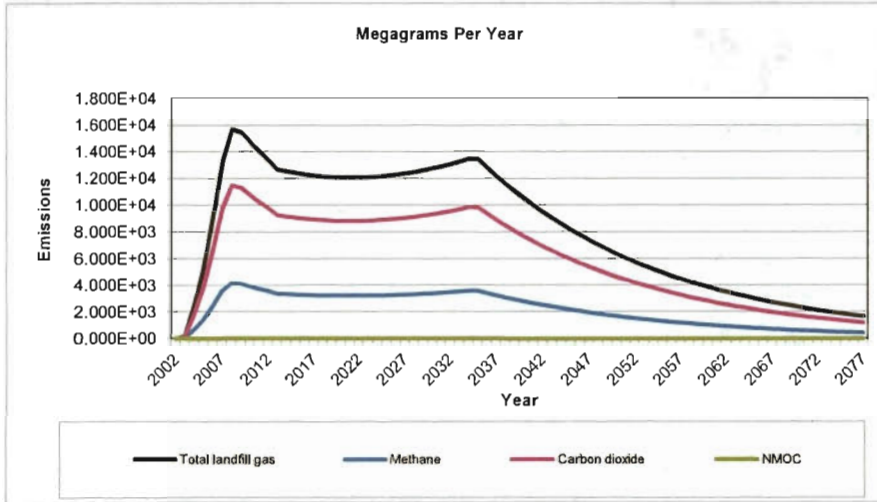
*User-specified Pollutant Parameters:*

	<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 <sup>3</sup> /year)	(av ft <sup>3</sup> /min)	(Mg/year)	(m <sup>3</sup> /year)	(av ft <sup>3</sup> /min)
2002	0	0	0	0	0	0
2003	1.723E+02	1.379E+05	9.268E+00	4.601E+01	6.897E+04	4.634E+00
2004	2.470E+03	1.978E+06	1.329E+02	6.598E+02	9.889E+05	6.645E+01
2005	5.194E+03	4.159E+06	2.794E+02	1.387E+03	2.079E+06	1.397E+02
2006	9.081E+03	7.272E+06	4.886E+02	2.426E+03	3.636E+06	2.443E+02
2007	1.331E+04	1.066E+07	7.163E+02	3.556E+03	5.330E+06	3.581E+02
2008	1.572E+04	1.258E+07	8.455E+02	4.198E+03	6.292E+06	4.228E+02
2009	1.547E+04	1.238E+07	8.321E+02	4.131E+03	6.192E+06	4.161E+02
2010	1.471E+04	1.178E+07	7.916E+02	3.930E+03	5.891E+06	3.958E+02
2011	1.400E+04	1.121E+07	7.530E+02	3.738E+03	5.604E+06	3.765E+02
2012	1.331E+04	1.066E+07	7.163E+02	3.556E+03	5.330E+06	3.581E+02
2013	1.266E+04	1.014E+07	6.814E+02	3.383E+03	5.070E+06	3.407E+02
2014	1.252E+04	1.002E+07	6.735E+02	3.344E+03	5.012E+06	3.368E+02
2015	1.239E+04	9.924E+06	6.668E+02	3.311E+03	4.962E+06	3.334E+02
2016	1.229E+04	9.841E+06	6.612E+02	3.283E+03	4.921E+06	3.306E+02
2017	1.221E+04	9.774E+06	6.567E+02	3.260E+03	4.887E+06	3.284E+02
2018	1.214E+04	9.723E+06	6.533E+02	3.243E+03	4.861E+06	3.266E+02
2019	1.210E+04	9.686E+06	6.508E+02	3.231E+03	4.843E+06	3.254E+02
2020	1.207E+04	9.665E+06	6.494E+02	3.224E+03	4.833E+06	3.247E+02
2021	1.206E+04	9.658E+06	6.489E+02	3.222E+03	4.829E+06	3.245E+02
2022	1.207E+04	9.666E+06	6.495E+02	3.224E+03	4.833E+06	3.247E+02
2023	1.210E+04	9.687E+06	6.509E+02	3.231E+03	4.844E+06	3.254E+02
2024	1.214E+04	9.723E+06	6.533E+02	3.243E+03	4.861E+06	3.266E+02
2025	1.220E+04	9.772E+06	6.565E+02	3.260E+03	4.886E+06	3.283E+02
2026	1.228E+04	9.834E+06	6.607E+02	3.280E+03	4.917E+06	3.304E+02
2027	1.237E+04	9.909E+06	6.658E+02	3.305E+03	4.954E+06	3.329E+02
2028	1.248E+04	9.997E+06	6.717E+02	3.335E+03	4.999E+06	3.359E+02
2029	1.261E+04	1.010E+07	6.785E+02	3.368E+03	5.049E+06	3.392E+02
2030	1.275E+04	1.021E+07	6.861E+02	3.406E+03	5.106E+06	3.431E+02
2031	1.291E+04	1.034E+07	6.946E+02	3.449E+03	5.169E+06	3.473E+02
2032	1.308E+04	1.048E+07	7.040E+02	3.495E+03	5.239E+06	3.520E+02
2033	1.327E+04	1.063E+07	7.141E+02	3.545E+03	5.314E+06	3.571E+02
2034	1.348E+04	1.079E+07	7.252E+02	3.600E+03	5.396E+06	3.626E+02
2035	1.344E+04	1.076E+07	7.231E+02	3.590E+03	5.381E+06	3.615E+02
2036	1.278E+04	1.024E+07	6.878E+02	3.415E+03	5.118E+06	3.439E+02
2037	1.216E+04	9.738E+06	6.543E+02	3.248E+03	4.869E+06	3.271E+02
2038	1.157E+04	9.263E+06	6.224E+02	3.090E+03	4.631E+06	3.112E+02
2039	1.100E+04	8.811E+06	5.920E+02	2.939E+03	4.405E+06	2.960E+02
2040	1.047E+04	8.381E+06	5.631E+02	2.796E+03	4.191E+06	2.816E+02
2041	9.956E+03	7.973E+06	5.357E+02	2.659E+03	3.986E+06	2.678E+02
2042	9.471E+03	7.584E+06	5.095E+02	2.530E+03	3.792E+06	2.548E+02
2043	9.009E+03	7.214E+06	4.847E+02	2.406E+03	3.607E+06	2.423E+02
2044	8.569E+03	6.862E+06	4.611E+02	2.289E+03	3.431E+06	2.305E+02
2045	8.151E+03	6.527E+06	4.386E+02	2.177E+03	3.264E+06	2.193E+02
2046	7.754E+03	6.209E+06	4.172E+02	2.071E+03	3.104E+06	2.086E+02
2047	7.376E+03	5.906E+06	3.968E+02	1.970E+03	2.953E+06	1.984E+02
2048	7.016E+03	5.618E+06	3.775E+02	1.874E+03	2.809E+06	1.887E+02
2049	6.674E+03	5.344E+06	3.591E+02	1.783E+03	2.672E+06	1.795E+02
2050	6.348E+03	5.083E+06	3.416E+02	1.696E+03	2.542E+06	1.708E+02
2051	6.039E+03	4.836E+06	3.249E+02	1.613E+03	2.418E+06	1.625E+02

**Results (Continued)**

Year	Total landfill gas			Methane		
	(Mg/year)	(m <sup>3</sup> /year)	(av ft <sup>3</sup> /min)	(Mg/year)	(m <sup>3</sup> /year)	(av ft <sup>3</sup> /min)
2052	5.744E+03	4.600E+06	3.091E+02	1.534E+03	2.300E+06	1.545E+02
2053	5.464E+03	4.375E+06	2.940E+02	1.460E+03	2.188E+06	1.470E+02
2054	5.198E+03	4.162E+06	2.796E+02	1.388E+03	2.081E+06	1.398E+02
2055	4.944E+03	3.959E+06	2.660E+02	1.321E+03	1.980E+06	1.330E+02
2056	4.703E+03	3.766E+06	2.530E+02	1.256E+03	1.883E+06	1.265E+02
2057	4.474E+03	3.582E+06	2.407E+02	1.195E+03	1.791E+06	1.203E+02
2058	4.255E+03	3.408E+06	2.290E+02	1.137E+03	1.704E+06	1.145E+02
2059	4.048E+03	3.241E+06	2.178E+02	1.081E+03	1.621E+06	1.089E+02
2060	3.850E+03	3.083E+06	2.072E+02	1.029E+03	1.542E+06	1.036E+02
2061	3.663E+03	2.933E+06	1.971E+02	9.783E+02	1.466E+06	9.853E+01
2062	3.484E+03	2.790E+06	1.875E+02	9.306E+02	1.395E+06	9.373E+01
2063	3.314E+03	2.654E+06	1.783E+02	8.852E+02	1.327E+06	8.915E+01
2064	3.153E+03	2.524E+06	1.696E+02	8.421E+02	1.262E+06	8.481E+01
2065	2.999E+03	2.401E+06	1.613E+02	8.010E+02	1.201E+06	8.067E+01
2066	2.853E+03	2.284E+06	1.535E+02	7.619E+02	1.142E+06	7.674E+01
2067	2.713E+03	2.173E+06	1.460E+02	7.248E+02	1.086E+06	7.299E+01
2068	2.581E+03	2.067E+06	1.389E+02	6.894E+02	1.033E+06	6.943E+01
2069	2.455E+03	1.966E+06	1.321E+02	6.558E+02	9.830E+05	6.605E+01
2070	2.335E+03	1.870E+06	1.257E+02	6.238E+02	9.351E+05	6.283E+01
2071	2.222E+03	1.779E+06	1.195E+02	5.934E+02	8.895E+05	5.976E+01
2072	2.113E+03	1.692E+06	1.137E+02	5.645E+02	8.461E+05	5.685E+01
2073	2.010E+03	1.610E+06	1.082E+02	5.369E+02	8.048E+05	5.408E+01
2074	1.912E+03	1.531E+06	1.029E+02	5.107E+02	7.656E+05	5.144E+01
2075	1.819E+03	1.456E+06	9.786E+01	4.858E+02	7.282E+05	4.893E+01
2076	1.730E+03	1.385E+06	9.309E+01	4.621E+02	6.927E+05	4.654E+01
2077	1.646E+03	1.318E+06	8.855E+01	4.396E+02	6.589E+05	4.427E+01
2078	1.565E+03	1.254E+06	8.423E+01	4.182E+02	6.268E+05	4.211E+01
2079	1.489E+03	1.192E+06	8.012E+01	3.978E+02	5.962E+05	4.006E+01
2080	1.417E+03	1.134E+06	7.621E+01	3.784E+02	5.671E+05	3.811E+01
2081	1.347E+03	1.079E+06	7.250E+01	3.599E+02	5.395E+05	3.625E+01
2082	1.282E+03	1.026E+06	6.896E+01	3.424E+02	5.132E+05	3.448E+01
2083	1.219E+03	9.763E+05	6.560E+01	3.257E+02	4.881E+05	3.280E+01
2084	1.160E+03	9.287E+05	6.240E+01	3.098E+02	4.643E+05	3.120E+01
2085	1.103E+03	8.834E+05	5.935E+01	2.947E+02	4.417E+05	2.968E+01
2086	1.049E+03	8.403E+05	5.646E+01	2.803E+02	4.201E+05	2.823E+01
2087	9.982E+02	7.993E+05	5.371E+01	2.666E+02	3.997E+05	2.685E+01
2088	9.495E+02	7.603E+05	5.109E+01	2.536E+02	3.802E+05	2.554E+01
2089	9.032E+02	7.232E+05	4.860E+01	2.413E+02	3.616E+05	2.430E+01
2090	8.592E+02	6.880E+05	4.622E+01	2.295E+02	3.440E+05	2.311E+01
2091	8.173E+02	6.544E+05	4.397E+01	2.183E+02	3.272E+05	2.199E+01
2092	7.774E+02	6.225E+05	4.183E+01	2.077E+02	3.113E+05	2.091E+01
2093	7.395E+02	5.921E+05	3.979E+01	1.975E+02	2.961E+05	1.989E+01
2094	7.034E+02	5.633E+05	3.785E+01	1.879E+02	2.816E+05	1.892E+01
2095	6.691E+02	5.358E+05	3.600E+01	1.787E+02	2.679E+05	1.800E+01
2096	6.365E+02	5.097E+05	3.424E+01	1.700E+02	2.548E+05	1.712E+01
2097	6.054E+02	4.848E+05	3.257E+01	1.617E+02	2.424E+05	1.629E+01
2098	5.759E+02	4.612E+05	3.099E+01	1.538E+02	2.306E+05	1.549E+01
2099	5.478E+02	4.387E+05	2.947E+01	1.463E+02	2.193E+05	1.474E+01
2100	5.211E+02	4.173E+05	2.804E+01	1.392E+02	2.086E+05	1.402E+01
2101	4.957E+02	3.969E+05	2.667E+01	1.324E+02	1.985E+05	1.333E+01
2102	4.715E+02	3.776E+05	2.537E+01	1.259E+02	1.888E+05	1.268E+01

**Results (Continued)**

Year	Total landfill gas			Methane		
	(Mg/year)	(m <sup>3</sup> /year)	(av ft <sup>3</sup> /min)	(Mg/year)	(m <sup>3</sup> /year)	(av ft <sup>3</sup> /min)
2103	4.485E+02	3.592E+05	2.413E+01	1.198E+02	1.796E+05	1.207E+01
2104	4.266E+02	3.416E+05	2.295E+01	1.140E+02	1.708E+05	1.148E+01
2105	4.058E+02	3.250E+05	2.184E+01	1.084E+02	1.625E+05	1.092E+01
2106	3.860E+02	3.091E+05	2.077E+01	1.031E+02	1.546E+05	1.039E+01
2107	3.672E+02	2.941E+05	1.976E+01	9.809E+01	1.470E+05	9.879E+00
2108	3.493E+02	2.797E+05	1.879E+01	9.330E+01	1.399E+05	9.397E+00
2109	3.323E+02	2.661E+05	1.788E+01	8.875E+01	1.330E+05	8.939E+00
2110	3.161E+02	2.531E+05	1.701E+01	8.442E+01	1.265E+05	8.503E+00
2111	3.007E+02	2.407E+05	1.618E+01	8.031E+01	1.204E+05	8.088E+00
2112	2.860E+02	2.290E+05	1.539E+01	7.639E+01	1.145E+05	7.693E+00
2113	2.720E+02	2.178E+05	1.464E+01	7.267E+01	1.089E+05	7.318E+00
2114	2.588E+02	2.072E+05	1.392E+01	6.912E+01	1.036E+05	6.961E+00
2115	2.462E+02	1.971E+05	1.324E+01	6.575E+01	9.855E+04	6.622E+00
2116	2.341E+02	1.875E+05	1.260E+01	6.254E+01	9.375E+04	6.299E+00
2117	2.227E+02	1.784E+05	1.198E+01	5.949E+01	8.918E+04	5.992E+00
2118	2.119E+02	1.697E+05	1.140E+01	5.659E+01	8.483E+04	5.699E+00
2119	2.015E+02	1.614E+05	1.084E+01	5.383E+01	8.069E+04	5.422E+00
2120	1.917E+02	1.535E+05	1.031E+01	5.121E+01	7.675E+04	5.157E+00
2121	1.824E+02	1.460E+05	9.811E+00	4.871E+01	7.301E+04	4.906E+00
2122	1.735E+02	1.389E+05	9.333E+00	4.633E+01	6.945E+04	4.666E+00
2123	1.650E+02	1.321E+05	8.878E+00	4.407E+01	6.606E+04	4.439E+00
2124	1.570E+02	1.257E+05	8.445E+00	4.192E+01	6.284E+04	4.222E+00
2125	1.493E+02	1.196E+05	8.033E+00	3.988E+01	5.978E+04	4.016E+00
2126	1.420E+02	1.137E+05	7.641E+00	3.793E+01	5.686E+04	3.820E+00
2127	1.351E+02	1.082E+05	7.268E+00	3.608E+01	5.409E+04	3.634E+00
2128	1.285E+02	1.029E+05	6.914E+00	3.432E+01	5.145E+04	3.457E+00
2129	1.222E+02	9.788E+04	6.577E+00	3.265E+01	4.894E+04	3.288E+00
2130	1.163E+02	9.311E+04	6.256E+00	3.106E+01	4.655E+04	3.128E+00
2131	1.106E+02	8.857E+04	5.951E+00	2.954E+01	4.428E+04	2.975E+00
2132	1.052E+02	8.425E+04	5.661E+00	2.810E+01	4.212E+04	2.830E+00
2133	1.001E+02	8.014E+04	5.384E+00	2.673E+01	4.007E+04	2.692E+00
2134	9.520E+01	7.623E+04	5.122E+00	2.543E+01	3.811E+04	2.561E+00
2135	9.055E+01	7.251E+04	4.872E+00	2.419E+01	3.626E+04	2.436E+00
2136	8.614E+01	6.898E+04	4.634E+00	2.301E+01	3.449E+04	2.317E+00
2137	8.194E+01	6.561E+04	4.408E+00	2.189E+01	3.281E+04	2.204E+00
2138	7.794E+01	6.241E+04	4.193E+00	2.082E+01	3.121E+04	2.097E+00
2139	7.414E+01	5.937E+04	3.989E+00	1.980E+01	2.968E+04	1.994E+00
2140	7.052E+01	5.647E+04	3.794E+00	1.884E+01	2.824E+04	1.897E+00
2141	6.708E+01	5.372E+04	3.609E+00	1.792E+01	2.686E+04	1.805E+00
2142	6.381E+01	5.110E+04	3.433E+00	1.705E+01	2.555E+04	1.717E+00

