2014 TIER 2 TESTING AND NMOC EMISSION ESTIMATES REPORT

FOR

LOUDON COUNTY (MATLOCK BEND) LANDFILL

TDEC SOLID WASTE Permit No.: SNL 53-103-0203

PREPARED BY:
SANTEK WASTE SERVICES, INC.
650 25TH STREET NW, SUITE 100
CLEVELAND, TN 37311

MAY 2014

SANTEK
WasteServices
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May 29, 2014

East TN Permit Program
Tennessee Department of Environment and Conservation
Division of Air Pollution Control
9th Floor, L & C Annex
401 Church Street
Nashville, TN 37243-1531

RE: 2014 Tier 2 NMOC Emission Testing
Loudon County (Matlock Bend) Landfill – Loudon, TN
Solid Waste Permit #: SNL 53-103-0203

To Whom It May Concern:

Santek Waste Services, Inc. (Santek) is pleased to submit the results of the Tier 2 testing and non-methane organic compound (NMOC) emissions estimates for the Loudon County (Matlock Bend) Landfill located at 21712 Hwy 72 North, Loudon, TN to the Tennessee Department of Environment and Conservation (TDEC), Division of Air Pollution Control. This document reports the results of the Tier 2 testing activities and the NMOC calculations as required by state and federal regulations.

Tier 2 Testing

Tier 2 testing must be completed every five (5) years at the facility until such times as the estimated emissions of NMOC's exceed the regulatory threshold of 50 Megagrams (Mg) per year. EMServices (EMS) collected landfill gas samples in accordance with the methods specified in Appendix A of 40 CFR, Part 60. The facility's combined area with waste in place for greater than two (2) years is 60.5 acres (24.5 hectacres). In accordance with 40 CFR 60.754, two (2) samples per hectare are required; therefore, 49 samples are required to be collected.

Sampling was performed by compositing samples at five (5) sample locations into one (1) Summa canister for nine (9) canisters and compositing samples at four (4) sample locations for one (1) canister, which resulted in ten (10) total sample containers. Sample compositing was conducted in accordance with the procedures described in 40 CFR, Part 60, Subpart WWW. Sample collection and subsequent analyses were also performed in accordance with the procedures described in U.S. Environmental Protection Agency (USEPA) Reference Methods 3C and 25C.

Field activities for the Tier 2 testing were conducted on April 28 and 29, 2014 by EMS. Since the facility has waste in-place for two (2) years or more on more than 24.5 hectares, 49 sample locations were required. The samples were split between the closed and active portions of the landfill. As a result, 26 samples were taken from the active landfill and 23 samples were taken from the closed landfill (map

located in Appendix D). The sampling locations were distributed across the regulated areas as indicated in the EMS report enclosed in Appendix A. Sample probes were installed at each sampling location using the direct push procedure to advance a sample probe through the landfill cover into the waste. EMS utilized a Geo Probe 6620 to conduct the direct push sampling. The probes were advanced to approximately one (1) meter below the waste cover at 44 of the 49 sample locations. At five (5) locations, 25, 33, 38, 44 and 46, the sample probes were advanced to 30', 15', 35', 35' and 25' respectively to reach waste greater than two (2) years old. Once the probes had reached the proper depth for sampling, the pilot probes were backed out to permit sampling.

Immediately after installing each sampling probe, a landfill gas analyzer was connected to a sampling port on the top of the probe using flexible hoses. The line was purged for two to three minutes until the gas concentrations detected by the analyzer stabilized. Oxygen (O_2) concentrations were required to be below 5 percent (5%) by volume before gas samples were collected into sample containers. This procedure was used to verify the absence of air infiltration. Upon completion of the landfill gas quality field check at each sampling location, the sampling valve was closed and then opened to a pre-evacuated, six-liter Summa canister. Integrated samples were collected at <500 ml/min until the vacuum of the canister reached the desired composite volume. The EMS Tier 2 Field Data Sheets (located in Appendix A) presents a summary of data collected in the field during sampling. Sampling and purge flow rates were controlled using an in-line needle valve and verified using a rodometer. The sample canisters were labeled and secured for transport to an offsite analytical laboratory. Holes created by the sampling activities were backfilled with bentonite and hydrated with water to maintain cap integrity.

Sample canisters were pre-evacuated prior to the field sampling effort. The Summa canisters were verified "leak-free" by the maximum vacuum (≥29.5" Hg) recorded prior to sampling. Canisters used for sampling were evacuated by Test America Laboratories, Inc. (Test America).

Analysis of each sample was performed by Test America located in South Burlington, Vermont, in accordance with the procedures described in USEPA Reference Methods 3C and 25C. Method 3C is used to determine the methane, oxygen, nitrogen and carbon dioxide concentration of the samples collected. During sample collection, all sampling points indicated O_2 concentrations well below five percent (5%). The Method 3C and Method 25C gas concentrations are summarized in the Tier 2 Field Data Sheets (Appendix A). The Test America laboratory report for method 3C and 25C are enclosed in Appendix B.

Tier 2 Sampling Results and NMOC Emissions Estimates

Test America analyzed landfill gas samples collected by EMS and the results of the landfill analyses were used to calculate the NMOC emissions for the Loudon County (Matlock Bend) Landfill. The results from the Tier 2 testing were converted from parts per million by volume of Carbon ($ppmv_c$) to parts per million by volume of Hexane ($ppmv_{Hex}$) for use as the site-specific NMOC concentration in landfill gas (LFG), as required by 40 CFR 60.752. To determine the site specific NMOC as Hexane concentration, the results of the analysis were averaged in accordance with 40 CFR 60.754. The site specific estimated NMOC concentration in LFG for the landfill is **82 $ppmv_{Hex}$**.

To calculate the mass emission rate of NMOC (in Megagrams per year [Mg/yr]), the site-specific NMOC concentration and other site-specific parameters were input into the Landfill Gas Emissions Model (LandGEM) ver. 3.02 as prepared under contract for the US Environmental Protection Agency. The LandGEM uses the equation specified in 40 CFR 60.754 to estimate the NMOC emissions for a facility based on known waste receipts. Santek used waste receipt volumes from facility opening

through 2013 to determine in-place waste for the updated calculations. The landfill design capacity required by the LandGEM program was gathered from the Amended Design Capacity Report (ADCR) dated January 2, 2014. The default values for the methane generation rate constant (k) and refuse methane generation potential (L_o) as specified in 40 CFR 60.754 were used to calculate the NMOC emission rate.

The NMOC emissions calculation, using the site specific NMOC concentration, indicate the Loudon County (Matlock Bend) Landfill NMOC emissions are well below the threshold of 50 Mg/yr that trigger design and installation of a landfill gas collection and control system (GCCS). The estimated NMOC emission rate for 2014, using the default k and L_o values and site-specific NMOC concentration (as determined by the May 2014 Tier 2 sampling results) is **7.88 Mg/yr**. Results of the LandGEM NMOC emission calculations are enclosed in Appendix C. Based on the results of the LandGEM emission estimates, the Loudon County (Matlock Bend) Landfill will not exceed the 50 Mg/yr NMOC threshold. The facility is required to complete another Tier 2 testing event before the five (5) year anniversary of this testing event.

If you have any questions or comments, feel free to call at (423) 303-7101.

Sincerely,

Will Martin
Environmental Compliance Coordinator

Ron E. Vail, P.E.
V.P. of Engineering

WM/sa

Enclosures

cc: Travis Blake, Division of Air Pollution Control, TDEC
Steve Field, Chairman, LCSWDC
Robert D. Burnette, P.E., Executive V.P. of Engineering, Santek
Matt Dillard, Executive V.P. of Operations, Santek
Cheryl Dunson, Executive V.P. of Marketing, Santek
Levi Higdon, Landfill Manager, Santek

Table 1

NMOC Concentration Calculation

Loudon County (Matlock Bend) Landfill

Calculations: NMOC (as Hexane) = NMOC (as Carbon) / 6

Site Specific NMOC = Average of the measured NMOC (as Hexane)

Sample ID	NMOC Detected (as Carbon) (ppmv)[1]	Calculated NMOC Content (as Hexane) (ppmv)[2]
200-22142-1	730	122
200-22142-2	1200	200
200-22142-3	980	163
200-22142-4	330	55
200-22142-5	310	52
200-22142-6	310	52
200-22142-7	290	48
200-22142-8	270	45
200-22142-9	220	37
200-22142-10	290	48

AVERAGE	**82**

Notes:

[1]NMOC measured as Methane in accordance with Method 25C of Appendix A of 40 CFR 60, subpart WWW by Test America

[2]NMOC concentration as Hexane calculated in accordance with 40 CFR 60.754(a)(3)

APPENDIX A

EMServices

Environmental Monitoring Services, LLC
Phone (770) 516-2081 *Fax (678) 445-3276*

May 28, 2014

Santek Environmental
Will Martin
650 25th Street NW
Suite 100
Cleveland, TN 37311

RE: Tier II Sampling at the Loudon County (Matlock Bend) Landfill

Will,

On April 28th-29th, we completed the required Tier II monitoring at the referenced landfill in accordance with the Tier 2 testing methodology found in 40 CFR 60.754 (a) (2). Due to its size, we collected the 49 samples. The samples were split between two areas based upon guidance provided by your firm. This indicated 23 samples from an area identified as the closed landfill and 26 samples from an area identified as the active landfill.