**Results (Continued)**

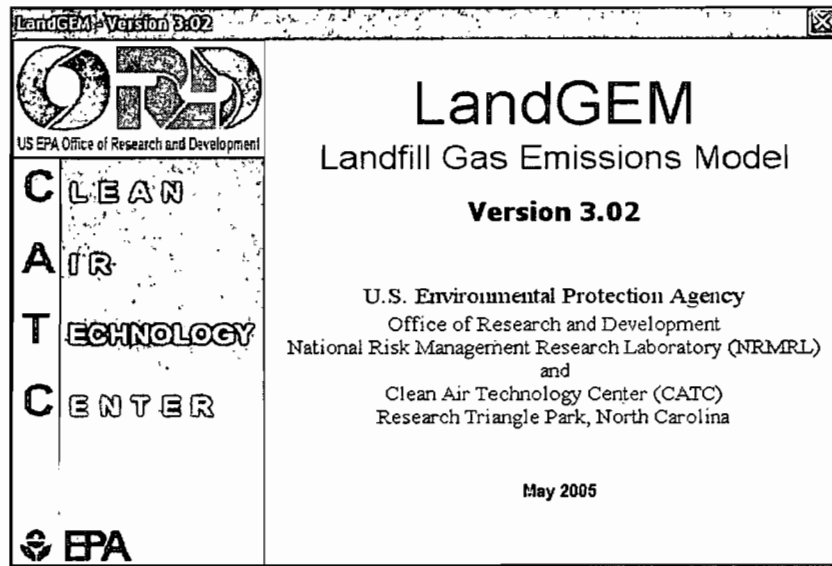
Year	Carbon dioxide			NMOC		
	(Mg/year)	(m <sup>3</sup> /year)	(av ft <sup>3</sup> /min)	(Mg/year)	(m <sup>3</sup> /year)	(av ft <sup>3</sup> /min)
2002	0	0	0	0	0	0
2003	1.262E+02	6.897E+04	4.634E+00	1.706E-01	4.759E+01	3.197E-03
2004	1.810E+03	9.889E+05	6.645E+01	2.446E+00	6.824E+02	4.585E-02
2005	3.806E+03	2.079E+06	1.397E+02	5.143E+00	1.435E+03	9.640E-02
2006	6.655E+03	3.636E+06	2.443E+02	8.993E+00	2.509E+03	1.686E-01
2007	9.757E+03	5.330E+06	3.581E+02	1.318E+01	3.678E+03	2.471E-01
2008	1.152E+04	6.292E+06	4.228E+02	1.556E+01	4.341E+03	2.917E-01
2009	1.133E+04	6.192E+06	4.161E+02	1.532E+01	4.273E+03	2.871E-01
2010	1.078E+04	5.891E+06	3.958E+02	1.457E+01	4.065E+03	2.731E-01
2011	1.026E+04	5.604E+06	3.765E+02	1.386E+01	3.867E+03	2.598E-01
2012	9.757E+03	5.330E+06	3.581E+02	1.318E+01	3.678E+03	2.471E-01
2013	9.281E+03	5.070E+06	3.407E+02	1.254E+01	3.499E+03	2.351E-01
2014	9.175E+03	5.012E+06	3.368E+02	1.240E+01	3.458E+03	2.324E-01
2015	9.083E+03	4.962E+06	3.334E+02	1.227E+01	3.424E+03	2.301E-01
2016	9.007E+03	4.921E+06	3.306E+02	1.217E+01	3.395E+03	2.281E-01
2017	8.946E+03	4.887E+06	3.284E+02	1.209E+01	3.372E+03	2.266E-01
2018	8.899E+03	4.861E+06	3.266E+02	1.202E+01	3.354E+03	2.254E-01
2019	8.865E+03	4.843E+06	3.254E+02	1.198E+01	3.342E+03	2.245E-01
2020	8.846E+03	4.833E+06	3.247E+02	1.195E+01	3.334E+03	2.240E-01
2021	8.840E+03	4.829E+06	3.245E+02	1.194E+01	3.332E+03	2.239E-01
2022	8.847E+03	4.833E+06	3.247E+02	1.195E+01	3.335E+03	2.241E-01
2023	8.866E+03	4.844E+06	3.254E+02	1.198E+01	3.342E+03	2.246E-01
2024	8.899E+03	4.861E+06	3.266E+02	1.202E+01	3.354E+03	2.254E-01
2025	8.943E+03	4.886E+06	3.283E+02	1.208E+01	3.371E+03	2.265E-01
2026	9.000E+03	4.917E+06	3.304E+02	1.216E+01	3.393E+03	2.279E-01
2027	9.069E+03	4.954E+06	3.329E+02	1.225E+01	3.419E+03	2.297E-01
2028	9.150E+03	4.999E+06	3.359E+02	1.236E+01	3.449E+03	2.317E-01
2029	9.242E+03	5.049E+06	3.392E+02	1.249E+01	3.484E+03	2.341E-01
2030	9.346E+03	5.106E+06	3.431E+02	1.263E+01	3.523E+03	2.367E-01
2031	9.462E+03	5.169E+06	3.473E+02	1.278E+01	3.567E+03	2.396E-01
2032	9.589E+03	5.239E+06	3.520E+02	1.296E+01	3.615E+03	2.429E-01
2033	9.728E+03	5.314E+06	3.571E+02	1.314E+01	3.667E+03	2.464E-01
2034	9.878E+03	5.396E+06	3.626E+02	1.335E+01	3.724E+03	2.502E-01
2035	9.850E+03	5.381E+06	3.615E+02	1.331E+01	3.713E+03	2.495E-01
2036	9.369E+03	5.118E+06	3.439E+02	1.266E+01	3.532E+03	2.373E-01
2037	8.912E+03	4.869E+06	3.271E+02	1.204E+01	3.359E+03	2.257E-01
2038	8.478E+03	4.631E+06	3.112E+02	1.145E+01	3.196E+03	2.147E-01
2039	8.064E+03	4.405E+06	2.960E+02	1.090E+01	3.040E+03	2.042E-01
2040	7.671E+03	4.191E+06	2.816E+02	1.036E+01	2.892E+03	1.943E-01
2041	7.297E+03	3.986E+06	2.678E+02	9.859E+00	2.751E+03	1.848E-01
2042	6.941E+03	3.792E+06	2.548E+02	9.378E+00	2.616E+03	1.758E-01
2043	6.602E+03	3.607E+06	2.423E+02	8.921E+00	2.489E+03	1.672E-01
2044	6.280E+03	3.431E+06	2.305E+02	8.486E+00	2.367E+03	1.591E-01
2045	5.974E+03	3.264E+06	2.193E+02	8.072E+00	2.252E+03	1.513E-01
2046	5.683E+03	3.104E+06	2.086E+02	7.678E+00	2.142E+03	1.439E-01
2047	5.406E+03	2.953E+06	1.984E+02	7.304E+00	2.038E+03	1.369E-01
2048	5.142E+03	2.809E+06	1.887E+02	6.948E+00	1.938E+03	1.302E-01
2049	4.891E+03	2.672E+06	1.795E+02	6.609E+00	1.844E+03	1.239E-01
2050	4.653E+03	2.542E+06	1.708E+02	6.286E+00	1.754E+03	1.178E-01
2051	4.426E+03	2.418E+06	1.625E+02	5.980E+00	1.668E+03	1.121E-01

**Results (Continued)**

Year	Carbon dioxide			NMOC		
	(Mg/year)	(m <sup>3</sup> /year)	(av ft <sup>3</sup> /min)	(Mg/year)	(m <sup>3</sup> /year)	(av ft <sup>3</sup> /min)
2052	4.210E+03	2.300E+06	1.545E+02	5.688E+00	1.587E+03	1.066E-01
2053	4.005E+03	2.188E+06	1.470E+02	5.411E+00	1.510E+03	1.014E-01
2054	3.809E+03	2.081E+06	1.398E+02	5.147E+00	1.436E+03	9.648E-02
2055	3.623E+03	1.980E+06	1.330E+02	4.896E+00	1.366E+03	9.177E-02
2056	3.447E+03	1.883E+06	1.265E+02	4.657E+00	1.299E+03	8.730E-02
2057	3.279E+03	1.791E+06	1.203E+02	4.430E+00	1.236E+03	8.304E-02
2058	3.119E+03	1.704E+06	1.145E+02	4.214E+00	1.176E+03	7.899E-02
2059	2.967E+03	1.621E+06	1.089E+02	4.008E+00	1.118E+03	7.514E-02
2060	2.822E+03	1.542E+06	1.036E+02	3.813E+00	1.064E+03	7.147E-02
2061	2.684E+03	1.466E+06	9.853E+01	3.627E+00	1.012E+03	6.799E-02
2062	2.553E+03	1.395E+06	9.373E+01	3.450E+00	9.625E+02	6.467E-02
2063	2.429E+03	1.327E+06	8.915E+01	3.282E+00	9.156E+02	6.152E-02
2064	2.310E+03	1.262E+06	8.481E+01	3.122E+00	8.709E+02	5.852E-02
2065	2.198E+03	1.201E+06	8.067E+01	2.970E+00	8.284E+02	5.566E-02
2066	2.091E+03	1.142E+06	7.674E+01	2.825E+00	7.880E+02	5.295E-02
2067	1.989E+03	1.086E+06	7.299E+01	2.687E+00	7.496E+02	5.037E-02
2068	1.892E+03	1.033E+06	6.943E+01	2.556E+00	7.130E+02	4.791E-02
2069	1.799E+03	9.830E+05	6.605E+01	2.431E+00	6.783E+02	4.557E-02
2070	1.712E+03	9.351E+05	6.283E+01	2.313E+00	6.452E+02	4.335E-02
2071	1.628E+03	8.895E+05	5.976E+01	2.200E+00	6.137E+02	4.124E-02
2072	1.549E+03	8.461E+05	5.685E+01	2.093E+00	5.838E+02	3.922E-02
2073	1.473E+03	8.048E+05	5.408E+01	1.991E+00	5.553E+02	3.731E-02
2074	1.401E+03	7.656E+05	5.144E+01	1.893E+00	5.282E+02	3.549E-02
2075	1.333E+03	7.282E+05	4.893E+01	1.801E+00	5.025E+02	3.376E-02
2076	1.268E+03	6.927E+05	4.654E+01	1.713E+00	4.780E+02	3.211E-02
2077	1.206E+03	6.589E+05	4.427E+01	1.630E+00	4.547E+02	3.055E-02
2078	1.147E+03	6.268E+05	4.211E+01	1.550E+00	4.325E+02	2.906E-02
2079	1.091E+03	5.962E+05	4.006E+01	1.475E+00	4.114E+02	2.764E-02
2080	1.038E+03	5.671E+05	3.811E+01	1.403E+00	3.913E+02	2.629E-02
2081	9.875E+02	5.395E+05	3.625E+01	1.334E+00	3.722E+02	2.501E-02
2082	9.394E+02	5.132E+05	3.448E+01	1.269E+00	3.541E+02	2.379E-02
2083	8.935E+02	4.881E+05	3.280E+01	1.207E+00	3.368E+02	2.263E-02
2084	8.500E+02	4.643E+05	3.120E+01	1.148E+00	3.204E+02	2.153E-02
2085	8.085E+02	4.417E+05	2.968E+01	1.092E+00	3.048E+02	2.048E-02
2086	7.691E+02	4.201E+05	2.823E+01	1.039E+00	2.899E+02	1.948E-02
2087	7.316E+02	3.997E+05	2.685E+01	9.885E-01	2.758E+02	1.853E-02
2088	6.959E+02	3.802E+05	2.554E+01	9.403E-01	2.623E+02	1.762E-02
2089	6.620E+02	3.616E+05	2.430E+01	8.944E-01	2.495E+02	1.677E-02
2090	6.297E+02	3.440E+05	2.311E+01	8.508E-01	2.374E+02	1.595E-02
2091	5.990E+02	3.272E+05	2.199E+01	8.093E-01	2.258E+02	1.517E-02
2092	5.697E+02	3.113E+05	2.091E+01	7.698E-01	2.148E+02	1.443E-02
2093	5.420E+02	2.961E+05	1.989E+01	7.323E-01	2.043E+02	1.373E-02
2094	5.155E+02	2.816E+05	1.892E+01	6.966E-01	1.943E+02	1.306E-02
2095	4.904E+02	2.679E+05	1.800E+01	6.626E-01	1.848E+02	1.242E-02
2096	4.665E+02	2.548E+05	1.712E+01	6.303E-01	1.758E+02	1.181E-02
2097	4.437E+02	2.424E+05	1.629E+01	5.995E-01	1.673E+02	1.124E-02
2098	4.221E+02	2.306E+05	1.549E+01	5.703E-01	1.591E+02	1.069E-02
2099	4.015E+02	2.193E+05	1.474E+01	5.425E-01	1.513E+02	1.017E-02
2100	3.819E+02	2.086E+05	1.402E+01	5.160E-01	1.440E+02	9.673E-03
2101	3.633E+02	1.985E+05	1.333E+01	4.909E-01	1.369E+02	9.201E-03
2102	3.456E+02	1.888E+05	1.268E+01	4.669E-01	1.303E+02	8.752E-03

**Results (Continued)**

Year	Carbon dioxide			NMOC		
	(Mg/year)	(m <sup>3</sup> /year)	(av ft <sup>3</sup> /min)	(Mg/year)	(m <sup>3</sup> /year)	(av ft <sup>3</sup> /min)
2103	3.287E+02	1.796E+05	1.207E+01	4.441E-01	1.239E+02	8.325E-03
2104	3.127E+02	1.708E+05	1.148E+01	4.225E-01	1.179E+02	7.919E-03
2105	2.974E+02	1.625E+05	1.092E+01	4.019E-01	1.121E+02	7.533E-03
2106	2.829E+02	1.546E+05	1.039E+01	3.823E-01	1.066E+02	7.166E-03
2107	2.691E+02	1.470E+05	9.879E+00	3.636E-01	1.014E+02	6.816E-03
2108	2.560E+02	1.399E+05	9.397E+00	3.459E-01	9.650E+01	6.484E-03
2109	2.435E+02	1.330E+05	8.939E+00	3.290E-01	9.179E+01	6.168E-03
2110	2.316E+02	1.265E+05	8.503E+00	3.130E-01	8.732E+01	5.867E-03
2111	2.203E+02	1.204E+05	8.088E+00	2.977E-01	8.306E+01	5.581E-03
2112	2.096E+02	1.145E+05	7.693E+00	2.832E-01	7.901E+01	5.309E-03
2113	1.994E+02	1.089E+05	7.318E+00	2.694E-01	7.515E+01	5.050E-03
2114	1.897E+02	1.036E+05	6.961E+00	2.562E-01	7.149E+01	4.803E-03
2115	1.804E+02	9.855E+04	6.622E+00	2.438E-01	6.800E+01	4.569E-03
2116	1.716E+02	9.375E+04	6.299E+00	2.319E-01	6.469E+01	4.346E-03
2117	1.632E+02	8.918E+04	5.992E+00	2.206E-01	6.153E+01	4.134E-03
2118	1.553E+02	8.483E+04	5.699E+00	2.098E-01	5.853E+01	3.933E-03
2119	1.477E+02	8.069E+04	5.422E+00	1.996E-01	5.568E+01	3.741E-03
2120	1.405E+02	7.675E+04	5.157E+00	1.898E-01	5.296E+01	3.558E-03
2121	1.336E+02	7.301E+04	4.906E+00	1.806E-01	5.038E+01	3.385E-03
2122	1.271E+02	6.945E+04	4.666E+00	1.718E-01	4.792E+01	3.220E-03
2123	1.209E+02	6.606E+04	4.439E+00	1.634E-01	4.558E+01	3.063E-03
2124	1.150E+02	6.284E+04	4.222E+00	1.554E-01	4.336E+01	2.913E-03
2125	1.094E+02	5.978E+04	4.016E+00	1.478E-01	4.125E+01	2.771E-03
2126	1.041E+02	5.686E+04	3.820E+00	1.406E-01	3.923E+01	2.636E-03
2127	9.901E+01	5.409E+04	3.634E+00	1.338E-01	3.732E+01	2.508E-03
2128	9.418E+01	5.145E+04	3.457E+00	1.272E-01	3.550E+01	2.385E-03
2129	8.959E+01	4.894E+04	3.288E+00	1.210E-01	3.377E+01	2.269E-03
2130	8.522E+01	4.655E+04	3.128E+00	1.151E-01	3.212E+01	2.158E-03
2131	8.106E+01	4.428E+04	2.975E+00	1.095E-01	3.056E+01	2.053E-03
2132	7.711E+01	4.212E+04	2.830E+00	1.042E-01	2.907E+01	1.953E-03
2133	7.335E+01	4.007E+04	2.692E+00	9.910E-02	2.765E+01	1.858E-03
2134	6.977E+01	3.811E+04	2.561E+00	9.427E-02	2.630E+01	1.767E-03
2135	6.637E+01	3.626E+04	2.436E+00	8.967E-02	2.502E+01	1.681E-03
2136	6.313E+01	3.449E+04	2.317E+00	8.530E-02	2.380E+01	1.599E-03
2137	6.005E+01	3.281E+04	2.204E+00	8.114E-02	2.264E+01	1.521E-03
2138	5.712E+01	3.121E+04	2.097E+00	7.718E-02	2.153E+01	1.447E-03
2139	5.434E+01	2.968E+04	1.994E+00	7.342E-02	2.048E+01	1.376E-03
2140	5.169E+01	2.824E+04	1.897E+00	6.984E-02	1.948E+01	1.309E-03
2141	4.917E+01	2.686E+04	1.805E+00	6.643E-02	1.853E+01	1.245E-03
2142	4.677E+01	2.555E+04	1.717E+00	6.319E-02	1.763E+01	1.184E-03



## Summary Report

**Landfill Name or Identifier:** Lee/Hendry - Ash Monofill

**Date:** Friday, June 21, 2013

### 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 **2008**  
 Landfill Closure Year (with 80-year limit) **2025**  
 Actual Closure Year (without limit) **2025**  
 Have Model Calculate Closure Year? **No**  
 Waste Design Capacity **359,816** *short tons*

**MODEL PARAMETERS**

Methane Generation Rate, k **0.050** *year<sup>-1</sup>*  
 Potential Methane Generation Capacity, L<sub>0</sub> **170** *m<sup>3</sup>/Mg*  
 NMOC Concentration **56** *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)
2008	4,442	4,886	0	0
2009	13,935	15,328	4,442	4,886
2010	13,433	14,777	18,377	20,215
2011	5,985	6,584	31,810	34,991
2012	12,286	13,515	37,795	41,575
2013	18,182	20,000	50,082	55,090
2014	18,727	20,600	68,263	75,090
2015	19,289	21,218	86,991	95,690
2016	19,868	21,855	106,280	116,908
2017	20,464	22,510	126,147	138,762
2018	21,078	23,185	146,611	161,272
2019	21,710	23,881	167,689	184,458
2020	22,361	24,597	189,399	208,339
2021	23,032	25,335	211,760	232,936
2022	23,723	26,095	234,793	258,272
2023	24,435	26,878	258,516	284,367
2024	25,168	27,685	282,951	311,246
2025	18,987	20,886	308,118	338,930
2026	0	0	327,106	359,816
2027	0	0	327,106	359,816
2028	0	0	327,106	359,816
2029	0	0	327,106	359,816
2030	0	0	327,106	359,816
2031	0	0	327,106	359,816
2032	0	0	327,106	359,816
2033	0	0	327,106	359,816
2034	0	0	327,106	359,816
2035	0	0	327,106	359,816
2036	0	0	327,106	359,816
2037	0	0	327,106	359,816
2038	0	0	327,106	359,816
2039	0	0	327,106	359,816
2040	0	0	327,106	359,816
2041	0	0	327,106	359,816
2042	0	0	327,106	359,816
2043	0	0	327,106	359,816
2044	0	0	327,106	359,816
2045	0	0	327,106	359,816
2046	0	0	327,106	359,816
2047	0	0	327,106	359,816

## WASTE ACCEPTANCE RATES (Continued)

Year	Waste Accepted		Waste-In-Place	
	(Mg/year)	(short tons/year)	(Mg)	(short tons)
2048	0	0	327,106	359,816
2049	0	0	327,106	359,816
2050	0	0	327,106	359,816
2051	0	0	327,106	359,816
2052	0	0	327,106	359,816
2053	0	0	327,106	359,816
2054	0	0	327,106	359,816
2055	0	0	327,106	359,816
2056	0	0	327,106	359,816
2057	0	0	327,106	359,816
2058	0	0	327,106	359,816
2059	0	0	327,106	359,816
2060	0	0	327,106	359,816
2061	0	0	327,106	359,816
2062	0	0	327,106	359,816
2063	0	0	327,106	359,816
2064	0	0	327,106	359,816
2065	0	0	327,106	359,816
2066	0	0	327,106	359,816
2067	0	0	327,106	359,816
2068	0	0	327,106	359,816
2069	0	0	327,106	359,816
2070	0	0	327,106	359,816
2071	0	0	327,106	359,816
2072	0	0	327,106	359,816
2073	0	0	327,106	359,816
2074	0	0	327,106	359,816
2075	0	0	327,106	359,816
2076	0	0	327,106	359,816
2077	0	0	327,106	359,816
2078	0	0	327,106	359,816
2079	0	0	327,106	359,816
2080	0	0	327,106	359,816
2081	0	0	327,106	359,816
2082	0	0	327,106	359,816
2083	0	0	327,106	359,816
2084	0	0	327,106	359,816
2085	0	0	327,106	359,816
2086	0	0	327,106	359,816
2087	0	0	327,106	359,816

**Pollutant Parameters****Gas / Pollutant Default Parameters:****User-specified Pollutant Parameters:**

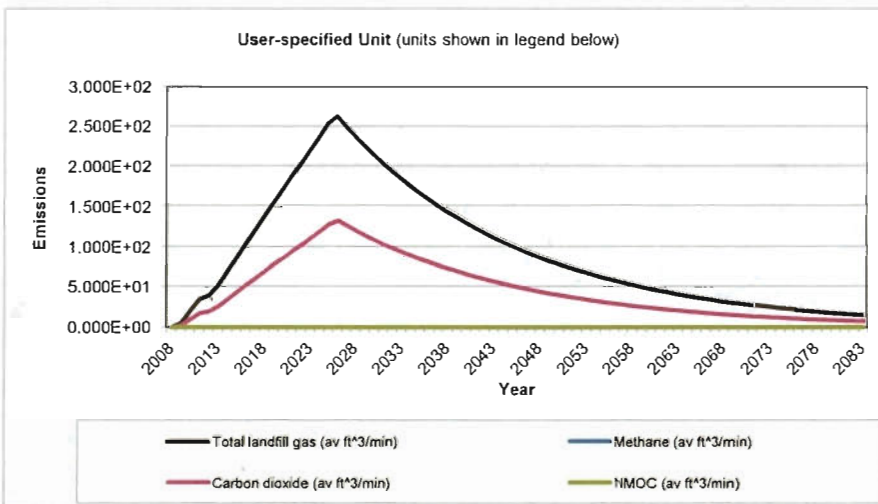
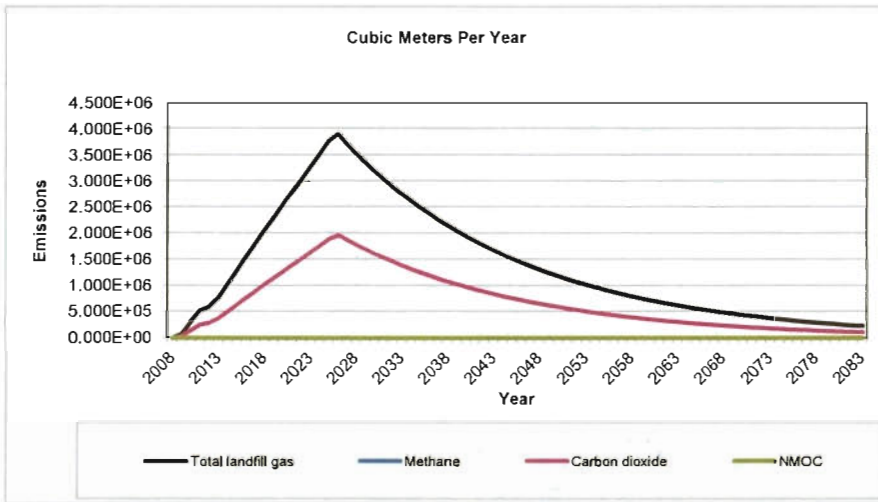
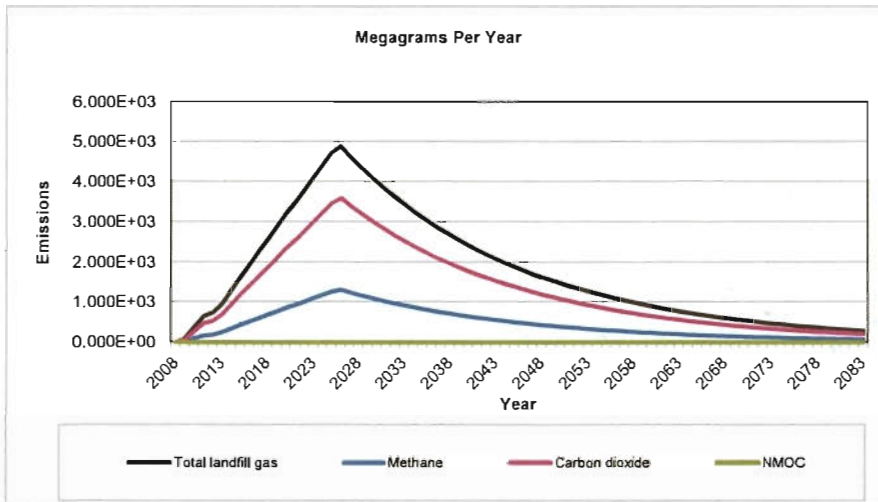
	Compound	Concentration (ppmv)	Molecular Weight	Concentration (ppmv)	Molecular Weight
<b>Cases</b>	Total landfill gas		0.00		
	Methane		16.04		
	Carbon dioxide		44.01		
	NMOC	4,000	86.18		
<b>Pollutants</b>	1,1,1-Trichloroethane (methyl chloroform) - HAP	0.48	133.41		
	1,1,2,2-Tetrachloroethane - HAP/VOC	1.1	167.85		
	1,1-Dichloroethane (ethylidene dichloride) - HAP/VOC	2.4	98.97		
	1,1-Dichloroethene (vinylidene chloride) - HAP/VOC	0.20	96.94		
	1,2-Dichloroethane (ethylene dichloride) - HAP/VOC	0.41	98.96		
	1,2-Dichloropropane (propylene dichloride) - HAP/VOC	0.18	112.99		
	2-Propanol (isopropyl alcohol) - VOC	50	60.11		
	Acetone	7.0	58.08		
	Acrylonitrile - HAP/VOC	6.3	53.06		
	Benzene - No or Unknown Co-disposal - HAP/VOC	1.9	78.11		
	Benzene - Co-disposal - HAP/VOC	11	78.11		
	Bromodichloromethane - VOC	3.1	163.83		
	Butane - VOC	5.0	58.12		
	Carbon disulfide - HAP/VOC	0.58	76.13		
	Carbon monoxide	140	28.01		
	Carbon tetrachloride - HAP/VOC	4.0E-03	153.84		
	Carbonyl sulfide - HAP/VOC	0.49	60.07		
	Chlorobenzene - HAP/VOC	0.25	112.56		
	Chlorodifluoromethane	1.3	86.47		
	Chloroethane (ethyl chloride) - HAP/VOC	1.3	64.52		
	Chloroform - HAP/VOC	0.03	119.39		
	Chloromethane - VOC	1.2	50.49		
	Dichlorobenzene - (HAP for para isomer/VOC)	0.21	147		
	Dichlorodifluoromethane	16	120.91		
	Dichlorofluoromethane - VOC	2.6	102.92		
	Dichloromethane (methylene chloride) - HAP	14	84.94		
	Dimethyl sulfide (methyl sulfide) - VOC	7.8	62.13		
	Ethane	890	30.07		
	Ethanol - VOC	27	46.08		