In all, 44 of the locations were sampled by advancing probes to approximately one meter below the waste cover. At 5 locations, 25, 33, 38, 44 and 46 the probes were advanced to 30', 15', 35', 35' and 25' respectively to get to waste older than 2 years. At each location, the probes were then backed out to permit sampling. We collected five, equal volume, samples from different probes which were combined into a single cylinder. For each sample, the rate, collection time and beginning and ending cylinder vacuums were recorded to verify that composite volumes were equal. We also monitored the gas for oxygen and methane concentrations to ensure representative samples were collected. We recorded the ambient temperature and barometric pressure so that the lab could use this data to provide sample calculation corrections. This information can be found in the Tier 2 Field Data Sheet attached to this report. All of the holes were backfilled with bentonite and re-hydrated to maintain cap integrity.

The lab data indicated that all but two of the samples collected were well below the 5% oxygen and 20% nitrogen thresholds. In the two samples that had elevated oxygen and nitrogen concentrations, the lab corrected the data in accordance with the method. We are uncertain how these elevated levels happened as the field data suggests differently. Unfortunately, there is no way to get field readings and fill the can at the same time so we can only assume that the gas pocket was exhausted at some point during the sampling process. There is no correlation with sampling or analysis times (there were samples in between each one) and there looks to be no obvious lab issues. The lab data is also attached to this report.

We appreciate the opportunity to provide this service to your firm. Should you have any questions, or these deliverables do not meet your expectations, please do not hesitate to call.

Respectfully,

Jeff Johnson

Attachments: Tier 2 Field Data Summary Sheets
Laboratory Report

EM Services

Environmental Monitoring Services, LLC

Client Santek
Site Loudon County Landfill
Date(s) 4/28-29/2014

Sample Point ID	Landfill Phase	Date	Time	CH_4 (% by vol.)	O_2 (% by vol.)	Balance	Sample Container ID	Starting Pressure ("Hg)	Ending Pressure ("Hg)	Flow Rate (ml/min)	Temp (°F)	Barometric Pressure ("Hg)
14		4/29/14	1313	79%	0.0%	21.0%	2533	30	25	500	57	29.76
13		4/29/14	1324	80%	0.0%	20.0%	2533	25	20	500	58	29.72
12		4/29/14	1336	80%	0.0%	20.0%	2533	20	15	500	58	29.72
17		4/29/14	1350	88%	0.0%	12.0%	2533	15	10	500	58	29.72
16		4/29/14	1359	87%	0.0%	13.0%	2533	10	5	500	58	29.72
9		4/29/14	1425	79%	0.0%	21.0%	4807	30	25	500	57	29.72
10		4/29/14	1437	81%	0.2%	18.8%	4807	25	20	500	57	29.71
1		4/29/14	1450	81%	0.0%	19.0%	4807	20	15	500	58	29.71
2		4/29/14	1501	82%	0.0%	18.0%	4807	15	10	500	58	29.72
3		4/29/14	1512	82%	1.8%	16.2%	4807	10	5	500	58	29.72
11		4/29/14	1525	80%	0.0%	20.0%	5057	30	25	500	54	29.74
4		4/29/14	1536	80%	0.0%	20.0%	5057	25	20	500	54	29.74
5		4/29/14	1545	81%	0.0%	19.0%	5057	20	15	500	53	29.75
6		4/29/14	1556	81%	0.0%	19.0%	5057	15	10	500	53	29.75
47		4/28/14	1122	76%	0.0%	24.0%	3712	30	25	500	68	30.07
39		4/28/14	1132	75%	0.0%	25.0%	3712	25	20	500	68	30.07
49		4/28/14	1142	73%	0.0%	27.0%	3712	20	15	500	68	30.07
46		4/28/14	1155	71%	0.0%	29.0%	3712	15	10	500	68	30.07
48		4/28/14	1214	98%	0.0%	2.0%	3712	10	5	500	71	30.07

EM Services

Environmental Monitoring Services, LLC

Client Santek
Site Loudon County Landfill
Date(s) 4/28-29/2014

Sample Point ID	Landfill Phase	Date	Time	CH_4 (% by vol.)	O_2 (% by vol.)	Balance	Sample Container ID	Starting Pressure ("Hg)	Ending Pressure ("Hg)	Flow Rate (ml/min)	Temp (°F)	Barometric Pressure ("Hg)
44		4/28/14	1340	100%	0.0%	0.0%	5454	30	25	500	73	30.06
38		4/28/14	1351	68%	0.2%	31.8%	5454	25	20	500	73	30.06
33		4/28/14	1415	64%	0.0%	36.0%	5454	20	15	500	72	30.02
27		4/28/14	1427	80%	0.0%	20.0%	5454	15	10	500	73	30.02
29		4/28/14	1437	63%	1.8%	35.2%	5454	10	5	500	73	30.02
31		4/28/14	1518	73%	0.0%	27.0%	5685	30	25	500	73	30.02
28		4/28/14	1529	81%	0.0%	19.0%	5685	25	20	500	75	30.02
25		4/28/14	1539	73%	0.0%	27.0%	5685	20	15	500	77	30.02
24		4/28/14	1541	82%	0.0%	18.0%	5685	15	10	500	77	30.03
26		4/28/14	1552	74%	0.0%	26.0%	5685	10	5	500	77	30.03
32		4/29/14	836	73%	0.0%	27.0%	2720	30	25	500	54	29.82
30		4/29/14	855	73%	0.0%	27.0%	2720	25	20	500	54	29.82
36		4/29/14	905	81%	0.1%	18.9%	2720	20	15	500	54	29.82
37		4/29/14	912	76%	0.2%	23.8%	2720	15	10	500	54	29.82
40		4/29/14	924	84%	0.0%	16.0%	2720	10	5	500	54	29.82
43		4/29/14	938	81%	0.0%	19.0%	5639	30	25	500	54	29.80
42		4/29/14	959	77%	0.0%	23.0%	5639	25	20	500	54	29.80
41		4/29/14	1008	84%	0.0%	16.0%	5639	20	15	500	54	29.80
35		4/29/14	1039	71%	0.0%	29.0%	5639	15	10	500	54	29.80
45		4/29/14	1059	74%	0.0%	26.0%	5639	10	5	500	56	29.78

EM Services

Environmental Monitoring Services, LLC

Client Santek
Site Loudon County Landfill
Date(s) 4/28-29/2014

Sample Point ID	Landfill Phase	Date	Time	CH_4 (% by vol.)	O_2 (% by vol.)	Balance	Sample Container ID	Starting Pressure ("Hg)	Ending Pressure ("Hg)	Flow Rate (ml/min)	Temp (°F)	Barometric Pressure ("Hg)
34		4/29/14	1103	71%	0.0%	29.0%	3258	30	25	500	56	29.78
22		4/29/14	1119	83%	0.0%	17.0%	3258	25	20	500	56	29.78
21		4/29/14	1131	82%	0.0%	18.0%	3258	20	15	500	56	29.77
18		4/29/14	1142	80%	0.0%	20.0%	3258	15	10	500	56	29.77
19		4/29/14	1152	82%	0.0%	18.0%	3258	10	5	500	57	29.75
23		4/29/14	1212	84%	0.0%	16.0%	5082	30	25	500	57	29.76
20		4/29/14	1221	84%	0.0%	16.0%	5082	25	20	500	57	29.76
15		4/29/14	1232	86%	0.0%	14.0%	5082	20	15	500	57	29.76
8		4/29/14	1241	79%	0.0%	21.0%	5082	15	10	500	57	29.76
7		4/29/14	1252	79%	0.1%	20.9%	5082	10	5	500	57	29.76

APPENDIX B

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

Job Number: 200-22142-1

SDG Number: 200-22142

Job Description: Loudon County FL

For:
Environmental Monitoring Services, LLC
106 Hartwood Drive
Suite A
Woodstock, GA 30189

Attention: Mr. Jeff Johnson

Approved for release.
Don C Dawicki
Manager of Project Management
5/14/2014 7:47 AM

Don C Dawicki, Manager of Project Management
30 Community Drive, South Burlington, VT, 05403
(802)660-1990
don.dawicki@testamericainc.com
05/14/2014

CASE NARRATIVE

Client: Environmental Monitoring Services, LLC

Project: Loudon County

Report Number: 200-22142-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 05/01/2014; the samples arrived in good condition.