**Pollutant Parameters (Continued)**

<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 <sup>3</sup> /year)	(av ft <sup>3</sup> /min)	(Mg/year)	(m <sup>3</sup> /year)	(av ft <sup>3</sup> /min)
2008	0	0	0	0	0	0
2009	9.222E+01	7.385E+04	4.962E+00	2.463E+01	3.692E+04	2.481E+00
2010	3.770E+02	3.019E+05	2.028E+01	1.007E+02	1.509E+05	1.014E+01
2011	6.375E+02	5.105E+05	3.430E+01	1.703E+02	2.552E+05	1.715E+01
2012	7.306E+02	5.851E+05	3.931E+01	1.952E+02	2.925E+05	1.966E+01
2013	9.501E+02	7.608E+05	5.112E+01	2.538E+02	3.804E+05	2.556E+01
2014	1.281E+03	1.026E+06	6.893E+01	3.422E+02	5.130E+05	3.447E+01
2015	1.607E+03	1.287E+06	8.649E+01	4.294E+02	6.436E+05	4.324E+01
2016	1.930E+03	1.545E+06	1.038E+02	5.154E+02	7.725E+05	5.191E+01
2017	2.248E+03	1.800E+06	1.209E+02	6.004E+02	9.000E+05	6.047E+01
2018	2.563E+03	2.052E+06	1.379E+02	6.846E+02	1.026E+06	6.895E+01
2019	2.876E+03	2.303E+06	1.547E+02	7.681E+02	1.151E+06	7.736E+01
2020	3.186E+03	2.551E+06	1.714E+02	8.510E+02	1.276E+06	8.571E+01
2021	3.495E+03	2.799E+06	1.880E+02	9.335E+02	1.399E+06	9.402E+01
2022	3.803E+03	3.045E+06	2.046E+02	1.016E+03	1.522E+06	1.023E+02
2023	4.110E+03	3.291E+06	2.211E+02	1.098E+03	1.645E+06	1.106E+02
2024	4.416E+03	3.537E+06	2.376E+02	1.180E+03	1.768E+06	1.188E+02
2025	4.724E+03	3.782E+06	2.541E+02	1.262E+03	1.891E+06	1.271E+02
2026	4.887E+03	3.914E+06	2.630E+02	1.305E+03	1.957E+06	1.315E+02
2027	4.649E+03	3.723E+06	2.501E+02	1.242E+03	1.861E+06	1.251E+02
2028	4.422E+03	3.541E+06	2.379E+02	1.181E+03	1.771E+06	1.190E+02
2029	4.207E+03	3.368E+06	2.263E+02	1.124E+03	1.684E+06	1.132E+02
2030	4.001E+03	3.204E+06	2.153E+02	1.069E+03	1.602E+06	1.076E+02
2031	3.806E+03	3.048E+06	2.048E+02	1.017E+03	1.524E+06	1.024E+02
2032	3.621E+03	2.899E+06	1.948E+02	9.671E+02	1.450E+06	9.740E+01
2033	3.444E+03	2.758E+06	1.853E+02	9.199E+02	1.379E+06	9.265E+01
2034	3.276E+03	2.623E+06	1.763E+02	8.751E+02	1.312E+06	8.813E+01
2035	3.116E+03	2.495E+06	1.677E+02	8.324E+02	1.248E+06	8.383E+01
2036	2.964E+03	2.374E+06	1.595E+02	7.918E+02	1.187E+06	7.974E+01
2037	2.820E+03	2.258E+06	1.517E+02	7.532E+02	1.129E+06	7.586E+01
2038	2.682E+03	2.148E+06	1.443E+02	7.165E+02	1.074E+06	7.216E+01
2039	2.551E+03	2.043E+06	1.373E+02	6.815E+02	1.022E+06	6.864E+01
2040	2.427E+03	1.943E+06	1.306E+02	6.483E+02	9.717E+05	6.529E+01
2041	2.309E+03	1.849E+06	1.242E+02	6.167E+02	9.243E+05	6.210E+01
2042	2.196E+03	1.758E+06	1.182E+02	5.866E+02	8.792E+05	5.908E+01
2043	2.089E+03	1.673E+06	1.124E+02	5.580E+02	8.364E+05	5.619E+01
2044	1.987E+03	1.591E+06	1.069E+02	5.308E+02	7.956E+05	5.345E+01
2045	1.890E+03	1.514E+06	1.017E+02	5.049E+02	7.568E+05	5.085E+01
2046	1.798E+03	1.440E+06	9.673E+01	4.803E+02	7.199E+05	4.837E+01
2047	1.710E+03	1.370E+06	9.202E+01	4.568E+02	6.848E+05	4.601E+01
2048	1.627E+03	1.303E+06	8.753E+01	4.346E+02	6.514E+05	4.376E+01
2049	1.548E+03	1.239E+06	8.326E+01	4.134E+02	6.196E+05	4.163E+01
2050	1.472E+03	1.179E+06	7.920E+01	3.932E+02	5.894E+05	3.960E+01
2051	1.400E+03	1.121E+06	7.534E+01	3.740E+02	5.606E+05	3.767E+01
2052	1.332E+03	1.067E+06	7.166E+01	3.558E+02	5.333E+05	3.583E+01
2053	1.267E+03	1.015E+06	6.817E+01	3.384E+02	5.073E+05	3.408E+01
2054	1.205E+03	9.651E+05	6.484E+01	3.219E+02	4.825E+05	3.242E+01
2055	1.146E+03	9.180E+05	6.168E+01	3.062E+02	4.590E+05	3.084E+01
2056	1.091E+03	8.732E+05	5.867E+01	2.913E+02	4.366E+05	2.934E+01
2057	1.037E+03	8.306E+05	5.581E+01	2.771E+02	4.153E+05	2.791E+01

**Results (Continued)**

Year	Total landfill gas			Methane		
	(Mg/year)	(m <sup>3</sup> /year)	(av ft <sup>3</sup> /min)	(Mg/year)	(m <sup>3</sup> /year)	(av ft <sup>3</sup> /min)
2058	9.867E+02	7.901E+05	5.309E+01	2.636E+02	3.951E+05	2.654E+01
2059	9.386E+02	7.516E+05	5.050E+01	2.507E+02	3.758E+05	2.525E+01
2060	8.928E+02	7.149E+05	4.804E+01	2.385E+02	3.575E+05	2.402E+01
2061	8.493E+02	6.801E+05	4.569E+01	2.269E+02	3.400E+05	2.285E+01
2062	8.079E+02	6.469E+05	4.347E+01	2.158E+02	3.235E+05	2.173E+01
2063	7.685E+02	6.154E+05	4.135E+01	2.053E+02	3.077E+05	2.067E+01
2064	7.310E+02	5.853E+05	3.933E+01	1.953E+02	2.927E+05	1.966E+01
2065	6.953E+02	5.568E+05	3.741E+01	1.857E+02	2.784E+05	1.871E+01
2066	6.614E+02	5.296E+05	3.559E+01	1.767E+02	2.648E+05	1.779E+01
2067	6.292E+02	5.038E+05	3.385E+01	1.681E+02	2.519E+05	1.693E+01
2068	5.985E+02	4.792E+05	3.220E+01	1.599E+02	2.396E+05	1.610E+01
2069	5.693E+02	4.559E+05	3.063E+01	1.521E+02	2.279E+05	1.531E+01
2070	5.415E+02	4.336E+05	2.914E+01	1.446E+02	2.168E+05	1.457E+01
2071	5.151E+02	4.125E+05	2.771E+01	1.376E+02	2.062E+05	1.386E+01
2072	4.900E+02	3.924E+05	2.636E+01	1.309E+02	1.962E+05	1.318E+01
2073	4.661E+02	3.732E+05	2.508E+01	1.245E+02	1.866E+05	1.254E+01
2074	4.434E+02	3.550E+05	2.385E+01	1.184E+02	1.775E+05	1.193E+01
2075	4.217E+02	3.377E+05	2.269E+01	1.127E+02	1.689E+05	1.135E+01
2076	4.012E+02	3.212E+05	2.158E+01	1.072E+02	1.606E+05	1.079E+01
2077	3.816E+02	3.056E+05	2.053E+01	1.019E+02	1.528E+05	1.027E+01
2078	3.630E+02	2.907E+05	1.953E+01	9.696E+01	1.453E+05	9.765E+00
2079	3.453E+02	2.765E+05	1.858E+01	9.223E+01	1.382E+05	9.289E+00
2080	3.285E+02	2.630E+05	1.767E+01	8.773E+01	1.315E+05	8.836E+00
2081	3.124E+02	2.502E+05	1.681E+01	8.346E+01	1.251E+05	8.405E+00
2082	2.972E+02	2.380E+05	1.599E+01	7.939E+01	1.190E+05	7.995E+00
2083	2.827E+02	2.264E+05	1.521E+01	7.551E+01	1.132E+05	7.605E+00
2084	2.689E+02	2.153E+05	1.447E+01	7.183E+01	1.077E+05	7.234E+00
2085	2.558E+02	2.048E+05	1.376E+01	6.833E+01	1.024E+05	6.881E+00
2086	2.433E+02	1.948E+05	1.309E+01	6.500E+01	9.742E+04	6.546E+00
2087	2.315E+02	1.853E+05	1.245E+01	6.183E+01	9.267E+04	6.227E+00
2088	2.202E+02	1.763E+05	1.185E+01	5.881E+01	8.815E+04	5.923E+00
2089	2.094E+02	1.677E+05	1.127E+01	5.594E+01	8.385E+04	5.634E+00
2090	1.992E+02	1.595E+05	1.072E+01	5.321E+01	7.976E+04	5.359E+00
2091	1.895E+02	1.517E+05	1.020E+01	5.062E+01	7.587E+04	5.098E+00
2092	1.803E+02	1.443E+05	9.699E+00	4.815E+01	7.217E+04	4.849E+00
2093	1.715E+02	1.373E+05	9.226E+00	4.580E+01	6.865E+04	4.613E+00
2094	1.631E+02	1.306E+05	8.776E+00	4.357E+01	6.530E+04	4.388E+00
2095	1.552E+02	1.242E+05	8.348E+00	4.144E+01	6.212E+04	4.174E+00
2096	1.476E+02	1.182E+05	7.940E+00	3.942E+01	5.909E+04	3.970E+00
2097	1.404E+02	1.124E+05	7.553E+00	3.750E+01	5.621E+04	3.777E+00
2098	1.335E+02	1.069E+05	7.185E+00	3.567E+01	5.347E+04	3.592E+00
2099	1.270E+02	1.017E+05	6.834E+00	3.393E+01	5.086E+04	3.417E+00
2100	1.208E+02	9.676E+04	6.501E+00	3.228E+01	4.838E+04	3.251E+00
2101	1.149E+02	9.204E+04	6.184E+00	3.070E+01	4.602E+04	3.092E+00
2102	1.093E+02	8.755E+04	5.882E+00	2.920E+01	4.377E+04	2.941E+00
2103	1.040E+02	8.328E+04	5.596E+00	2.778E+01	4.164E+04	2.798E+00
2104	9.893E+01	7.922E+04	5.323E+00	2.643E+01	3.961E+04	2.661E+00
2105	9.410E+01	7.535E+04	5.063E+00	2.514E+01	3.768E+04	2.532E+00
2106	8.951E+01	7.168E+04	4.816E+00	2.391E+01	3.584E+04	2.408E+00
2107	8.515E+01	6.818E+04	4.581E+00	2.274E+01	3.409E+04	2.291E+00
2108	8.100E+01	6.486E+04	4.358E+00	2.164E+01	3.243E+04	2.179E+00



**Results (Continued)**

Year	Total landfill gas			Methane		
	(Mg/year)	(m <sup>3</sup> /year)	(av ft <sup>3</sup> /min)	(Mg/year)	(m <sup>3</sup> /year)	(av ft <sup>3</sup> /min)
2109	7.705E+01	6.170E+04	4.145E+00	2.058E+01	3.085E+04	2.073E+00
2110	7.329E+01	5.869E+04	3.943E+00	1.958E+01	2.934E+04	1.972E+00
2111	6.971E+01	5.582E+04	3.751E+00	1.862E+01	2.791E+04	1.875E+00
2112	6.631E+01	5.310E+04	3.568E+00	1.771E+01	2.655E+04	1.784E+00
2113	6.308E+01	5.051E+04	3.394E+00	1.685E+01	2.526E+04	1.697E+00
2114	6.000E+01	4.805E+04	3.228E+00	1.603E+01	2.402E+04	1.614E+00
2115	5.708E+01	4.570E+04	3.071E+00	1.525E+01	2.285E+04	1.535E+00
2116	5.429E+01	4.348E+04	2.921E+00	1.450E+01	2.174E+04	1.461E+00
2117	5.165E+01	4.136E+04	2.779E+00	1.380E+01	2.068E+04	1.389E+00
2118	4.913E+01	3.934E+04	2.643E+00	1.312E+01	1.967E+04	1.322E+00
2119	4.673E+01	3.742E+04	2.514E+00	1.248E+01	1.871E+04	1.257E+00
2120	4.445E+01	3.559E+04	2.392E+00	1.187E+01	1.780E+04	1.196E+00
2121	4.228E+01	3.386E+04	2.275E+00	1.129E+01	1.693E+04	1.137E+00
2122	4.022E+01	3.221E+04	2.164E+00	1.074E+01	1.610E+04	1.082E+00
2123	3.826E+01	3.064E+04	2.058E+00	1.022E+01	1.532E+04	1.029E+00
2124	3.639E+01	2.914E+04	1.958E+00	9.721E+00	1.457E+04	9.790E-01
2125	3.462E+01	2.772E+04	1.863E+00	9.247E+00	1.386E+04	9.313E-01
2126	3.293E+01	2.637E+04	1.772E+00	8.796E+00	1.318E+04	8.859E-01
2127	3.132E+01	2.508E+04	1.685E+00	8.367E+00	1.254E+04	8.427E-01
2128	2.980E+01	2.386E+04	1.603E+00	7.959E+00	1.193E+04	8.016E-01
2129	2.834E+01	2.270E+04	1.525E+00	7.571E+00	1.135E+04	7.625E-01
2130	2.696E+01	2.159E+04	1.451E+00	7.202E+00	1.079E+04	7.253E-01
2131	2.565E+01	2.054E+04	1.380E+00	6.850E+00	1.027E+04	6.899E-01
2132	2.440E+01	1.953E+04	1.313E+00	6.516E+00	9.767E+03	6.563E-01
2133	2.321E+01	1.858E+04	1.249E+00	6.199E+00	9.291E+03	6.243E-01
2134	2.207E+01	1.768E+04	1.188E+00	5.896E+00	8.838E+03	5.938E-01
2135	2.100E+01	1.681E+04	1.130E+00	5.609E+00	8.407E+03	5.649E-01
2136	1.997E+01	1.599E+04	1.075E+00	5.335E+00	7.997E+03	5.373E-01
2137	1.900E+01	1.521E+04	1.022E+00	5.075E+00	7.607E+03	5.111E-01
2138	1.807E+01	1.447E+04	9.724E-01	4.827E+00	7.236E+03	4.862E-01
2139	1.719E+01	1.377E+04	9.249E-01	4.592E+00	6.883E+03	4.625E-01
2140	1.635E+01	1.309E+04	8.798E-01	4.368E+00	6.547E+03	4.399E-01
2141	1.556E+01	1.246E+04	8.369E-01	4.155E+00	6.228E+03	4.185E-01
2142	1.480E+01	1.185E+04	7.961E-01	3.952E+00	5.924E+03	3.981E-01
2143	1.408E+01	1.127E+04	7.573E-01	3.760E+00	5.635E+03	3.786E-01
2144	1.339E+01	1.072E+04	7.203E-01	3.576E+00	5.360E+03	3.602E-01
2145	1.274E+01	1.020E+04	6.852E-01	3.402E+00	5.099E+03	3.426E-01
2146	1.211E+01	9.701E+03	6.518E-01	3.236E+00	4.850E+03	3.259E-01
2147	1.152E+01	9.228E+03	6.200E-01	3.078E+00	4.614E+03	3.100E-01
2148	1.096E+01	8.778E+03	5.898E-01	2.928E+00	4.389E+03	2.949E-01