The container label for the following sample did not match the information listed on the Chain-of-Custody (COC): 32,30,36,37,40. The container labels list a canister ID of 2508 from batch 2720, while the COC lists the canister ID as 2720. The canister ID 2508 was attributed to this sample.

The following sample, 14,13,12,17,16, was submitted for analysis; however, it was not listed on the Chain-of-Custody (COC). It was listed on the field test data sheet. This sample was logged as the last sample in the set. : 14,13,12,17,16

NON-METHANE ORGANIC CARBON

Samples 47,39,49,46,48, 44,38,33,27,29, 31,28,25,24,26, 32,30,36,37,40, 43,42,41,35,45, 34,22,21,18,19, 23,20,15,8,7, 9,10,1,2,3, 11,4,5,6 and 14,13,12,17,16 were analyzed for Non-Methane Organic Carbon in accordance with EPA Method 25C. The samples were analyzed on 05/07/2014 and 05/08/2014.

No difficulties were encountered during the NMOC analysis.

All quality control parameters were within the acceptance limits.

FIXED GASES

Samples 47,39,49,46,48, 44,38,33,27,29, 31,28,25,24,26, 32,30,36,37,40, 43,42,41,35,45, 34,22,21,18,19, 23,20,15,8,7, 9,10,1,2,3, 11,4,5,6 and 14,13,12,17,16 were analyzed for Fixed Gases in accordance with EPA Method 3C. The samples were analyzed on 05/07/2014 and 05/08/2014.

The fixed gases analyses for samples 32,30,36,37,40 and 34,22,21,18,19 yielded concentrations of Nitrogen and Oxygen that exceeded the thresholds referenced in the EPA 25C method (20% and 5% respiectively). The NMOC results were corrected using the Nitrogen concentrations.

All quality control parameters were within the acceptance limits.

EXECUTIVE SUMMARY - Detections

Client: Environmental Monitoring Services, LLC

Job Number: 200-22142-1
Sdg Number: 200-22142

Lab Sample ID / Analyte	Client Sample ID	Result	Qualifier	Reporting Limit	Units	Method
200-22142-1	**47,39,49,46,48**					
NMOC as Carbon		730		9.2	ppm-C	EPA 25C
Carbon dioxide		37		0.077	% v/v	EPA 3C
Methane		61		0.062	% v/v	EPA 3C
Oxygen		0.23		0.077	% v/v	EPA 3C
200-22142-2	**44,38,33,27,29**					
NMOC as Carbon		1200		9.8	ppm-C	EPA 25C
Carbon dioxide		41		0.082	% v/v	EPA 3C
Methane		54		0.065	% v/v	EPA 3C
Nitrogen		2.2		0.82	% v/v	EPA 3C
Oxygen		0.61		0.082	% v/v	EPA 3C
200-22142-3	**31,28,25,24,26**					
NMOC as Carbon		980		9.2	ppm-C	EPA 25C
Carbon dioxide		37		0.077	% v/v	EPA 3C
Methane		59		0.062	% v/v	EPA 3C
Nitrogen		1.1		0.77	% v/v	EPA 3C
Oxygen		0.22		0.077	% v/v	EPA 3C
200-22142-4	**32,30,36,37,40**					
NMOC as Carbon		330		10	ppm-C	EPA 25C
Carbon dioxide		24		0.085	% v/v	EPA 3C
Methane		41		0.068	% v/v	EPA 3C
Nitrogen		22		0.85	% v/v	EPA 3C
Oxygen		6.7		0.085	% v/v	EPA 3C
200-22142-5	**43,42,41,35,45**					
NMOC as Carbon		310		9.8	ppm-C	EPA 25C
Carbon dioxide		38		0.082	% v/v	EPA 3C
Methane		60		0.065	% v/v	EPA 3C
Oxygen		0.13		0.082	% v/v	EPA 3C
200-22142-6	**34,22,21,18,19**					
NMOC as Carbon		310		10	ppm-C	EPA 25C
Carbon dioxide		19		0.086	% v/v	EPA 3C
Methane		36		0.068	% v/v	EPA 3C
Nitrogen		29		0.86	% v/v	EPA 3C
Oxygen		8.9		0.086	% v/v	EPA 3C

EXECUTIVE SUMMARY - Detections

Client: Environmental Monitoring Services, LLC

Job Number: 200-22142-1
Sdg Number: 200-22142

Lab Sample ID Analyte	Client Sample ID	Result	Qualifier	Reporting Limit	Units	Method
200-22142-7	**23,20,15,8,7**					
NMOC as Carbon		290		11	ppm-C	EPA 25C
Carbon dioxide		29		0.089	% v/v	EPA 3C
Methane		57		0.071	% v/v	EPA 3C
Nitrogen		7.4		0.89	% v/v	EPA 3C
Oxygen		2.2		0.089	% v/v	EPA 3C
200-22142-8	**9,10,1,2,3**					
NMOC as Carbon		270		9.4	ppm-C	EPA 25C
Carbon dioxide		34		0.078	% v/v	EPA 3C
Methane		62		0.062	% v/v	EPA 3C
Nitrogen		1.6		0.78	% v/v	EPA 3C
Oxygen		0.35		0.078	% v/v	EPA 3C
200-22142-9	**11,4,5,6**					
NMOC as Carbon		220		12	ppm-C	EPA 25C
Carbon dioxide		35		0.10	% v/v	EPA 3C
Methane		61		0.080	% v/v	EPA 3C
Oxygen		0.14		0.10	% v/v	EPA 3C
200-22142-10	**14,13,12,17,16**					
NMOC as Carbon		290		9.9	ppm-C	EPA 25C
Carbon dioxide		26		0.083	% v/v	EPA 3C
Methane		47		0.066	% v/v	EPA 3C
Nitrogen		16		0.83	% v/v	EPA 3C
Oxygen		5.0		0.083	% v/v	EPA 3C

METHOD SUMMARY

Client: Environmental Monitoring Services, LLC

Job Number: 200-22142-1
Sdg Number: 200-22142

Description	Lab Location	Method	Preparation Method
Matrix: Air			
Nonmethane Organic Compounds (NMOC)	TAL BUR	EPA EPA 25C	
Collection via Summa Canister	TAL BUR		Summa Canister
Fixed Gases from Stationary Sources	TAL BUR	EPA EPA 3C	
Collection via Summa Canister	TAL BUR		Summa Canister

Lab References:

TAL BUR = TestAmerica Burlington

Method References:

EPA = US Environmental Protection Agency

METHOD / ANALYST SUMMARY

Client: Environmental Monitoring Services, LLC

Job Number: 200-22142-1
Sdg Number: 200-22142

Method	Analyst	Analyst ID
EPA EPA 25C	Lyons, Benjamin P	BPL
EPA EPA 3C	Lyons, Benjamin P	BPL

SAMPLE SUMMARY

Client: Environmental Monitoring Services, LLC

Job Number: 200-22142-1
Sdg Number: 200-22142

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
200-22142-1	47,39,49,46,48	Air	04/28/2014 1214	05/01/2014 1010
200-22142-2	44,38,33,27,29	Air	04/28/2014 1437	05/01/2014 1010
200-22142-3	31,28,25,24,26	Air	04/28/2014 1552	05/01/2014 1010
200-22142-4	32,30,36,37,40	Air	04/29/2014 0924	05/01/2014 1010
200-22142-5	43,42,41,35,45	Air	04/29/2014 1051	05/01/2014 1010
200-22142-6	34,22,21,18,19	Air	04/29/2014 1152	05/01/2014 1010
200-22142-7	23,20,15,8,7	Air	04/29/2014 1252	05/01/2014 1010
200-22142-8	9,10,1,2,3	Air	04/29/2014 1512	05/01/2014 1010
200-22142-9	11,4,5,6	Air	04/29/2014 1556	05/01/2014 1010
200-22142-10	14,13,12,17,16	Air	04/29/2014 1359	05/01/2014 1010

SAMPLE RESULTS

Client: Environmental Monitoring Services, LLC

Job Number: 200-22142-1
Sdg Number: 200-22142

Client Sample ID: **47,39,49,46,48**

Lab Sample ID: 200-22142-1
Client Matrix: Air

Date Sampled: 04/28/2014 1214
Date Received: 05/01/2014 1010

EPA 25C Nonmethane Organic Compounds (NMOC)

Analysis Method:	EPA 25C	Analysis Batch:	200-71822	Instrument ID:	CH0001.i
Prep Method:	Summa Canister	Prep Batch:	N/A	Lab File ID:	200-22142-a-1a.d-avg
Dilution:	1.54			Initial Weight/Volume:	2 mL
Analysis Date:	05/07/2014 2112			Final Weight/Volume:	2 mL
Prep Date:	05/07/2014 2112			Injection Volume:	2 mL