**Results (Continued)**

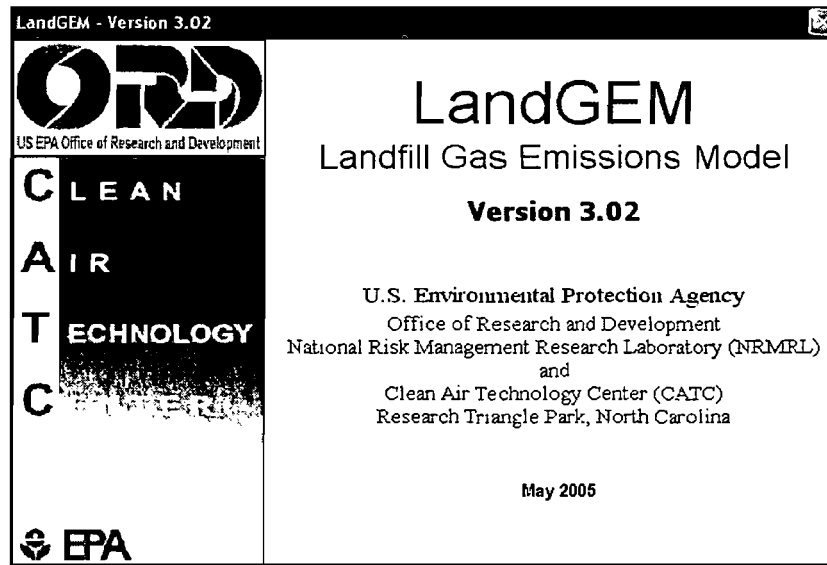
Year	Carbon dioxide			NMOC		
	(Mg/year)	(m <sup>3</sup> /year)	(av ft <sup>3</sup> /min)	(Mg/year)	(m <sup>3</sup> /year)	(av ft <sup>3</sup> /min)
2008	0	0	0	0	0	0
2009	6.759E+01	3.692E+04	2.481E+00	1.482E-02	4.135E+00	2.779E-04
2010	2.763E+02	1.509E+05	1.014E+01	6.060E-02	1.691E+01	1.136E-03
2011	4.672E+02	2.552E+05	1.715E+01	1.025E-01	2.859E+01	1.921E-03
2012	5.355E+02	2.925E+05	1.966E+01	1.174E-01	3.276E+01	2.201E-03
2013	6.963E+02	3.804E+05	2.556E+01	1.527E-01	4.260E+01	2.863E-03
2014	9.390E+02	5.130E+05	3.447E+01	2.059E-01	5.745E+01	3.860E-03
2015	1.178E+03	6.436E+05	4.324E+01	2.584E-01	7.208E+01	4.843E-03
2016	1.414E+03	7.725E+05	5.191E+01	3.101E-01	8.652E+01	5.814E-03
2017	1.647E+03	9.000E+05	6.047E+01	3.613E-01	1.008E+02	6.773E-03
2018	1.878E+03	1.026E+06	6.895E+01	4.120E-01	1.149E+02	7.722E-03
2019	2.108E+03	1.151E+06	7.736E+01	4.622E-01	1.289E+02	8.664E-03
2020	2.335E+03	1.276E+06	8.571E+01	5.121E-01	1.429E+02	9.599E-03
2021	2.561E+03	1.399E+06	9.402E+01	5.618E-01	1.567E+02	1.053E-02
2022	2.787E+03	1.522E+06	1.023E+02	6.112E-01	1.705E+02	1.146E-02
2023	3.012E+03	1.645E+06	1.106E+02	6.606E-01	1.843E+02	1.238E-02
2024	3.237E+03	1.768E+06	1.188E+02	7.099E-01	1.980E+02	1.331E-02
2025	3.462E+03	1.891E+06	1.271E+02	7.592E-01	2.118E+02	1.423E-02
2026	3.582E+03	1.957E+06	1.315E+02	7.856E-01	2.192E+02	1.473E-02
2027	3.407E+03	1.861E+06	1.251E+02	7.473E-01	2.085E+02	1.401E-02
2028	3.241E+03	1.771E+06	1.190E+02	7.108E-01	1.983E+02	1.332E-02
2029	3.083E+03	1.684E+06	1.132E+02	6.761E-01	1.886E+02	1.267E-02
2030	2.933E+03	1.602E+06	1.076E+02	6.432E-01	1.794E+02	1.206E-02
2031	2.790E+03	1.524E+06	1.024E+02	6.118E-01	1.707E+02	1.147E-02
2032	2.654E+03	1.450E+06	9.740E+01	5.820E-01	1.624E+02	1.091E-02
2033	2.524E+03	1.379E+06	9.265E+01	5.536E-01	1.544E+02	1.038E-02
2034	2.401E+03	1.312E+06	8.813E+01	5.266E-01	1.469E+02	9.871E-03
2035	2.284E+03	1.248E+06	8.383E+01	5.009E-01	1.397E+02	9.389E-03
2036	2.173E+03	1.187E+06	7.974E+01	4.765E-01	1.329E+02	8.931E-03
2037	2.067E+03	1.129E+06	7.586E+01	4.532E-01	1.264E+02	8.496E-03
2038	1.966E+03	1.074E+06	7.216E+01	4.311E-01	1.203E+02	8.081E-03
2039	1.870E+03	1.022E+06	6.864E+01	4.101E-01	1.144E+02	7.687E-03
2040	1.779E+03	9.717E+05	6.529E+01	3.901E-01	1.088E+02	7.312E-03
2041	1.692E+03	9.243E+05	6.210E+01	3.711E-01	1.035E+02	6.956E-03
2042	1.609E+03	8.792E+05	5.908E+01	3.530E-01	9.847E+01	6.617E-03
2043	1.531E+03	8.364E+05	5.619E+01	3.358E-01	9.367E+01	6.294E-03
2044	1.456E+03	7.956E+05	5.345E+01	3.194E-01	8.910E+01	5.987E-03
2045	1.385E+03	7.568E+05	5.085E+01	3.038E-01	8.476E+01	5.695E-03
2046	1.318E+03	7.199E+05	4.837E+01	2.890E-01	8.062E+01	5.417E-03
2047	1.253E+03	6.848E+05	4.601E+01	2.749E-01	7.669E+01	5.153E-03
2048	1.192E+03	6.514E+05	4.376E+01	2.615E-01	7.295E+01	4.902E-03
2049	1.134E+03	6.196E+05	4.163E+01	2.487E-01	6.939E+01	4.663E-03
2050	1.079E+03	5.894E+05	3.960E+01	2.366E-01	6.601E+01	4.435E-03
2051	1.026E+03	5.606E+05	3.767E+01	2.251E-01	6.279E+01	4.219E-03
2052	9.762E+02	5.333E+05	3.583E+01	2.141E-01	5.973E+01	4.013E-03
2053	9.286E+02	5.073E+05	3.408E+01	2.037E-01	5.682E+01	3.817E-03
2054	8.833E+02	4.825E+05	3.242E+01	1.937E-01	5.404E+01	3.631E-03
2055	8.402E+02	4.590E+05	3.084E+01	1.843E-01	5.141E+01	3.454E-03
2056	7.992E+02	4.366E+05	2.934E+01	1.753E-01	4.890E+01	3.286E-03
2057	7.602E+02	4.153E+05	2.791E+01	1.667E-01	4.652E+01	3.125E-03

**Results (Continued)**

Year	Carbon dioxide			NMOC		
	(Mg/year)	(m <sup>3</sup> /year)	(av ft <sup>3</sup> /min)	(Mg/year)	(m <sup>3</sup> /year)	(av ft <sup>3</sup> /min)
2058	7.232E+02	3.951E+05	2.654E+01	1.586E-01	4.425E+01	2.973E-03
2059	6.879E+02	3.758E+05	2.525E+01	1.509E-01	4.209E+01	2.828E-03
2060	6.544E+02	3.575E+05	2.402E+01	1.435E-01	4.004E+01	2.690E-03
2061	6.224E+02	3.400E+05	2.285E+01	1.365E-01	3.808E+01	2.559E-03
2062	5.921E+02	3.235E+05	2.173E+01	1.299E-01	3.623E+01	2.434E-03
2063	5.632E+02	3.077E+05	2.067E+01	1.235E-01	3.446E+01	2.315E-03
2064	5.357E+02	2.927E+05	1.966E+01	1.175E-01	3.278E+01	2.202E-03
2065	5.096E+02	2.784E+05	1.871E+01	1.118E-01	3.118E+01	2.095E-03
2066	4.848E+02	2.648E+05	1.779E+01	1.063E-01	2.966E+01	1.993E-03
2067	4.611E+02	2.519E+05	1.693E+01	1.011E-01	2.821E+01	1.896E-03
2068	4.386E+02	2.396E+05	1.610E+01	9.620E-02	2.684E+01	1.803E-03
2069	4.172E+02	2.279E+05	1.531E+01	9.151E-02	2.553E+01	1.715E-03
2070	3.969E+02	2.168E+05	1.457E+01	8.704E-02	2.428E+01	1.632E-03
2071	3.775E+02	2.062E+05	1.386E+01	8.280E-02	2.310E+01	1.552E-03
2072	3.591E+02	1.962E+05	1.318E+01	7.876E-02	2.197E+01	1.476E-03
2073	3.416E+02	1.866E+05	1.254E+01	7.492E-02	2.090E+01	1.404E-03
2074	3.249E+02	1.775E+05	1.193E+01	7.127E-02	1.988E+01	1.336E-03
2075	3.091E+02	1.689E+05	1.135E+01	6.779E-02	1.891E+01	1.271E-03
2076	2.940E+02	1.606E+05	1.079E+01	6.448E-02	1.799E+01	1.209E-03
2077	2.797E+02	1.528E+05	1.027E+01	6.134E-02	1.711E+01	1.150E-03
2078	2.660E+02	1.453E+05	9.765E+00	5.835E-02	1.628E+01	1.094E-03
2079	2.531E+02	1.382E+05	9.289E+00	5.550E-02	1.548E+01	1.040E-03
2080	2.407E+02	1.315E+05	8.836E+00	5.279E-02	1.473E+01	9.896E-04
2081	2.290E+02	1.251E+05	8.405E+00	5.022E-02	1.401E+01	9.414E-04
2082	2.178E+02	1.190E+05	7.995E+00	4.777E-02	1.333E+01	8.954E-04
2083	2.072E+02	1.132E+05	7.605E+00	4.544E-02	1.268E+01	8.518E-04
2084	1.971E+02	1.077E+05	7.234E+00	4.322E-02	1.206E+01	8.102E-04
2085	1.875E+02	1.024E+05	6.881E+00	4.112E-02	1.147E+01	7.707E-04
2086	1.783E+02	9.742E+04	6.546E+00	3.911E-02	1.091E+01	7.331E-04
2087	1.696E+02	9.267E+04	6.227E+00	3.720E-02	1.038E+01	6.974E-04
2088	1.614E+02	8.815E+04	5.923E+00	3.539E-02	9.873E+00	6.634E-04
2089	1.535E+02	8.385E+04	5.634E+00	3.366E-02	9.391E+00	6.310E-04
2090	1.460E+02	7.976E+04	5.359E+00	3.202E-02	8.933E+00	6.002E-04
2091	1.389E+02	7.587E+04	5.098E+00	3.046E-02	8.498E+00	5.710E-04
2092	1.321E+02	7.217E+04	4.849E+00	2.897E-02	8.083E+00	5.431E-04
2093	1.257E+02	6.865E+04	4.613E+00	2.756E-02	7.689E+00	5.166E-04
2094	1.195E+02	6.530E+04	4.388E+00	2.622E-02	7.314E+00	4.914E-04
2095	1.137E+02	6.212E+04	4.174E+00	2.494E-02	6.957E+00	4.675E-04
2096	1.082E+02	5.909E+04	3.970E+00	2.372E-02	6.618E+00	4.447E-04
2097	1.029E+02	5.621E+04	3.777E+00	2.257E-02	6.295E+00	4.230E-04
2098	9.787E+01	5.347E+04	3.592E+00	2.146E-02	5.988E+00	4.024E-04
2099	9.310E+01	5.086E+04	3.417E+00	2.042E-02	5.696E+00	3.827E-04
2100	8.856E+01	4.838E+04	3.251E+00	1.942E-02	5.418E+00	3.641E-04
2101	8.424E+01	4.602E+04	3.092E+00	1.847E-02	5.154E+00	3.463E-04
2102	8.013E+01	4.377E+04	2.941E+00	1.757E-02	4.903E+00	3.294E-04
2103	7.622E+01	4.164E+04	2.798E+00	1.672E-02	4.664E+00	3.134E-04
2104	7.250E+01	3.961E+04	2.661E+00	1.590E-02	4.436E+00	2.981E-04
2105	6.897E+01	3.768E+04	2.532E+00	1.513E-02	4.220E+00	2.835E-04
2106	6.560E+01	3.584E+04	2.408E+00	1.439E-02	4.014E+00	2.697E-04
2107	6.241E+01	3.409E+04	2.291E+00	1.369E-02	3.818E+00	2.565E-04
2108	5.936E+01	3.243E+04	2.179E+00	1.302E-02	3.632E+00	2.440E-04

**Results (Continued)**

Year	Carbon dioxide			NMOC		
	(Mg/year)	(m <sup>3</sup> /year)	(av ft <sup>3</sup> /min)	(Mg/year)	(m <sup>3</sup> /year)	(av ft <sup>3</sup> /min)
2109	5.647E+01	3.085E+04	2.073E+00	1.238E-02	3.455E+00	2.321E-04
2110	5.371E+01	2.934E+04	1.972E+00	1.178E-02	3.286E+00	2.208E-04
2111	5.109E+01	2.791E+04	1.875E+00	1.121E-02	3.126E+00	2.100E-04
2112	4.860E+01	2.655E+04	1.784E+00	1.066E-02	2.974E+00	1.998E-04
2113	4.623E+01	2.526E+04	1.697E+00	1.014E-02	2.829E+00	1.901E-04
2114	4.398E+01	2.402E+04	1.614E+00	9.645E-03	2.691E+00	1.808E-04
2115	4.183E+01	2.285E+04	1.535E+00	9.174E-03	2.559E+00	1.720E-04
2116	3.979E+01	2.174E+04	1.461E+00	8.727E-03	2.435E+00	1.636E-04
2117	3.785E+01	2.068E+04	1.389E+00	8.301E-03	2.316E+00	1.556E-04
2118	3.600E+01	1.967E+04	1.322E+00	7.896E-03	2.203E+00	1.480E-04
2119	3.425E+01	1.871E+04	1.257E+00	7.511E-03	2.096E+00	1.408E-04
2120	3.258E+01	1.780E+04	1.196E+00	7.145E-03	1.993E+00	1.339E-04
2121	3.099E+01	1.693E+04	1.137E+00	6.797E-03	1.896E+00	1.274E-04
2122	2.948E+01	1.610E+04	1.082E+00	6.465E-03	1.804E+00	1.212E-04
2123	2.804E+01	1.532E+04	1.029E+00	6.150E-03	1.716E+00	1.153E-04
2124	2.667E+01	1.457E+04	9.790E-01	5.850E-03	1.632E+00	1.097E-04
2125	2.537E+01	1.386E+04	9.313E-01	5.565E-03	1.552E+00	1.043E-04
2126	2.413E+01	1.318E+04	8.859E-01	5.293E-03	1.477E+00	9.922E-05
2127	2.296E+01	1.254E+04	8.427E-01	5.035E-03	1.405E+00	9.438E-05
2128	2.184E+01	1.193E+04	8.016E-01	4.789E-03	1.336E+00	8.978E-05
2129	2.077E+01	1.135E+04	7.625E-01	4.556E-03	1.271E+00	8.540E-05
2130	1.976E+01	1.079E+04	7.253E-01	4.334E-03	1.209E+00	8.123E-05
2131	1.880E+01	1.027E+04	6.899E-01	4.122E-03	1.150E+00	7.727E-05
2132	1.788E+01	9.767E+03	6.563E-01	3.921E-03	1.094E+00	7.350E-05
2133	1.701E+01	9.291E+03	6.243E-01	3.730E-03	1.041E+00	6.992E-05
2134	1.618E+01	8.838E+03	5.938E-01	3.548E-03	9.899E-01	6.651E-05
2135	1.539E+01	8.407E+03	5.649E-01	3.375E-03	9.416E-01	6.326E-05
2136	1.464E+01	7.997E+03	5.373E-01	3.210E-03	8.957E-01	6.018E-05
2137	1.392E+01	7.607E+03	5.111E-01	3.054E-03	8.520E-01	5.724E-05
2138	1.325E+01	7.236E+03	4.862E-01	2.905E-03	8.104E-01	5.445E-05
2139	1.260E+01	6.883E+03	4.625E-01	2.763E-03	7.709E-01	5.180E-05
2140	1.198E+01	6.547E+03	4.399E-01	2.628E-03	7.333E-01	4.927E-05
2141	1.140E+01	6.228E+03	4.185E-01	2.500E-03	6.975E-01	4.687E-05
2142	1.084E+01	5.924E+03	3.981E-01	2.378E-03	6.635E-01	4.458E-05
2143	1.032E+01	5.635E+03	3.786E-01	2.262E-03	6.312E-01	4.241E-05
2144	9.812E+00	5.360E+03	3.602E-01	2.152E-03	6.004E-01	4.034E-05
2145	9.334E+00	5.099E+03	3.426E-01	2.047E-03	5.711E-01	3.837E-05
2146	8.879E+00	4.850E+03	3.259E-01	1.947E-03	5.432E-01	3.650E-05
2147	8.446E+00	4.614E+03	3.100E-01	1.852E-03	5.167E-01	3.472E-05
2148	8.034E+00	4.389E+03	2.949E-01	1.762E-03	4.915E-01	3.303E-05



## Summary Report

Landfill Name or Identifier: Lee/Hendry - Class III Landfill

Date: Friday, June 21, 2013

### 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	2009	
Landfill Closure Year (with 80-year limit)	2037	
Actual Closure Year (without limit)	2037	
Have Model Calculate Closure Year?	No	
Waste Design Capacity	1,331,490	short tons