Analyte	Result (ppm-C)	Qualifier	RL	RL
NMOC as Carbon	730		9.2	9.2

Client: Environmental Monitoring Services, LLC

Job Number: 200-22142-1
Sdg Number: 200-22142

Client Sample ID: **44,38,33,27,29**

Lab Sample ID: 200-22142-2
Client Matrix: Air

Date Sampled: 04/28/2014 1437
Date Received: 05/01/2014 1010

EPA 25C Nonmethane Organic Compounds (NMOC)

Analysis Method:	EPA 25C	Analysis Batch:	200-71822	Instrument ID:	CH0001.i
Prep Method:	Summa Canister	Prep Batch:	N/A	Lab File ID:	200-22142-a-2a.d-avg
Dilution:	1.63			Initial Weight/Volume:	2 mL
Analysis Date:	05/07/2014 2200			Final Weight/Volume:	2 mL
Prep Date:	05/07/2014 2200			Injection Volume:	2 mL

Analyte	Result (ppm-C)	Qualifier	RL	RL
NMOC as Carbon	1200		9.8	9.8

Client: Environmental Monitoring Services, LLC

Job Number: 200-22142-1
Sdg Number: 200-22142

Client Sample ID: **31,28,25,24,26**

Lab Sample ID: 200-22142-3
Client Matrix: Air

Date Sampled: 04/28/2014 1552
Date Received: 05/01/2014 1010

EPA 25C Nonmethane Organic Compounds (NMOC)

Analysis Method:	EPA 25C	Analysis Batch:	200-71822	Instrument ID:	CH0001.i
Prep Method:	Summa Canister	Prep Batch:	N/A	Lab File ID:	200-22142-a-3a.d-avg
Dilution:	1.54			Initial Weight/Volume:	2 mL
Analysis Date:	05/07/2014 2247			Final Weight/Volume:	2 mL
Prep Date:	05/07/2014 2247			Injection Volume:	2 mL

Analyte	Result (ppm-C)	Qualifier	RL	RL
NMOC as Carbon	980		9.2	9.2

Client: Environmental Monitoring Services, LLC

Job Number: 200-22142-1
Sdg Number: 200-22142

Client Sample ID: **32,30,36,37,40**

Lab Sample ID: 200-22142-4
Client Matrix: Air

Date Sampled: 04/29/2014 0924
Date Received: 05/01/2014 1010

EPA 25C Nonmethane Organic Compounds (NMOC)

Analysis Method:	EPA 25C	Analysis Batch:	200-71822	Instrument ID:	CH0001.i
Prep Method:	Summa Canister	Prep Batch:	N/A	Lab File ID:	200-22142-a-4a.d-avg
Dilution:	1.69			Initial Weight/Volume:	2 mL
Analysis Date:	05/07/2014 2335			Final Weight/Volume:	2 mL
Prep Date:	05/07/2014 2335			Injection Volume:	2 mL

Analyte	Result (ppm-C)	Qualifier	RL	RL
NMOC as Carbon	330		10	10

Client: Environmental Monitoring Services, LLC

Job Number: 200-22142-1
Sdg Number: 200-22142

Client Sample ID: **43,42,41,35,45**

Lab Sample ID: 200-22142-5
Client Matrix: Air

Date Sampled: 04/29/2014 1051
Date Received: 05/01/2014 1010

EPA 25C Nonmethane Organic Compounds (NMOC)

Analysis Method:	EPA 25C	Analysis Batch:	200-71822	Instrument ID:	CH0001.i
Prep Method:	Summa Canister	Prep Batch:	N/A	Lab File ID:	200-22142-a-5a.d-avg
Dilution:	1.63			Initial Weight/Volume:	2 mL
Analysis Date:	05/08/2014 0023			Final Weight/Volume:	2 mL
Prep Date:	05/08/2014 0023			Injection Volume:	2 mL

Analyte	Result (ppm-C)	Qualifier	RL	RL
NMOC as Carbon	310		9.8	9.8

Client: Environmental Monitoring Services, LLC

Job Number: 200-22142-1
Sdg Number: 200-22142

Client Sample ID: **34,22,21,18,19**

Lab Sample ID: 200-22142-6
Client Matrix: Air

Date Sampled: 04/29/2014 1152
Date Received: 05/01/2014 1010

EPA 25C Nonmethane Organic Compounds (NMOC)

Analysis Method:	EPA 25C	Analysis Batch:	200-71822	Instrument ID:	CH0001.i
Prep Method:	Summa Canister	Prep Batch:	N/A	Lab File ID:	200-22142-a-6a.d-avg
Dilution:	1.71			Initial Weight/Volume:	2 mL
Analysis Date:	05/08/2014 0110			Final Weight/Volume:	2 mL
Prep Date:	05/08/2014 0110			Injection Volume:	2 mL

Analyte	Result (ppm-C)	Qualifier	RL	RL
NMOC as Carbon	310		10	10

Client: Environmental Monitoring Services, LLC

Job Number: 200-22142-1
Sdg Number: 200-22142

Client Sample ID: **23,20,15,8,7**

Lab Sample ID: 200-22142-7
Client Matrix: Air

Date Sampled: 04/29/2014 1252
Date Received: 05/01/2014 1010

EPA 25C Nonmethane Organic Compounds (NMOC)

Analysis Method:	EPA 25C	Analysis Batch:	200-71822	Instrument ID:	CH0001.i
Prep Method:	Summa Canister	Prep Batch:	N/A	Lab File ID:	200-22142-a-7a.d-avg
Dilution:	1.77			Initial Weight/Volume:	2 mL
Analysis Date:	05/08/2014 0158			Final Weight/Volume:	2 mL
Prep Date:	05/08/2014 0158			Injection Volume:	2 mL

Analyte	Result (ppm-C)	Qualifier	RL	RL
NMOC as Carbon	290		11	11

Client: Environmental Monitoring Services, LLC

Job Number: 200-22142-1
Sdg Number: 200-22142

Client Sample ID: **9,10,1,2,3**

Lab Sample ID: 200-22142-8
Client Matrix: Air

Date Sampled: 04/29/2014 1512
Date Received: 05/01/2014 1010

EPA 25C Nonmethane Organic Compounds (NMOC)

Analysis Method:	EPA 25C	Analysis Batch:	200-71822	Instrument ID:	CH0001.i
Prep Method:	Summa Canister	Prep Batch:	N/A	Lab File ID:	200-22142-a-8a.d-avg
Dilution:	1.56			Initial Weight/Volume:	2 mL
Analysis Date:	05/08/2014 0246			Final Weight/Volume:	2 mL
Prep Date:	05/08/2014 0246			Injection Volume:	2 mL

Analyte	Result (ppm-C)	Qualifier	RL	RL
NMOC as Carbon	270		9.4	9.4

Client: Environmental Monitoring Services, LLC

Job Number: 200-22142-1
Sdg Number: 200-22142

Client Sample ID: **11,4,5,6**

Lab Sample ID: 200-22142-9
Client Matrix: Air

Date Sampled: 04/29/2014 1556
Date Received: 05/01/2014 1010

EPA 25C Nonmethane Organic Compounds (NMOC)

Analysis Method:	EPA 25C	Analysis Batch:	200-71822	Instrument ID:	CH0001.i
Prep Method:	Summa Canister	Prep Batch:	N/A	Lab File ID:	200-22142-a-9a.d-avg
Dilution:	2.01			Initial Weight/Volume:	2 mL
Analysis Date:	05/08/2014 0925			Final Weight/Volume:	2 mL
Prep Date:	05/08/2014 0925			Injection Volume:	2 mL

Analyte	Result (ppm-C)	Qualifier	RL	RL
NMOC as Carbon	220		12	12

Client: Environmental Monitoring Services, LLC

Job Number: 200-22142-1
Sdg Number: 200-22142

Client Sample ID: **14,13,12,17,16**

Lab Sample ID: 200-22142-10
Client Matrix: Air

Date Sampled: 04/29/2014 1359
Date Received: 05/01/2014 1010

EPA 25C Nonmethane Organic Compounds (NMOC)

Analysis Method:	EPA 25C	Analysis Batch:	200-71822	Instrument ID:	CH0001.i
Prep Method:	Summa Canister	Prep Batch:	N/A	Lab File ID:	200-22142-a-10a.d-avg
Dilution:	1.65			Initial Weight/Volume:	2 mL
Analysis Date:	05/08/2014 1012			Final Weight/Volume:	2 mL
Prep Date:	05/08/2014 1012			Injection Volume:	2 mL