## MODEL PARAMETERS

Methane Generation Rate, k	0.050	year <sup>-1</sup>
Potential Methane Generation Capacity, L <sub>0</sub>	170	m <sup>3</sup> /Mg
NMOC Concentration	1,083	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)
2009	20,841	22,925	0	0
2010	32,798	36,078	20,841	22,925
2011	27,586	30,344	53,639	59,003
2012	19,118	21,030	81,225	89,348
2013	31,818	35,000	100,343	110,378
2014	32,773	36,050	132,162	145,378
2015	33,756	37,132	164,934	181,428
2016	34,769	38,245	198,690	218,559
2017	35,812	39,393	233,459	256,805
2018	36,886	40,575	269,270	296,197
2019	37,993	41,792	306,156	336,772
2020	39,132	43,046	344,149	378,564
2021	40,306	44,337	383,281	421,609
2022	41,516	45,667	423,588	465,946
2023	42,761	47,037	465,103	511,613
2024	44,044	48,448	507,864	558,650
2025	45,365	49,902	551,908	607,099
2026	46,726	51,399	597,273	657,000
2027	48,128	52,941	643,999	708,399
2028	49,572	54,529	692,127	761,340
2029	51,059	56,165	741,699	815,868
2030	52,591	57,850	792,757	872,033
2031	54,168	59,585	845,348	929,883
2032	55,793	61,373	899,516	989,468
2033	57,467	63,214	955,310	1,050,841
2034	59,191	65,110	1,012,777	1,114,055
2035	60,967	67,064	1,071,968	1,179,165
2036	62,796	69,076	1,132,935	1,246,229
2037	14,715	16,186	1,195,731	1,315,304
2038	0	0	1,210,446	1,331,490
2039	0	0	1,210,446	1,331,490
2040	0	0	1,210,446	1,331,490
2041	0	0	1,210,446	1,331,490
2042	0	0	1,210,446	1,331,490
2043	0	0	1,210,446	1,331,490
2044	0	0	1,210,446	1,331,490
2045	0	0	1,210,446	1,331,490
2046	0	0	1,210,446	1,331,490
2047	0	0	1,210,446	1,331,490
2048	0	0	1,210,446	1,331,490

## WASTE ACCEPTANCE RATES (Continued)

Year	Waste Accepted		Waste-In-Place	
	(Mg/year)	(short tons/year)	(Mg)	(short tons)
2049	0	0	1,210,446	1,331,490
2050	0	0	1,210,446	1,331,490
2051	0	0	1,210,446	1,331,490
2052	0	0	1,210,446	1,331,490
2053	0	0	1,210,446	1,331,490
2054	0	0	1,210,446	1,331,490
2055	0	0	1,210,446	1,331,490
2056	0	0	1,210,446	1,331,490
2057	0	0	1,210,446	1,331,490
2058	0	0	1,210,446	1,331,490
2059	0	0	1,210,446	1,331,490
2060	0	0	1,210,446	1,331,490
2061	0	0	1,210,446	1,331,490
2062	0	0	1,210,446	1,331,490
2063	0	0	1,210,446	1,331,490
2064	0	0	1,210,446	1,331,490
2065	0	0	1,210,446	1,331,490
2066	0	0	1,210,446	1,331,490
2067	0	0	1,210,446	1,331,490
2068	0	0	1,210,446	1,331,490
2069	0	0	1,210,446	1,331,490
2070	0	0	1,210,446	1,331,490
2071	0	0	1,210,446	1,331,490
2072	0	0	1,210,446	1,331,490
2073	0	0	1,210,446	1,331,490
2074	0	0	1,210,446	1,331,490
2075	0	0	1,210,446	1,331,490
2076	0	0	1,210,446	1,331,490
2077	0	0	1,210,446	1,331,490
2078	0	0	1,210,446	1,331,490
2079	0	0	1,210,446	1,331,490
2080	0	0	1,210,446	1,331,490
2081	0	0	1,210,446	1,331,490
2082	0	0	1,210,446	1,331,490
2083	0	0	1,210,446	1,331,490
2084	0	0	1,210,446	1,331,490
2085	0	0	1,210,446	1,331,490
2086	0	0	1,210,446	1,331,490
2087	0	0	1,210,446	1,331,490
2088	0	0	1,210,446	1,331,490

**Pollutant Parameters****Gas / Pollutant Default Parameters:****User-specified Pollutant Parameters:**

	Compound	Concentration (ppmv)	Molecular Weight	Concentration (ppmv)	Molecular Weight
<b>Gases</b>	Total landfill gas		0.00		
	Methane		16.04		
	Carbon dioxide		44.01		
	NMOC	4,000	86.18		
<b>Pollutants</b>	1,1,1-Trichloroethane (methyl chloroform) - HAP	0.48	133.41		
	1,1,2,2-Tetrachloroethane - HAP/VOC	1.1	167.85		
	1,1-Dichloroethane (ethylidene dichloride) - HAP/VOC	2.4	98.97		
	1,1-Dichloroethene (vinylidene chloride) - HAP/VOC	0.20	96.94		
	1,2-Dichloroethane (ethylene dichloride) - HAP/VOC	0.41	98.96		
	1,2-Dichloropropane (propylene dichloride) - HAP/VOC	0.18	112.99		
	2-Propanol (isopropyl alcohol) - VOC	50	60.11		
	Acetone	7.0	58.08		
	Acrylonitrile - HAP/VOC	6.3	53.06		
	Benzene - No or Unknown Co-disposal - HAP/VOC	1.9	78.11		
	Benzene - Co-disposal - HAP/VOC	11	78.11		
	Bromodichloromethane - VOC	3.1	163.83		
	Butane - VOC	5.0	58.12		
	Carbon disulfide - HAP/VOC	0.58	76.13		
	Carbon monoxide	140	28.01		
	Carbon tetrachloride - HAP/VOC	4.0E-03	153.84		
	Carbonyl sulfide - HAP/VOC	0.49	60.07		
	Chlorobenzene - HAP/VOC	0.25	112.56		
	Chlorodifluoromethane	1.3	86.47		
	Chloroethane (ethyl chloride) - HAP/VOC	1.3	64.52		
	Chloroform - HAP/VOC	0.03	119.39		
	Chloromethane - VOC	1.2	50.49		
	Dichlorobenzene - (HAP for para isomer/VOC)	0.21	147		
	Dichlorodifluoromethane	16	120.91		
	Dichlorofluoromethane - VOC	2.6	102.92		
	Dichloromethane (methylene chloride) - HAP	14	84.94		
	Dimethyl sulfide (methyl sulfide) - VOC	7.8	62.13		
	Ethane	890	30.07		
	Ethanol - VOC	27	46.08		

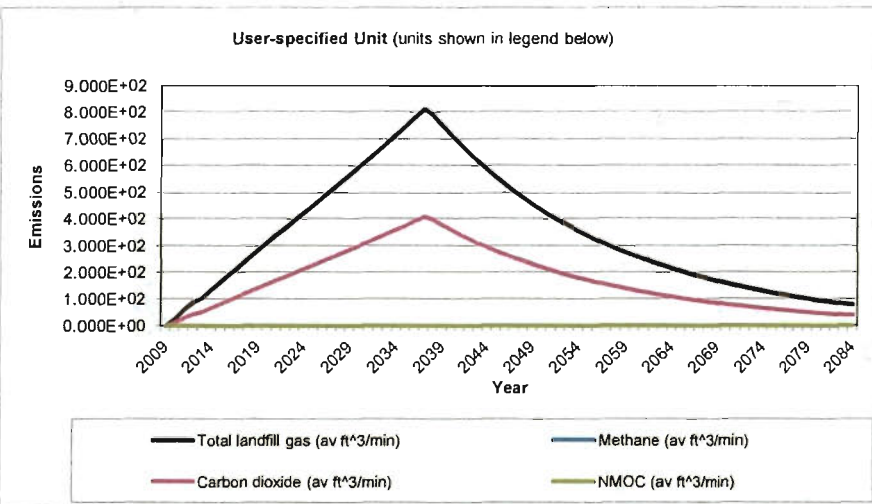
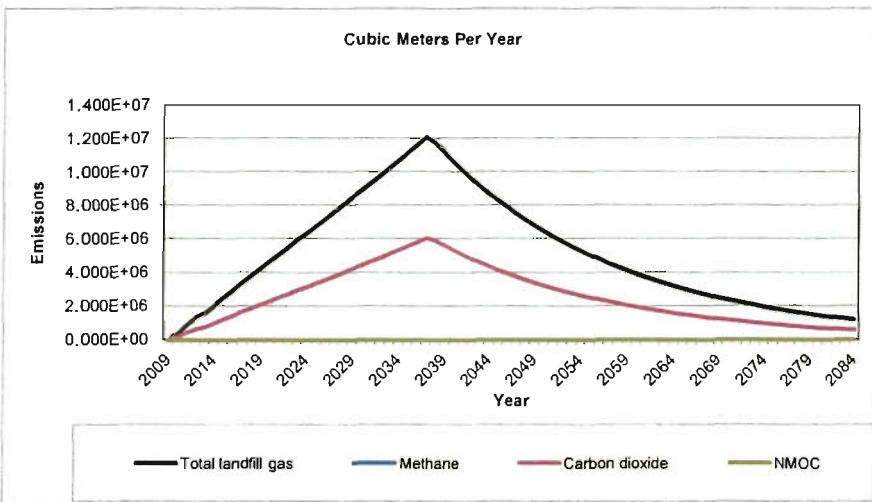
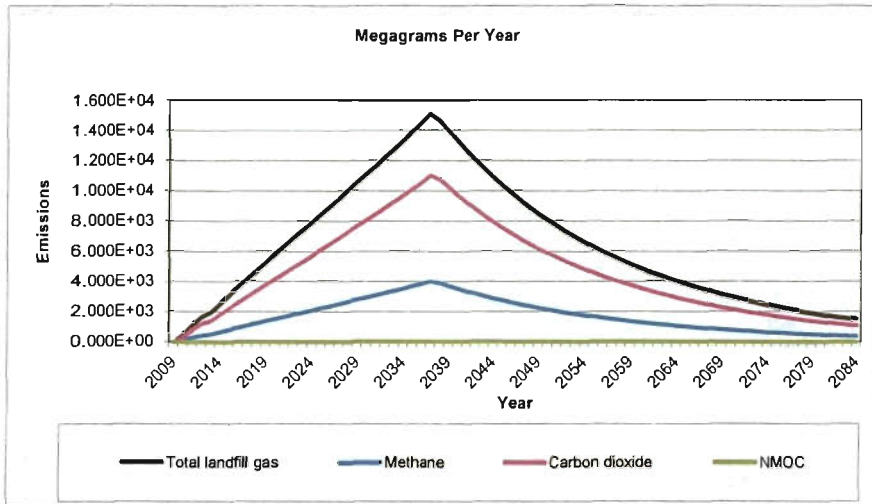


**Pollutant Parameters (Continued)**

		<i>Gas / Pollutant Default Parameters:</i>		<i>User-specified Pollutant Parameters:</i>	
		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 <sup>3</sup> /year)	(av ft <sup>3</sup> /min)	(Mg/year)	(m <sup>3</sup> /year)	(av ft <sup>3</sup> /min)
2009	0	0	0	0	0	0
2010	4.327E+02	3.464E+05	2.328E+01	1.156E+02	1.732E+05	1.164E+01
2011	1.092E+03	8.748E+05	5.878E+01	2.918E+02	4.374E+05	2.939E+01
2012	1.612E+03	1.291E+06	8.672E+01	4.305E+02	6.453E+05	4.336E+01
2013	1.930E+03	1.546E+06	1.038E+02	5.156E+02	7.728E+05	5.192E+01
2014	2.497E+03	1.999E+06	1.343E+02	6.668E+02	9.996E+05	6.716E+01
2015	3.055E+03	2.446E+06	1.644E+02	8.161E+02	1.223E+06	8.219E+01
2016	3.607E+03	2.888E+06	1.941E+02	9.634E+02	1.444E+06	9.703E+01
2017	4.153E+03	3.325E+06	2.234E+02	1.109E+03	1.663E+06	1.117E+02
2018	4.694E+03	3.758E+06	2.525E+02	1.254E+03	1.879E+06	1.263E+02
2019	5.231E+03	4.188E+06	2.814E+02	1.397E+03	2.094E+06	1.407E+02
2020	5.764E+03	4.616E+06	3.101E+02	1.540E+03	2.308E+06	1.551E+02
2021	6.295E+03	5.041E+06	3.387E+02	1.682E+03	2.521E+06	1.694E+02
2022	6.825E+03	5.465E+06	3.672E+02	1.823E+03	2.733E+06	1.836E+02
2023	7.354E+03	5.889E+06	3.957E+02	1.964E+03	2.944E+06	1.978E+02
2024	7.883E+03	6.312E+06	4.241E+02	2.106E+03	3.156E+06	2.121E+02
2025	8.413E+03	6.737E+06	4.526E+02	2.247E+03	3.368E+06	2.263E+02
2026	8.944E+03	7.162E+06	4.812E+02	2.389E+03	3.581E+06	2.406E+02
2027	9.478E+03	7.590E+06	5.100E+02	2.532E+03	3.795E+06	2.550E+02
2028	1.002E+04	8.020E+06	5.388E+02	2.675E+03	4.010E+06	2.694E+02
2029	1.056E+04	8.453E+06	5.679E+02	2.820E+03	4.226E+06	2.840E+02
2030	1.110E+04	8.889E+06	5.973E+02	2.965E+03	4.445E+06	2.986E+02
2031	1.165E+04	9.330E+06	6.269E+02	3.112E+03	4.665E+06	3.134E+02
2032	1.221E+04	9.775E+06	6.568E+02	3.261E+03	4.888E+06	3.284E+02
2033	1.277E+04	1.023E+07	6.871E+02	3.411E+03	5.113E+06	3.435E+02
2034	1.334E+04	1.068E+07	7.178E+02	3.563E+03	5.341E+06	3.589E+02
2035	1.392E+04	1.115E+07	7.489E+02	3.718E+03	5.573E+06	3.744E+02
2036	1.451E+04	1.162E+07	7.804E+02	3.875E+03	5.808E+06	3.902E+02
2037	1.510E+04	1.209E+07	8.125E+02	4.034E+03	6.046E+06	4.063E+02
2038	1.467E+04	1.175E+07	7.893E+02	3.919E+03	5.874E+06	3.947E+02
2039	1.396E+04	1.117E+07	7.508E+02	3.728E+03	5.587E+06	3.754E+02
2040	1.327E+04	1.063E+07	7.142E+02	3.546E+03	5.315E+06	3.571E+02
2041	1.263E+04	1.011E+07	6.794E+02	3.373E+03	5.056E+06	3.397E+02
2042	1.201E+04	9.618E+06	6.462E+02	3.208E+03	4.809E+06	3.231E+02
2043	1.143E+04	9.149E+06	6.147E+02	3.052E+03	4.575E+06	3.074E+02
2044	1.087E+04	8.703E+06	5.847E+02	2.903E+03	4.351E+06	2.924E+02
2045	1.034E+04	8.278E+06	5.562E+02	2.761E+03	4.139E+06	2.781E+02
2046	9.834E+03	7.875E+06	5.291E+02	2.627E+03	3.937E+06	2.646E+02
2047	9.355E+03	7.491E+06	5.033E+02	2.499E+03	3.745E+06	2.516E+02
2048	8.898E+03	7.125E+06	4.788E+02	2.377E+03	3.563E+06	2.394E+02
2049	8.464E+03	6.778E+06	4.554E+02	2.261E+03	3.389E+06	2.277E+02
2050	8.052E+03	6.447E+06	4.332E+02	2.151E+03	3.224E+06	2.166E+02
2051	7.659E+03	6.133E+06	4.121E+02	2.046E+03	3.066E+06	2.060E+02
2052	7.285E+03	5.834E+06	3.920E+02	1.946E+03	2.917E+06	1.960E+02
2053	6.930E+03	5.549E+06	3.729E+02	1.851E+03	2.775E+06	1.864E+02
2054	6.592E+03	5.279E+06	3.547E+02	1.761E+03	2.639E+06	1.773E+02
2055	6.271E+03	5.021E+06	3.374E+02	1.675E+03	2.511E+06	1.687E+02
2056	5.965E+03	4.776E+06	3.209E+02	1.593E+03	2.388E+06	1.605E+02
2057	5.674E+03	4.543E+06	3.053E+02	1.516E+03	2.272E+06	1.526E+02
2058	5.397E+03	4.322E+06	2.904E+02	1.442E+03	2.161E+06	1.452E+02