Analyte	Result (ppm-C)	Qualifier	RL	RL
NMOC as Carbon	290		9.9	9.9

Client: Environmental Monitoring Services, LLC

Job Number: 200-22142-1
Sdg Number: 200-22142

Client Sample ID: **47,39,49,46,48**

Lab Sample ID: 200-22142-1
Client Matrix: Air

Date Sampled: 04/28/2014 1214
Date Received: 05/01/2014 1010

EPA 3C Fixed Gases from Stationary Sources

Analysis Method:	EPA 3C	Analysis Batch:	200-71844	Instrument ID:	CH0001.i
Prep Method:	Summa Canister	Prep Batch:	N/A	Lab File ID:	200-22142-a-1b.d-avg
Dilution:	1.54			Initial Weight/Volume:	2 mL
Analysis Date:	05/07/2014 2128			Final Weight/Volume:	2 mL
Prep Date:	05/07/2014 2128			Injection Volume:	2 mL

Analyte	Result (% v/v)	Qualifier	RL	RL
Carbon dioxide	37		0.077	0.077
Methane	61		0.062	0.062
Nitrogen	0.77	U	0.77	0.77
Oxygen	0.23		0.077	0.077

Client: Environmental Monitoring Services, LLC

Job Number: 200-22142-1
Sdg Number: 200-22142

Client Sample ID: **44,38,33,27,29**

Lab Sample ID: 200-22142-2
Client Matrix: Air

Date Sampled: 04/28/2014 1437
Date Received: 05/01/2014 1010

EPA 3C Fixed Gases from Stationary Sources

Analysis Method:	EPA 3C	Analysis Batch:	200-71844	Instrument ID:	CH0001.i
Prep Method:	Summa Canister	Prep Batch:	N/A	Lab File ID:	200-22142-a-2a.d-avg
Dilution:	1.63			Initial Weight/Volume:	2 mL
Analysis Date:	05/07/2014 2200			Final Weight/Volume:	2 mL
Prep Date:	05/07/2014 2200			Injection Volume:	2 mL

Analyte	Result (% v/v)	Qualifier	RL	RL
Carbon dioxide	41		0.082	0.082
Methane	54		0.065	0.065
Nitrogen	2.2		0.82	0.82
Oxygen	0.61		0.082	0.082

Client: Environmental Monitoring Services, LLC

Job Number: 200-22142-1
Sdg Number: 200-22142

Client Sample ID: **31,28,25,24,26**

Lab Sample ID: 200-22142-3
Client Matrix: Air

Date Sampled: 04/28/2014 1552
Date Received: 05/01/2014 1010

EPA 3C Fixed Gases from Stationary Sources

Analysis Method:	EPA 3C	Analysis Batch:	200-71844	Instrument ID:	CH0001.i
Prep Method:	Summa Canister	Prep Batch:	N/A	Lab File ID:	200-22142-a-3a.d-avg
Dilution:	1.54			Initial Weight/Volume:	2 mL
Analysis Date:	05/07/2014 2247			Final Weight/Volume:	2 mL
Prep Date:	05/07/2014 2247			Injection Volume:	2 mL

Analyte	Result (% v/v)	Qualifier	RL	RL
Carbon dioxide	37		0.077	0.077
Methane	59		0.062	0.062
Nitrogen	1.1		0.77	0.77
Oxygen	0.22		0.077	0.077

Client: Environmental Monitoring Services, LLC

Job Number: 200-22142-1
Sdg Number: 200-22142

Client Sample ID: **32,30,36,37,40**

Lab Sample ID: 200-22142-4
Client Matrix: Air

Date Sampled: 04/29/2014 0924
Date Received: 05/01/2014 1010

EPA 3C Fixed Gases from Stationary Sources

Analysis Method:	EPA 3C	Analysis Batch:	200-71844	Instrument ID:	CH0001.i
Prep Method:	Summa Canister	Prep Batch:	N/A	Lab File ID:	200-22142-a-4a.d-avg
Dilution:	1.69			Initial Weight/Volume:	2 mL
Analysis Date:	05/07/2014 2335			Final Weight/Volume:	2 mL
Prep Date:	05/07/2014 2335			Injection Volume:	2 mL

Analyte	Result (% v/v)	Qualifier	RL	RL
Carbon dioxide	24		0.085	0.085
Methane	41		0.068	0.068
Nitrogen	22		0.85	0.85
Oxygen	6.7		0.085	0.085

Client: Environmental Monitoring Services, LLC

Job Number: 200-22142-1
Sdg Number: 200-22142

Client Sample ID: **43,42,41,35,45**

Lab Sample ID: 200-22142-5
Client Matrix: Air

Date Sampled: 04/29/2014 1051
Date Received: 05/01/2014 1010

EPA 3C Fixed Gases from Stationary Sources

Analysis Method:	EPA 3C	Analysis Batch:	200-71844	Instrument ID:	CH0001.i
Prep Method:	Summa Canister	Prep Batch:	N/A	Lab File ID:	200-22142-a-5b.d-avg
Dilution:	1.63			Initial Weight/Volume:	2 mL
Analysis Date:	05/08/2014 0039			Final Weight/Volume:	2 mL
Prep Date:	05/08/2014 0039			Injection Volume:	2 mL

Analyte	Result (% v/v)	Qualifier	RL	RL
Carbon dioxide	38		0.082	0.082
Methane	60		0.065	0.065
Nitrogen	0.82	U	0.82	0.82
Oxygen	0.13		0.082	0.082

Client: Environmental Monitoring Services, LLC

Job Number: 200-22142-1
Sdg Number: 200-22142

Client Sample ID: **34,22,21,18,19**

Lab Sample ID: 200-22142-6
Client Matrix: Air

Date Sampled: 04/29/2014 1152
Date Received: 05/01/2014 1010

EPA 3C Fixed Gases from Stationary Sources

Analysis Method:	EPA 3C	Analysis Batch:	200-71844	Instrument ID:	CH0001.i
Prep Method:	Summa Canister	Prep Batch:	N/A	Lab File ID:	200-22142-a-6a.d-avg
Dilution:	1.71			Initial Weight/Volume:	2 mL
Analysis Date:	05/08/2014 0110			Final Weight/Volume:	2 mL
Prep Date:	05/08/2014 0110			Injection Volume:	2 mL

Analyte	Result (% v/v)	Qualifier	RL	RL
Carbon dioxide	19		0.086	0.086
Methane	36		0.068	0.068
Nitrogen	29		0.86	0.86
Oxygen	8.9		0.086	0.086

Client: Environmental Monitoring Services, LLC

Job Number: 200-22142-1
Sdg Number: 200-22142

Client Sample ID: **23,20,15,8,7**

Lab Sample ID: 200-22142-7
Client Matrix: Air

Date Sampled: 04/29/2014 1252
Date Received: 05/01/2014 1010

EPA 3C Fixed Gases from Stationary Sources

Analysis Method:	EPA 3C	Analysis Batch:	200-71844	Instrument ID:	CH0001.i
Prep Method:	Summa Canister	Prep Batch:	N/A	Lab File ID:	200-22142-a-7b.d-avg
Dilution:	1.77			Initial Weight/Volume:	2 mL
Analysis Date:	05/08/2014 0214			Final Weight/Volume:	2 mL
Prep Date:	05/08/2014 0214			Injection Volume:	2 mL

Analyte	Result (% v/v)	Qualifier	RL	RL
Carbon dioxide	29		0.089	0.089
Methane	57		0.071	0.071
Nitrogen	7.4		0.89	0.89
Oxygen	2.2		0.089	0.089

Client: Environmental Monitoring Services, LLC

Job Number: 200-22142-1
Sdg Number: 200-22142

Client Sample ID: **9,10,1,2,3**

Lab Sample ID: 200-22142-8
Client Matrix: Air

Date Sampled: 04/29/2014 1512
Date Received: 05/01/2014 1010

EPA 3C Fixed Gases from Stationary Sources

Analysis Method:	EPA 3C	Analysis Batch:	200-71844	Instrument ID:	CH0001.i
Prep Method:	Summa Canister	Prep Batch:	N/A	Lab File ID:	200-22142-a-8b.d-avg
Dilution:	1.56			Initial Weight/Volume:	2 mL
Analysis Date:	05/08/2014 0302			Final Weight/Volume:	2 mL
Prep Date:	05/08/2014 0302			Injection Volume:	2 mL

Analyte	Result (% v/v)	Qualifier	RL	RL
Carbon dioxide	34		0.078	0.078
Methane	62		0.062	0.062
Nitrogen	1.6		0.78	0.78
Oxygen	0.35		0.078	0.078

Client: Environmental Monitoring Services, LLC

Job Number: 200-22142-1
Sdg Number: 200-22142

Client Sample ID: **11,4,5,6**

Lab Sample ID: 200-22142-9
Client Matrix: Air

Date Sampled: 04/29/2014 1556
Date Received: 05/01/2014 1010

EPA 3C Fixed Gases from Stationary Sources

Analysis Method:	EPA 3C	Analysis Batch:	200-71844	Instrument ID:	CH0001.i
Prep Method:	Summa Canister	Prep Batch:	N/A	Lab File ID:	200-22142-a-9b.d-avg
Dilution:	2.01			Initial Weight/Volume:	2 mL
Analysis Date:	05/08/2014 0941			Final Weight/Volume:	2 mL
Prep Date:	05/08/2014 0941			Injection Volume:	2 mL

Analyte	Result (% v/v)	Qualifier	RL	RL
Carbon dioxide	35		0.10	0.10
Methane	61		0.080	0.080
Nitrogen	1.0	U	1.0	1.0
Oxygen	0.14		0.10	0.10

Client: Environmental Monitoring Services, LLC

Job Number: 200-22142-1
Sdg Number: 200-22142

Client Sample ID: **14,13,12,17,16**

Lab Sample ID: 200-22142-10
Client Matrix: Air

Date Sampled: 04/29/2014 1359
Date Received: 05/01/2014 1010

EPA 3C Fixed Gases from Stationary Sources

Analysis Method:	EPA 3C	Analysis Batch:	200-71844	Instrument ID:	CH0001.i
Prep Method:	Summa Canister	Prep Batch:	N/A	Lab File ID:	200-22142-a-10a.d-avg
Dilution:	1.65			Initial Weight/Volume:	2 mL
Analysis Date:	05/08/2014 1012			Final Weight/Volume:	2 mL
Prep Date:	05/08/2014 1012			Injection Volume:	2 mL

Analyte	Result (% v/v)	Qualifier	RL	RL
Carbon dioxide	26		0.083	0.083
Methane	47		0.066	0.066
Nitrogen	16		0.83	0.83
Oxygen	5.0		0.083	0.083

DATA REPORTING QUALIFIERS

Client: Environmental Monitoring Services, LLC

Job Number: 200-22142-1
Sdg Number: 200-22142

Lab Section	Qualifier	Description
Air - GC VOA		
	U	Indicates the analyte was analyzed for but not detected.

QUALITY CONTROL RESULTS

Client: Environmental Monitoring Services, LLC

Job Number: 200-22142-1
Sdg Number: 200-22142

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
Air - GC VOA					
Analysis Batch:200-71822					
LCS 200-71822/2	Lab Control Sample	T	Air	EPA 25C	
MB 200-71822/3	Method Blank	T	Air	EPA 25C	
200-22142-1	47,39,49,46,48	T	Air	EPA 25C	
200-22142-2	44,38,33,27,29	T	Air	EPA 25C	
200-22142-3	31,28,25,24,26	T	Air	EPA 25C	
200-22142-4	32,30,36,37,40	T	Air	EPA 25C	
200-22142-5	43,42,41,35,45	T	Air	EPA 25C	
200-22142-6	34,22,21,18,19	T	Air	EPA 25C	
200-22142-7	23,20,15,8,7	T	Air	EPA 25C	
200-22142-8	9,10,1,2,3	T	Air	EPA 25C	
200-22142-9	11,4,5,6	T	Air	EPA 25C	
200-22142-10	14,13,12,17,16	T	Air	EPA 25C	
Analysis Batch:200-71844					
LCS 200-71844/2	Lab Control Sample	T	Air	EPA 3C	
MB 200-71844/3	Method Blank	T	Air	EPA 3C	
200-22142-1	47,39,49,46,48	T	Air	EPA 3C	
200-22142-2	44,38,33,27,29	T	Air	EPA 3C	
200-22142-3	31,28,25,24,26	T	Air	EPA 3C	
200-22142-4	32,30,36,37,40	T	Air	EPA 3C	
200-22142-5	43,42,41,35,45	T	Air	EPA 3C	
200-22142-6	34,22,21,18,19	T	Air	EPA 3C	
200-22142-7	23,20,15,8,7	T	Air	EPA 3C	
200-22142-8	9,10,1,2,3	T	Air	EPA 3C	
200-22142-9	11,4,5,6	T	Air	EPA 3C	
200-22142-10	14,13,12,17,16	T	Air	EPA 3C	

Report Basis
T = Total

Client: Environmental Monitoring Services, LLC

Job Number: 200-22142-1
Sdg Number: 200-22142

Method Blank - Batch: 200-71822

Method: EPA 25C
Preparation: Summa Canister

Lab Sample ID:	MB 200-71822/3	Analysis Batch:	200-71822	Instrument ID:	CH0001.i
Client Matrix:	Air	Prep Batch:	N/A	Lab File ID:	mb050714b.d-avg
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	2 mL
Analysis Date:	05/07/2014 1728	Units:	ppm-C	Final Weight/Volume:	2 mL
Prep Date:	05/07/2014 1728			Injection Volume:	2 mL
Leach Date:	N/A				

Analyte	Result	Qual	RL	RL
NMOC as Carbon	6.0	U	6.0	6.0

Lab Control Sample - Batch: 200-71822

Method: EPA 25C
Preparation: Summa Canister

Lab Sample ID:	LCS 200-71822/2	Analysis Batch:	200-71822	Instrument ID:	CH0001.i
Client Matrix:	Air	Prep Batch:	N/A	Lab File ID:	25clcs050714a.d-avg
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	2 mL
Analysis Date:	05/07/2014 1621	Units:	ppm-C	Final Weight/Volume:	2 mL
Prep Date:	05/07/2014 1621			Injection Volume:	2 mL
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
NMOC as Carbon	750	711	95	70 - 130	

Client: Environmental Monitoring Services, LLC

Job Number: 200-22142-1
Sdg Number: 200-22142

Method Blank - Batch: 200-71844

Method: EPA 3C
Preparation: Summa Canister

Lab Sample ID:	MB 200-71844/3	Analysis Batch:	200-71844	Instrument ID:	CH0001.i
Client Matrix:	Air	Prep Batch:	N/A	Lab File ID:	mb050714b.d-avg
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	2 mL
Analysis Date:	05/07/2014 1728	Units:	% v/v	Final Weight/Volume:	2 mL
Prep Date:	05/07/2014 1728			Injection Volume:	2 mL
Leach Date:	N/A				

Analyte	Result	Qual	RL	RL
Carbon dioxide	0.050	U	0.050	0.050
Methane	0.040	U	0.040	0.040
Nitrogen	0.50	U	0.50	0.50
Oxygen	0.050	U	0.050	0.050

Lab Control Sample - Batch: 200-71844

Method: EPA 3C
Preparation: Summa Canister

Lab Sample ID:	LCS 200-71844/2	Analysis Batch:	200-71844	Instrument ID:	CH0001.i
Client Matrix:	Air	Prep Batch:	N/A	Lab File ID:	3clcs050714b.d-avg
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	2 mL
Analysis Date:	05/07/2014 1435	Units:	% v/v	Final Weight/Volume:	2 mL
Prep Date:	05/07/2014 1435			Injection Volume:	2 mL
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Carbon dioxide	5.00	5.17	103	70 - 130	
Methane	4.00	3.62	91	70 - 130	
Nitrogen	5.00	4.41	88	70 - 130	
Oxygen	5.00	4.59	92	70 - 130	

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Canister Samples Chain of Custody Record

TestAmerica Analytical Testing Corp. assumes no liability with respect to the collection and shipment of these samples.

Client Contact Information	Project Manager: Jeff Johnson	Samples Collected By: M Hollis / J. Sutton	1 of 2 COCs
Company: EMServices	Phone: 770/823-7174		
Address: 803 Barnwell Run	Email:		
City/State/Zip: Woodstock, GA 30189			
Phone: 770/823-7174	Site Contact:		
FAX:	TA Contact: Don Dawkins		
Project Name: Loudon Co LF	Analysis Turnaround Time		
Site:	Standard (Specify) ✓		
PO #	Rush (Specify)		

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15	MA-APH	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
47, 39, 49, 46, 48	4/28/14	1122	1214	30	5		3712			✓	✓							✓	
44, 38, 33, 27, 29	4/28/14	1340	1437	30	5		5454			✓	✓							✓	
31, 28, 25, 24, 26	4/28/14	1518	1552	30	5		5685			✓	✓							✓	
32, 30, 36, 37, 40	4/29/14	0836	0924	30	5		2720			✓	✓							✓	
43, 42, 41, 35, 45	4/29/14	0938	1051	30	5		5639			✓	✓							✓	
34, 22, 21, 18, 19	4/29/14	1103	1152	30	5		3258			✓	✓							✓	

		Temperature (Fahrenheit)	
	Interior	Ambient	
Start			
Stop			

		Pressure (inches of Hg)	
	Interior	Ambient	
Start			
Stop			

200-22142 COC

Special Instructions/QC Requirements & Comments:

Samples Shipped by:	Date/Time: 4/30/14	1345	Samples Received by:
Samples Relinquished by: 4/30/14	Date/Time: 1505		Received by: TA Burl 5/1/14 1010
Relinquished by:	Date/Time:		Received by:

Lab Use Only Shipper Name: Opened by: Condition:

TestAmerica Burlington
30 Community Drive
Suite 11
South Burlington, VT 05403
phone 802-660-1990 fax 802-660-1919

Canister Samples Chain of Custody Record

TestAmerica Analytical Testing Corp. assumes no liability with respect to the collection and shipment of these samples.