**Results (Continued)**

Year	Total landfill gas			Methane		
	(Mg/year)	(m <sup>3</sup> /year)	(av ft <sup>3</sup> /min)	(Mg/year)	(m <sup>3</sup> /year)	(av ft <sup>3</sup> /min)
2059	5.134E+03	4.111E+06	2.762E+02	1.371E+03	2.055E+06	1.381E+02
2060	4.883E+03	3.910E+06	2.627E+02	1.304E+03	1.955E+06	1.314E+02
2061	4.645E+03	3.720E+06	2.499E+02	1.241E+03	1.860E+06	1.250E+02
2062	4.419E+03	3.538E+06	2.377E+02	1.180E+03	1.769E+06	1.189E+02
2063	4.203E+03	3.366E+06	2.261E+02	1.123E+03	1.683E+06	1.131E+02
2064	3.998E+03	3.202E+06	2.151E+02	1.068E+03	1.601E+06	1.076E+02
2065	3.803E+03	3.045E+06	2.046E+02	1.016E+03	1.523E+06	1.023E+02
2066	3.618E+03	2.897E+06	1.946E+02	9.663E+02	1.448E+06	9.732E+01
2067	3.441E+03	2.756E+06	1.852E+02	9.192E+02	1.378E+06	9.258E+01
2068	3.273E+03	2.621E+06	1.761E+02	8.744E+02	1.311E+06	8.806E+01
2069	3.114E+03	2.493E+06	1.675E+02	8.317E+02	1.247E+06	8.377E+01
2070	2.962E+03	2.372E+06	1.594E+02	7.912E+02	1.186E+06	7.968E+01
2071	2.818E+03	2.256E+06	1.516E+02	7.526E+02	1.128E+06	7.580E+01
2072	2.680E+03	2.146E+06	1.442E+02	7.159E+02	1.073E+06	7.210E+01
2073	2.549E+03	2.041E+06	1.372E+02	6.810E+02	1.021E+06	6.858E+01
2074	2.425E+03	1.942E+06	1.305E+02	6.478E+02	9.709E+05	6.524E+01
2075	2.307E+03	1.847E+06	1.241E+02	6.162E+02	9.236E+05	6.206E+01
2076	2.194E+03	1.757E+06	1.181E+02	5.861E+02	8.785E+05	5.903E+01
2077	2.087E+03	1.671E+06	1.123E+02	5.575E+02	8.357E+05	5.615E+01
2078	1.985E+03	1.590E+06	1.068E+02	5.303E+02	7.949E+05	5.341E+01
2079	1.889E+03	1.512E+06	1.016E+02	5.045E+02	7.562E+05	5.081E+01
2080	1.797E+03	1.439E+06	9.666E+01	4.799E+02	7.193E+05	4.833E+01
2081	1.709E+03	1.368E+06	9.194E+01	4.565E+02	6.842E+05	4.597E+01
2082	1.626E+03	1.302E+06	8.746E+01	4.342E+02	6.508E+05	4.373E+01
2083	1.546E+03	1.238E+06	8.319E+01	4.130E+02	6.191E+05	4.160E+01
2084	1.471E+03	1.178E+06	7.914E+01	3.929E+02	5.889E+05	3.957E+01
2085	1.399E+03	1.120E+06	7.528E+01	3.737E+02	5.602E+05	3.764E+01
2086	1.331E+03	1.066E+06	7.161E+01	3.555E+02	5.329E+05	3.580E+01
2087	1.266E+03	1.014E+06	6.811E+01	3.382E+02	5.069E+05	3.406E+01
2088	1.204E+03	9.643E+05	6.479E+01	3.217E+02	4.822E+05	3.240E+01
2089	1.146E+03	9.173E+05	6.163E+01	3.060E+02	4.586E+05	3.082E+01
2090	1.090E+03	8.725E+05	5.863E+01	2.911E+02	4.363E+05	2.931E+01
2091	1.037E+03	8.300E+05	5.577E+01	2.769E+02	4.150E+05	2.788E+01
2092	9.860E+02	7.895E+05	5.305E+01	2.634E+02	3.948E+05	2.652E+01
2093	9.379E+02	7.510E+05	5.046E+01	2.505E+02	3.755E+05	2.523E+01
2094	8.921E+02	7.144E+05	4.800E+01	2.383E+02	3.572E+05	2.400E+01
2095	8.486E+02	6.795E+05	4.566E+01	2.267E+02	3.398E+05	2.283E+01
2096	8.072E+02	6.464E+05	4.343E+01	2.156E+02	3.232E+05	2.172E+01
2097	7.679E+02	6.149E+05	4.131E+01	2.051E+02	3.074E+05	2.066E+01
2098	7.304E+02	5.849E+05	3.930E+01	1.951E+02	2.924E+05	1.965E+01
2099	6.948E+02	5.564E+05	3.738E+01	1.856E+02	2.782E+05	1.869E+01
2100	6.609E+02	5.292E+05	3.556E+01	1.765E+02	2.646E+05	1.778E+01
2101	6.287E+02	5.034E+05	3.382E+01	1.679E+02	2.517E+05	1.691E+01
2102	5.980E+02	4.789E+05	3.217E+01	1.597E+02	2.394E+05	1.609E+01
2103	5.688E+02	4.555E+05	3.061E+01	1.519E+02	2.278E+05	1.530E+01
2104	5.411E+02	4.333E+05	2.911E+01	1.445E+02	2.166E+05	1.456E+01
2105	5.147E+02	4.122E+05	2.769E+01	1.375E+02	2.061E+05	1.385E+01
2106	4.896E+02	3.921E+05	2.634E+01	1.308E+02	1.960E+05	1.317E+01
2107	4.657E+02	3.729E+05	2.506E+01	1.244E+02	1.865E+05	1.253E+01
2108	4.430E+02	3.547E+05	2.384E+01	1.183E+02	1.774E+05	1.192E+01
2109	4.214E+02	3.374E+05	2.267E+01	1.126E+02	1.687E+05	1.134E+01

**Results (Continued)**

Year	Total landfill gas			Methane		
	(Mg/year)	(m <sup>3</sup> /year)	(av ft <sup>3</sup> /min)	(Mg/year)	(m <sup>3</sup> /year)	(av ft <sup>3</sup> /min)
2110	4.009E+02	3.210E+05	2.157E+01	1.071E+02	1.605E+05	1.078E+01
2111	3.813E+02	3.053E+05	2.052E+01	1.019E+02	1.527E+05	1.026E+01
2112	3.627E+02	2.904E+05	1.951E+01	9.688E+01	1.452E+05	9.757E+00
2113	3.450E+02	2.763E+05	1.856E+01	9.216E+01	1.381E+05	9.282E+00
2114	3.282E+02	2.628E+05	1.766E+01	8.767E+01	1.314E+05	8.829E+00
2115	3.122E+02	2.500E+05	1.680E+01	8.339E+01	1.250E+05	8.398E+00
2116	2.970E+02	2.378E+05	1.598E+01	7.932E+01	1.189E+05	7.989E+00
2117	2.825E+02	2.262E+05	1.520E+01	7.545E+01	1.131E+05	7.599E+00
2118	2.687E+02	2.152E+05	1.446E+01	7.177E+01	1.076E+05	7.229E+00
2119	2.556E+02	2.047E+05	1.375E+01	6.827E+01	1.023E+05	6.876E+00
2120	2.431E+02	1.947E+05	1.308E+01	6.494E+01	9.735E+04	6.541E+00
2121	2.313E+02	1.852E+05	1.244E+01	6.178E+01	9.260E+04	6.222E+00
2122	2.200E+02	1.762E+05	1.184E+01	5.876E+01	8.808E+04	5.918E+00
2123	2.093E+02	1.676E+05	1.126E+01	5.590E+01	8.379E+04	5.630E+00
2124	1.991E+02	1.594E+05	1.071E+01	5.317E+01	7.970E+04	5.355E+00
2125	1.894E+02	1.516E+05	1.019E+01	5.058E+01	7.581E+04	5.094E+00
2126	1.801E+02	1.442E+05	9.691E+00	4.811E+01	7.212E+04	4.845E+00
2127	1.713E+02	1.372E+05	9.218E+00	4.577E+01	6.860E+04	4.609E+00
2128	1.630E+02	1.305E+05	8.769E+00	4.353E+01	6.525E+04	4.384E+00
2129	1.550E+02	1.241E+05	8.341E+00	4.141E+01	6.207E+04	4.170E+00
2130	1.475E+02	1.181E+05	7.934E+00	3.939E+01	5.904E+04	3.967E+00
2131	1.403E+02	1.123E+05	7.547E+00	3.747E+01	5.616E+04	3.774E+00
2132	1.334E+02	1.068E+05	7.179E+00	3.564E+01	5.342E+04	3.590E+00
2133	1.269E+02	1.016E+05	6.829E+00	3.390E+01	5.082E+04	3.415E+00
2134	1.207E+02	9.668E+04	6.496E+00	3.225E+01	4.834E+04	3.248E+00
2135	1.148E+02	9.197E+04	6.179E+00	3.068E+01	4.598E+04	3.090E+00
2136	1.092E+02	8.748E+04	5.878E+00	2.918E+01	4.374E+04	2.939E+00
2137	1.039E+02	8.321E+04	5.591E+00	2.776E+01	4.161E+04	2.796E+00
2138	9.885E+01	7.916E+04	5.318E+00	2.640E+01	3.958E+04	2.659E+00
2139	9.403E+01	7.529E+04	5.059E+00	2.512E+01	3.765E+04	2.530E+00
2140	8.944E+01	7.162E+04	4.812E+00	2.389E+01	3.581E+04	2.406E+00
2141	8.508E+01	6.813E+04	4.578E+00	2.273E+01	3.406E+04	2.289E+00
2142	8.093E+01	6.481E+04	4.354E+00	2.162E+01	3.240E+04	2.177E+00
2143	7.699E+01	6.165E+04	4.142E+00	2.056E+01	3.082E+04	2.071E+00
2144	7.323E+01	5.864E+04	3.940E+00	1.956E+01	2.932E+04	1.970E+00
2145	6.966E+01	5.578E+04	3.748E+00	1.861E+01	2.789E+04	1.874E+00
2146	6.626E+01	5.306E+04	3.565E+00	1.770E+01	2.653E+04	1.783E+00
2147	6.303E+01	5.047E+04	3.391E+00	1.684E+01	2.524E+04	1.696E+00
2148	5.996E+01	4.801E+04	3.226E+00	1.601E+01	2.401E+04	1.613E+00
2149	5.703E+01	4.567E+04	3.068E+00	1.523E+01	2.283E+04	1.534E+00

**Results (Continued)**

Year	Carbon dioxide			NMOC		
	(Mg/year)	(m <sup>3</sup> /year)	(av ft <sup>3</sup> /min)	(Mg/year)	(m <sup>3</sup> /year)	(av ft <sup>3</sup> /min)
2009	0	0	0	0	0	0
2010	3.171E+02	1.732E+05	1.164E+01	1.345E+00	3.752E+02	2.521E-02
2011	8.006E+02	4.374E+05	2.939E+01	3.396E+00	9.474E+02	6.365E-02
2012	1.181E+03	6.453E+05	4.336E+01	5.010E+00	1.398E+03	9.392E-02
2013	1.415E+03	7.728E+05	5.192E+01	6.000E+00	1.674E+03	1.125E-01
2014	1.830E+03	9.996E+05	6.716E+01	7.760E+00	2.165E+03	1.455E-01
2015	2.239E+03	1.223E+06	8.219E+01	9.497E+00	2.649E+03	1.780E-01
2016	2.643E+03	1.444E+06	9.703E+01	1.121E+01	3.128E+03	2.102E-01
2017	3.044E+03	1.663E+06	1.117E+02	1.291E+01	3.601E+03	2.420E-01
2018	3.440E+03	1.879E+06	1.263E+02	1.459E+01	4.070E+03	2.735E-01
2019	3.833E+03	2.094E+06	1.407E+02	1.626E+01	4.536E+03	3.048E-01
2020	4.224E+03	2.308E+06	1.551E+02	1.792E+01	4.999E+03	3.359E-01
2021	4.614E+03	2.521E+06	1.694E+02	1.957E+01	5.459E+03	3.668E-01
2022	5.002E+03	2.733E+06	1.836E+02	2.122E+01	5.919E+03	3.977E-01
2023	5.390E+03	2.944E+06	1.978E+02	2.286E+01	6.378E+03	4.285E-01
2024	5.777E+03	3.156E+06	2.121E+02	2.450E+01	6.836E+03	4.593E-01
2025	6.166E+03	3.368E+06	2.263E+02	2.615E+01	7.296E+03	4.902E-01
2026	6.555E+03	3.581E+06	2.406E+02	2.780E+01	7.757E+03	5.212E-01
2027	6.947E+03	3.795E+06	2.550E+02	2.946E+01	8.220E+03	5.523E-01
2028	7.340E+03	4.010E+06	2.694E+02	3.113E+01	8.685E+03	5.836E-01
2029	7.736E+03	4.226E+06	2.840E+02	3.281E+01	9.154E+03	6.151E-01
2030	8.136E+03	4.445E+06	2.986E+02	3.451E+01	9.627E+03	6.468E-01
2031	8.539E+03	4.665E+06	3.134E+02	3.622E+01	1.010E+04	6.789E-01
2032	8.947E+03	4.888E+06	3.284E+02	3.795E+01	1.059E+04	7.113E-01
2033	9.359E+03	5.113E+06	3.435E+02	3.970E+01	1.107E+04	7.441E-01
2034	9.777E+03	5.341E+06	3.589E+02	4.147E+01	1.157E+04	7.773E-01
2035	1.020E+04	5.573E+06	3.744E+02	4.327E+01	1.207E+04	8.110E-01
2036	1.063E+04	5.808E+06	3.902E+02	4.509E+01	1.258E+04	8.452E-01
2037	1.107E+04	6.046E+06	4.063E+02	4.694E+01	1.310E+04	8.800E-01
2038	1.075E+04	5.874E+06	3.947E+02	4.560E+01	1.272E+04	8.548E-01
2039	1.023E+04	5.587E+06	3.754E+02	4.338E+01	1.210E+04	8.131E-01
2040	9.729E+03	5.315E+06	3.571E+02	4.126E+01	1.151E+04	7.735E-01
2041	9.254E+03	5.056E+06	3.397E+02	3.925E+01	1.095E+04	7.358E-01
2042	8.803E+03	4.809E+06	3.231E+02	3.734E+01	1.042E+04	6.999E-01
2043	8.374E+03	4.575E+06	3.074E+02	3.552E+01	9.908E+03	6.658E-01
2044	7.965E+03	4.351E+06	2.924E+02	3.378E+01	9.425E+03	6.333E-01
2045	7.577E+03	4.139E+06	2.781E+02	3.214E+01	8.966E+03	6.024E-01
2046	7.207E+03	3.937E+06	2.646E+02	3.057E+01	8.528E+03	5.730E-01
2047	6.856E+03	3.745E+06	2.516E+02	2.908E+01	8.112E+03	5.451E-01
2048	6.521E+03	3.563E+06	2.394E+02	2.766E+01	7.717E+03	5.185E-01
2049	6.203E+03	3.389E+06	2.277E+02	2.631E+01	7.340E+03	4.932E-01
2050	5.901E+03	3.224E+06	2.166E+02	2.503E+01	6.982E+03	4.691E-01
2051	5.613E+03	3.066E+06	2.060E+02	2.381E+01	6.642E+03	4.463E-01
2052	5.339E+03	2.917E+06	1.960E+02	2.265E+01	6.318E+03	4.245E-01
2053	5.079E+03	2.775E+06	1.864E+02	2.154E+01	6.010E+03	4.038E-01
2054	4.831E+03	2.639E+06	1.773E+02	2.049E+01	5.717E+03	3.841E-01
2055	4.596E+03	2.511E+06	1.687E+02	1.949E+01	5.438E+03	3.654E-01
2056	4.371E+03	2.388E+06	1.605E+02	1.854E+01	5.173E+03	3.476E-01
2057	4.158E+03	2.272E+06	1.526E+02	1.764E+01	4.920E+03	3.306E-01
2058	3.955E+03	2.161E+06	1.452E+02	1.678E+01	4.680E+03	3.145E-01