Client Contact Information	Project Manager: Jeff Johnson	Samples Collected By: M. Young / J. Sutton
Company: EM Services	Phone: 770/823-7174	2 of 2 COCs
Address: 803 Bermuda Run	Email: JJ@EMservicesonline.com	
City/State/Zip Woodstock, GA 30189		
Phone: 770/823-7174	Site Contact:	
FAX:	TA Contact: Dan Dawlucki	
Project Name: Loudon Co I/F	**Analysis Turnaround Time**	
Site:	Standard (Specify): /	
PO #	Rush (Specify):	

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15	MA-APH	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
23, 20, 15, 8, 7	4/29/14	1212	1252	30	5		5082			/	/							/	
9, 10, 1, 2, 3	4/29/14	1425	1512	30	5		4807			/	/							/	
11, 4, 5, 6	4/29/14	1525	1556	30	10		5057			/	/							/	

Temperature (Fahrenheit)	Interior	Ambient
Start		
Stop		

Pressure (Inches of Hg)	Interior	Ambient
Start		
Stop		

Special Instructions/QC Requirements & Comments:

Samples Shipped by:	Date/Time: 4/30/14	1345	Samples Received by:
Samples Relinquished by: 4/30/14	Date/Time: 1505		Received by: 5/1/14 1010
Relinquished by:	Date/Time:		Received by:

Lab Use Only **Shipper Name:** **Opened by:** **Condition:**

RIGIN ID:MULA (678) 966-9991
EORGE TAYLOR
EST AMERICA ATLANTA
500 MCDONOUGH DRIVE

ORCROSS, GA 30093
NITED STATES US

SHIP DATE: 30APR14
ACTWGT: 28.3 LB
CAD: 859116/CAFE2704

BILL RECIPIENT

SAMPLE RECEIVING
TESTAMERICA
30 COMMUNITY DR
SUITE 11
SOUTH BURLINGTON VT 05403
302) 660-1990
REF: EMS

FedEx Express

J131113052301 26

2 of 3
PS# 5376 2768 1070
263
Mstr# 5376 2768 1060
0201

THU - 01 MAY AA
STANDARD OVERNIGHT

XH BTVA

05403
VT-US BTV

Part # 154254-35H RITZ 11/13

ORIGIN ID:MULA (678) 966-9991
GEORGE TAYLOR
TEST AMERICA ATLANTA
6500 MCDONOUGH DRIVE

NORCROSS, GA 30093
UNITED STATES US

SHIP DATE: 30APR14
ACTWGT: 28.3 LB
CAD: 859116/CAFE2704

BILL RECIPIENT

TO SAMPLE RECEIVING
TESTAMERICA
30 COMMUNITY DR
SUITE 11
SOUTH BURLINGTON VT 05403
(802) 660-1990
REF: EMS

FedEx Express

J131113052301 26

1 of 3
TRK# 5376 2768 1060
0201
MASTER

THU - 01 MAY AA
STANDARD OVERNIGHT

XH BTVA

05403
VT-US BTV

Part # 154254-35H RITZ 11/13

ORIGIN ID:MULA (678) 966-9991
GEORGE TAYLOR
TEST AMERICA ATLANTA
6500 MCDONOUGH DRIVE

NORCROSS, GA 30093
UNITED STATES US

SHIP DATE: 30APR14
ACTWGT: 23.1 LB
CAD: 859116/CAFE2704

BILL RECIPIENT

TO SAMPLE RECEIVING
TESTAMERICA
30 COMMUNITY DR
SUITE 11
SOUTH BURLINGTON VT 05403
(802) 660-1990
REF: EMS

FedEx Express

J131113052301 26

3 of 3
MPS# 5376 2768 1081
0263
Mstr# 5376 2768 1060

THU - 01 MAY AA
STANDARD OVERNIGHT

XH BTVA

05403
VT-US BTV

Part # 154254-35H RITZ 11/13

Login Sample Receipt Checklist

Client: Environmental Monitoring Services, LLC

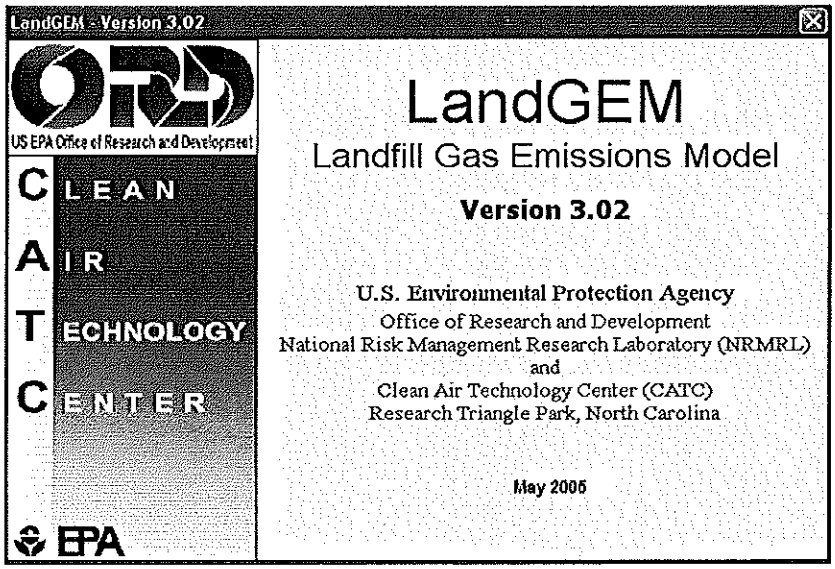
Job Number: 200-22142-1
SDG Number: 200-22142

Login Number: 22142
List Number: 1
Creator: Marion, Greg T

List Source: TestAmerica Burlington

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	120668,669,670
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	Thermal preservation not required.
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	AMBIENT
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	False	Received extra samples not listed on COC.
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	True	

APPENDIX C



Summary Report

Landfill Name or Identifier: Matlock Bend Landfill

Date: Wednesday, May 28, 2014

Description/Comments:
Waste Design Capacity: Phase 1 = 1,107,699 CY /2.0 CY/Ton = 553,850 Tons x 0.907 Mg/Ton = 502,341 Mg Phase II/IV = 4,748,110 CY / 1.32 CY/Ton = 3,597,053 Tons x 0.907 Mg/Ton = 3,262,527 Mg TOTAL: 3,764,868 Mg (2.0 CY/Ton is estimate for closed landfills; 1.32 CY/Ton is avg. denisty from Airspace Man. Sheet Yr Ending 2013) (Phase I design capacity is from subtracting Phase II/IV cap. from 5,855,809 CY(Total from SCS 2/24/99 ltr))

About LandGEM:

First-Order Decomposition Rate Equation:

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

Where,

Q_{CH_4} = annual methane generation in the year of the calculation (m^3/year)
i = 1-year time increment
n = (year of the calculation) - (initial year of waste acceptance)
j = 0.1-year time increment
k = methane generation rate ($year^{-1}$)
L_o = potential methane generation capacity (m^3/Mg)
M_i = mass of waste accepted in the i^{th} year (Mg)
t_{ij} = age of the j^{th} section of waste mass M_i accepted in the i^{th} year (decimal years, e.g., 3.2 years)

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

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

Input Review

LANDFILL CHARACTERISTICS

Landfill Open Year	**1987**	
Landfill Closure Year (with 80-year limit)	**2019**	
Actual Closure Year (without limit)	***2019***	
Have Model Calculate Closure Year?	**Yes**	
Waste Design Capacity	**3,764,868**	*megagrams*

MODEL PARAMETERS

Methane Generation Rate, k	**0.050**	*year^{-1}*
Potential Methane Generation Capacity, L_o	**170**	*m^3/Mg*
NMOC Concentration	**82**	*ppmv as hexane*
Methane Content	**50**	*% by volume*