**Results (Continued)**

Year	Carbon dioxide			NMOC		
	(Mg/year)	(m <sup>3</sup> /year)	(av ft <sup>3</sup> /min)	(Mg/year)	(m <sup>3</sup> /year)	(av ft <sup>3</sup> /min)
2059	3.763E+03	2.055E+06	1.381E+02	1.596E+01	4.452E+03	2.991E-01
2060	3.579E+03	1.955E+06	1.314E+02	1.518E+01	4.235E+03	2.846E-01
2061	3.405E+03	1.860E+06	1.250E+02	1.444E+01	4.028E+03	2.707E-01
2062	3.238E+03	1.769E+06	1.189E+02	1.374E+01	3.832E+03	2.575E-01
2063	3.081E+03	1.683E+06	1.131E+02	1.307E+01	3.645E+03	2.449E-01
2064	2.930E+03	1.601E+06	1.076E+02	1.243E+01	3.467E+03	2.330E-01
2065	2.787E+03	1.523E+06	1.023E+02	1.182E+01	3.298E+03	2.216E-01
2066	2.651E+03	1.448E+06	9.732E+01	1.125E+01	3.137E+03	2.108E-01
2067	2.522E+03	1.378E+06	9.258E+01	1.070E+01	2.984E+03	2.005E-01
2068	2.399E+03	1.311E+06	8.806E+01	1.018E+01	2.839E+03	1.907E-01
2069	2.282E+03	1.247E+06	8.377E+01	9.679E+00	2.700E+03	1.814E-01
2070	2.171E+03	1.186E+06	7.968E+01	9.207E+00	2.569E+03	1.726E-01
2071	2.065E+03	1.128E+06	7.580E+01	8.758E+00	2.443E+03	1.642E-01
2072	1.964E+03	1.073E+06	7.210E+01	8.331E+00	2.324E+03	1.562E-01
2073	1.868E+03	1.021E+06	6.858E+01	7.925E+00	2.211E+03	1.485E-01
2074	1.777E+03	9.709E+05	6.524E+01	7.538E+00	2.103E+03	1.413E-01
2075	1.691E+03	9.236E+05	6.206E+01	7.171E+00	2.000E+03	1.344E-01
2076	1.608E+03	8.785E+05	5.903E+01	6.821E+00	1.903E+03	1.279E-01
2077	1.530E+03	8.357E+05	5.615E+01	6.488E+00	1.810E+03	1.216E-01
2078	1.455E+03	7.949E+05	5.341E+01	6.172E+00	1.722E+03	1.157E-01
2079	1.384E+03	7.562E+05	5.081E+01	5.871E+00	1.638E+03	1.100E-01
2080	1.317E+03	7.193E+05	4.833E+01	5.585E+00	1.558E+03	1.047E-01
2081	1.252E+03	6.842E+05	4.597E+01	5.312E+00	1.482E+03	9.958E-02
2082	1.191E+03	6.508E+05	4.373E+01	5.053E+00	1.410E+03	9.472E-02
2083	1.133E+03	6.191E+05	4.160E+01	4.807E+00	1.341E+03	9.010E-02
2084	1.078E+03	5.889E+05	3.957E+01	4.572E+00	1.276E+03	8.571E-02
2085	1.025E+03	5.602E+05	3.764E+01	4.349E+00	1.213E+03	8.153E-02
2086	9.754E+02	5.329E+05	3.580E+01	4.137E+00	1.154E+03	7.755E-02
2087	9.278E+02	5.069E+05	3.406E+01	3.935E+00	1.098E+03	7.377E-02
2088	8.826E+02	4.822E+05	3.240E+01	3.743E+00	1.044E+03	7.017E-02
2089	8.395E+02	4.586E+05	3.082E+01	3.561E+00	9.934E+02	6.675E-02
2090	7.986E+02	4.363E+05	2.931E+01	3.387E+00	9.450E+02	6.349E-02
2091	7.596E+02	4.150E+05	2.788E+01	3.222E+00	8.989E+02	6.040E-02
2092	7.226E+02	3.948E+05	2.652E+01	3.065E+00	8.550E+02	5.745E-02
2093	6.874E+02	3.755E+05	2.523E+01	2.915E+00	8.133E+02	5.465E-02
2094	6.538E+02	3.572E+05	2.400E+01	2.773E+00	7.737E+02	5.198E-02
2095	6.219E+02	3.398E+05	2.283E+01	2.638E+00	7.359E+02	4.945E-02
2096	5.916E+02	3.232E+05	2.172E+01	2.509E+00	7.000E+02	4.704E-02
2097	5.628E+02	3.074E+05	2.066E+01	2.387E+00	6.659E+02	4.474E-02
2098	5.353E+02	2.924E+05	1.965E+01	2.271E+00	6.334E+02	4.256E-02
2099	5.092E+02	2.782E+05	1.869E+01	2.160E+00	6.025E+02	4.048E-02
2100	4.844E+02	2.646E+05	1.778E+01	2.054E+00	5.732E+02	3.851E-02
2101	4.607E+02	2.517E+05	1.691E+01	1.954E+00	5.452E+02	3.663E-02
2102	4.383E+02	2.394E+05	1.609E+01	1.859E+00	5.186E+02	3.485E-02
2103	4.169E+02	2.278E+05	1.530E+01	1.768E+00	4.933E+02	3.315E-02
2104	3.966E+02	2.166E+05	1.456E+01	1.682E+00	4.693E+02	3.153E-02
2105	3.772E+02	2.061E+05	1.385E+01	1.600E+00	4.464E+02	2.999E-02
2106	3.588E+02	1.960E+05	1.317E+01	1.522E+00	4.246E+02	2.853E-02
2107	3.413E+02	1.865E+05	1.253E+01	1.448E+00	4.039E+02	2.714E-02
2108	3.247E+02	1.774E+05	1.192E+01	1.377E+00	3.842E+02	2.581E-02
2109	3.088E+02	1.687E+05	1.134E+01	1.310E+00	3.655E+02	2.455E-02



**Results (Continued)**

Year	Carbon dioxide			NMOC		
	(Mg/year)	(m <sup>3</sup> /year)	(av ft <sup>3</sup> /min)	(Mg/year)	(m <sup>3</sup> /year)	(av ft <sup>3</sup> /min)
2110	2.938E+02	1.605E+05	1.078E+01	1.246E+00	3.476E+02	2.336E-02
2111	2.795E+02	1.527E+05	1.026E+01	1.185E+00	3.307E+02	2.222E-02
2112	2.658E+02	1.452E+05	9.757E+00	1.127E+00	3.146E+02	2.113E-02
2113	2.529E+02	1.381E+05	9.282E+00	1.073E+00	2.992E+02	2.010E-02
2114	2.405E+02	1.314E+05	8.829E+00	1.020E+00	2.846E+02	1.912E-02
2115	2.288E+02	1.250E+05	8.398E+00	9.704E-01	2.707E+02	1.819E-02
2116	2.176E+02	1.189E+05	7.989E+00	9.231E-01	2.575E+02	1.730E-02
2117	2.070E+02	1.131E+05	7.599E+00	8.781E-01	2.450E+02	1.646E-02
2118	1.969E+02	1.076E+05	7.229E+00	8.353E-01	2.330E+02	1.566E-02
2119	1.873E+02	1.023E+05	6.876E+00	7.945E-01	2.217E+02	1.489E-02
2120	1.782E+02	9.735E+04	6.541E+00	7.558E-01	2.109E+02	1.417E-02
2121	1.695E+02	9.260E+04	6.222E+00	7.189E-01	2.006E+02	1.348E-02
2122	1.612E+02	8.808E+04	5.918E+00	6.839E-01	1.908E+02	1.282E-02
2123	1.534E+02	8.379E+04	5.630E+00	6.505E-01	1.815E+02	1.219E-02
2124	1.459E+02	7.970E+04	5.355E+00	6.188E-01	1.726E+02	1.160E-02
2125	1.388E+02	7.581E+04	5.094E+00	5.886E-01	1.642E+02	1.103E-02
2126	1.320E+02	7.212E+04	4.845E+00	5.599E-01	1.562E+02	1.050E-02
2127	1.256E+02	6.860E+04	4.609E+00	5.326E-01	1.486E+02	9.983E-03
2128	1.194E+02	6.525E+04	4.384E+00	5.066E-01	1.413E+02	9.496E-03
2129	1.136E+02	6.207E+04	4.170E+00	4.819E-01	1.344E+02	9.033E-03
2130	1.081E+02	5.904E+04	3.967E+00	4.584E-01	1.279E+02	8.593E-03
2131	1.028E+02	5.616E+04	3.774E+00	4.361E-01	1.216E+02	8.174E-03
2132	9.779E+01	5.342E+04	3.590E+00	4.148E-01	1.157E+02	7.775E-03
2133	9.302E+01	5.082E+04	3.415E+00	3.946E-01	1.101E+02	7.396E-03
2134	8.849E+01	4.834E+04	3.248E+00	3.753E-01	1.047E+02	7.035E-03
2135	8.417E+01	4.598E+04	3.090E+00	3.570E-01	9.960E+01	6.692E-03
2136	8.007E+01	4.374E+04	2.939E+00	3.396E-01	9.474E+01	6.366E-03
2137	7.616E+01	4.161E+04	2.796E+00	3.230E-01	9.012E+01	6.055E-03
2138	7.245E+01	3.958E+04	2.659E+00	3.073E-01	8.573E+01	5.760E-03
2139	6.891E+01	3.765E+04	2.530E+00	2.923E-01	8.154E+01	5.479E-03
2140	6.555E+01	3.581E+04	2.406E+00	2.780E-01	7.757E+01	5.212E-03
2141	6.236E+01	3.406E+04	2.289E+00	2.645E-01	7.378E+01	4.958E-03
2142	5.931E+01	3.240E+04	2.177E+00	2.516E-01	7.019E+01	4.716E-03
2143	5.642E+01	3.082E+04	2.071E+00	2.393E-01	6.676E+01	4.486E-03
2144	5.367E+01	2.932E+04	1.970E+00	2.276E-01	6.351E+01	4.267E-03
2145	5.105E+01	2.789E+04	1.874E+00	2.165E-01	6.041E+01	4.059E-03
2146	4.856E+01	2.653E+04	1.783E+00	2.060E-01	5.746E+01	3.861E-03
2147	4.619E+01	2.524E+04	1.696E+00	1.959E-01	5.466E+01	3.673E-03
2148	4.394E+01	2.401E+04	1.613E+00	1.864E-01	5.200E+01	3.494E-03
2149	4.180E+01	2.283E+04	1.534E+00	1.773E-01	4.946E+01	3.323E-03

**ATTACHMENT 5**

**LANDGEM PARAMETERS AND NMOC EMISSION  
RATE TABULATION**



PROJECT NUMBER: 12345-007-01 SHEET: 1 OF 2  
 PROJECT NAME: LEE/HENDRY NMOC EMISSION CALCULATION  
 SUBJECT: LANDGEM PARAMETERS AND NMOC EMISSION RATE  
 BY: TMCKNIGHT Date: 6/18/2013  
 CHECKED BY: DHULLINGS Date: 6/20/2013

**LANDGEM PARAMETERS**

LandGEM User Inputs					
Landfill Name or Identifier:			Lee/Hendry - Class I Landfill	Lee/Hendry - Ash Monofill	Lee/Hendry - Class III Landfill
<b>1. Landfill Characteristics</b>					
Landfill Open Year			2002	2008	2009
Landfill Closure Year			2034	2025	2037
Have Model Calculate Closure Year?			No	No	No
Waste Design Capacity ( <i>short tons</i> ) <sup>1</sup>			1,688,022	359,816	1,331,490
<b>2. Model Parameters</b>					
Methane Generation Rate, k (year <sup>-1</sup> )			0.05	0.05	0.05
Potential Methane Generation Capacity, Lo (m <sup>3</sup> /Mg)			170	170	170
NMOC Concentration (ppmv as hexane)			345	56	1083
Methane Content (% by volume)			50%	50%	50%
<b>3. Gases/ Pollutants</b>					
Gas / Pollutant #1			Total landfill gas	Total landfill gas	Total landfill gas
Gas / Pollutant #2			Methane	Methane	Methane
Gas / Pollutant #3			Carbon dioxide	Carbon dioxide	Carbon dioxide
Gas / Pollutant #4			NMOC	NMOC	NMOC
<b>4. Waste Acceptance Rates</b>			(see Attachment 3)		

**Notes**

1. Waste design capacity includes degradable waste only.

**LANDGEM RESULTS FOR NMOC EMISSION RATE**

NMOC Emission Rate [Mg/year]				
Year	Lee/Hendry - Class I Landfill	Lee/Hendry - Ash Monofill	Lee/Hendry - Class III Landfill	Total
2002	0.0	0.0	0.0	0.0
2003	0.2	0.0	1.3	1.5
2004	2.4	0.1	3.4	5.9
2005	5.1	0.1	5.0	10.3
2006	9.0	0.1	6.0	15.1
2007	13.2	0.2	7.8	21.1
2008	15.6	0.2	9.5	25.3
2009	15.3	0.3	11.2	26.8
2010	14.6	0.3	12.9	27.8
2011	13.9	0.4	14.6	28.8
2012	13.2	0.4	16.3	29.9
<b>2013</b>	<b>12.5</b>	<b>0.5</b>	<b>17.9</b>	<b>30.9</b>
<b>2014</b>	<b>12.4</b>	<b>0.5</b>	<b>19.6</b>	<b>32.5</b>
<b>2015</b>	<b>12.3</b>	<b>0.6</b>	<b>21.2</b>	<b>34.1</b>
<b>2016</b>	<b>12.2</b>	<b>0.6</b>	<b>22.9</b>	<b>35.6</b>
<b>2017</b>	<b>12.1</b>	<b>0.7</b>	<b>24.5</b>	<b>37.3</b>
<b>2018</b>	<b>12.0</b>	<b>0.7</b>	<b>26.2</b>	<b>38.9</b>
2019	12.0	0.8	27.8	40.5
2020	12.0	0.8	29.5	42.2
2021	11.9	0.7	31.1	43.8
2022	12.0	0.7	32.8	45.5
2023	12.0	0.7	34.5	47.2
2024	12.0	0.6	36.2	48.9
2025	12.1	0.6	37.9	50.6
2026	12.2	0.6	39.7	52.4
2027	12.3	0.6	41.5	54.3
2028	12.4	0.5	43.3	56.2
2029	12.5	0.5	45.1	58.1
2030	12.6	0.5	46.9	60.0
2031	12.8	0.5	45.6	58.8
2032	13.0	0.4	43.4	56.8



PROJECT NUMBER: 12345-007-01 SHEET: 2 OF 2  
 PROJECT NAME: LEE/HENDRY NMOC EMISSION CALCULATION  
 SUBJECT: LANDGEM PARAMETERS AND NMOC EMISSION RATE  
 BY: TMCKNIGHT Date: 6/18/2013  
 CHECKED BY: DHULLINGS Date: 6/20/2013

NMOC Emission Rate [Mg/year] (continued)				
Year	Lee/Hendry - Class I Landfill	Lee/Hendry - Ash Monofill	Lee/Hendry - Class III Landfill	Total
2033	13.1	0.4	41.3	54.8
2034	13.3	0.4	39.3	53.0
2035	13.3	0.4	37.3	51.0
2036	12.7	0.4	35.5	48.5
2037	12.0	0.3	33.8	46.2
2038	11.5	0.3	32.1	43.9
2039	10.9	0.3	30.6	41.8
2040	10.4	0.3	29.1	39.7
2041	9.9	0.3	27.7	37.8
2042	9.4	0.3	26.3	36.0
2043	8.9	0.2	25.0	34.2
2044	8.5	0.2	23.8	32.5
2045	8.1	0.2	22.6	30.9
2046	7.7	0.2	21.5	29.4
2047	7.3	0.2	20.5	28.0
2048	6.9	0.2	19.5	26.6
2049	6.6	0.2	18.5	25.3
2050	6.3	0.2	17.6	24.1
2051	6.0	0.2	16.8	22.9

Lee/Hendry NMOC Emission Rate (2002-2051)