GASES / POLLUTANTS SELECTED

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

WASTE ACCEPTANCE RATES

Year	Waste Accepted		Waste-In-Place	
	(Mg/year)	*(short tons/year)*	*(Mg)*	*(short tons)*
1987	22,069	24,276	0	0
1988	50,897	55,987	22,069	24,276
1989	61,594	67,753	72,966	80,263
1990	66,674	73,341	134,560	148,016
1991	96,893	106,582	201,234	221,357
1992	87,734	96,507	298,127	327,940
1993	86,165	94,782	385,861	424,447
1994	121,935	134,129	472,026	519,229
1995	54,350	59,785	593,961	653,357
1996	37,141	40,855	648,311	713,142
1997	45,648	50,213	685,452	753,997
1998	47,842	52,626	731,100	804,210
1999	54,471	59,918	778,942	856,836
2000	50,066	55,073	833,413	916,754
2001	43,706	48,077	883,479	971,827
2002	40,984	45,082	927,185	1,019,904
2003	50,021	55,023	968,169	1,064,986
2004	61,955	68,151	1,018,190	1,120,009
2005	72,703	79,973	1,080,145	1,188,160
2006	81,768	89,945	1,152,848	1,268,133
2007	119,065	130,972	1,234,616	1,358,078
2008	152,040	167,244	1,353,681	1,489,049
2009	140,643	154,707	1,505,721	1,656,293
2010	118,624	130,486	1,646,364	1,811,000
2011	214,770	236,247	1,764,988	1,941,487
2012	215,592	237,151	1,979,758	2,177,734
2013	228,653	251,518	2,195,350	2,414,885
2014	228,653	251,518	2,424,003	2,666,403
2015	228,653	251,518	2,652,656	2,917,922
2016	228,653	251,518	2,881,309	3,169,440
2017	228,653	251,518	3,109,962	3,420,958
2018	228,653	251,518	3,338,615	3,672,477
2019	197,600	217,360	3,567,268	3,923,995
2020	0	0	3,764,868	4,141,355
2021	0	0	3,764,868	4,141,355
2022	0	0	3,764,868	4,141,355
2023	0	0	3,764,868	4,141,355
2024	0	0	3,764,868	4,141,355
2025	0	0	3,764,868	4,141,355
2026	0	0	3,764,868	4,141,355

WASTE ACCEPTANCE RATES (Continued)

Year	Waste Accepted		Waste-In-Place	
	(Mg/year)	*(short tons/year)*	*(Mg)*	*(short tons)*
2027	0	0	3,764,868	4,141,355
2028	0	0	3,764,868	4,141,355
2029	0	0	3,764,868	4,141,355
2030	0	0	3,764,868	4,141,355
2031	0	0	3,764,868	4,141,355
2032	0	0	3,764,868	4,141,355
2033	0	0	3,764,868	4,141,355
2034	0	0	3,764,868	4,141,355
2035	0	0	3,764,868	4,141,355
2036	0	0	3,764,868	4,141,355
2037	0	0	3,764,868	4,141,355
2038	0	0	3,764,868	4,141,355
2039	0	0	3,764,868	4,141,355
2040	0	0	3,764,868	4,141,355
2041	0	0	3,764,868	4,141,355
2042	0	0	3,764,868	4,141,355
2043	0	0	3,764,868	4,141,355
2044	0	0	3,764,868	4,141,355
2045	0	0	3,764,868	4,141,355
2046	0	0	3,764,868	4,141,355
2047	0	0	3,764,868	4,141,355
2048	0	0	3,764,868	4,141,355
2049	0	0	3,764,868	4,141,355
2050	0	0	3,764,868	4,141,355
2051	0	0	3,764,868	4,141,355
2052	0	0	3,764,868	4,141,355
2053	0	0	3,764,868	4,141,355
2054	0	0	3,764,868	4,141,355
2055	0	0	3,764,868	4,141,355
2056	0	0	3,764,868	4,141,355
2057	0	0	3,764,868	4,141,355
2058	0	0	3,764,868	4,141,355
2059	0	0	3,764,868	4,141,355
2060	0	0	3,764,868	4,141,355
2061	0	0	3,764,868	4,141,355
2062	0	0	3,764,868	4,141,355
2063	0	0	3,764,868	4,141,355
2064	0	0	3,764,868	4,141,355
2065	0	0	3,764,868	4,141,355
2066	0	0	3,764,868	4,141,355

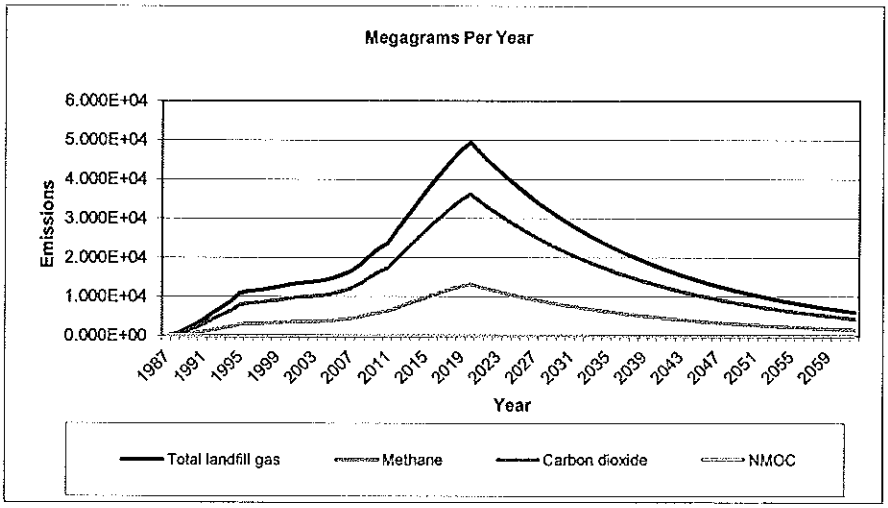
Pollutant Parameters

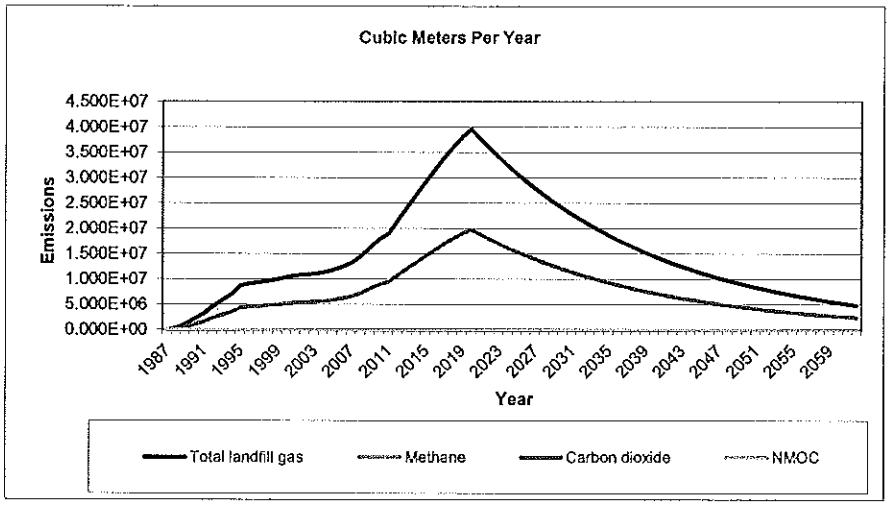
		Gas / Pollutant Default Parameters:		*User-specified Pollutant Parameters:*	
	Compound	Concentration (*ppmv*)	Molecular Weight	Concentration (*ppmv*)	Molecular Weight
Gases	Total landfill gas		0.00		
	Methane		16.04		
	Carbon dioxide		44.01		
	NMOC	4,000	86.18		
Pollutants	1,1,1-Trichloroethane (methyl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

Pollutant Parameters (Continued)

		Gas / Pollutant Default Parameters:		*User-specified Pollutant Parameters:*	
	Compound	Concentration (*ppmv*)	Molecular Weight	Concentration (*ppmv*)	Molecular Weight
Pollutants	Ethyl mercaptan (ethanethiol) - VOC	2.3	62.13		
	Ethylbenzene - HAP/VOC	4.6	106.16		
	Ethylene dibromide - HAP/VOC	1.0E-03	187.88		
	Fluorotrichloromethane - VOC	0.76	137.38		
	Hexane - HAP/VOC	6.6	86.18		
	Hydrogen sulfide	36	34.08		
	Mercury (total) - HAP	2.9E-04	200.61		
	Methyl ethyl ketone - HAP/VOC	7.1	72.11		
	Methyl isobutyl ketone - HAP/VOC	1.9	100.16		
	Methyl mercaptan - VOC	2.5	48.11		
	Pentane - VOC	3.3	72.15		
	Perchloroethylene (tetrachloroethylene) - HAP	3.7	165.83		
	Propane - VOC	11	44.09		
	t-1,2-Dichloroethene - VOC	2.8	96.94		
	Toluene - No or Unknown Co-disposal - HAP/VOC	39	92.13		
	Toluene - Co-disposal - HAP/VOC	170	92.13		
	Trichloroethylene (trichloroethene) - HAP/VOC	2.8	131.40		
	Vinyl chloride - HAP/VOC	7.3	62.50		
	Xylenes - HAP/VOC	12	106.16		

Graphs


Megagrams Per Year
Emissions
6.000E+04
5.000E+04
4.000E+04
3.000E+04
2.000E+04
1.000E+04
0.000E+00
1987 1991 1995 1999 2003 2007 2011 2015 2019 2023 2027 2031 2035 2039 2043 2047 2051 2055 2059
Year
Total landfill gas
Methane
Carbon dioxide
NMOC


Cubic Meters Per Year
Emissions
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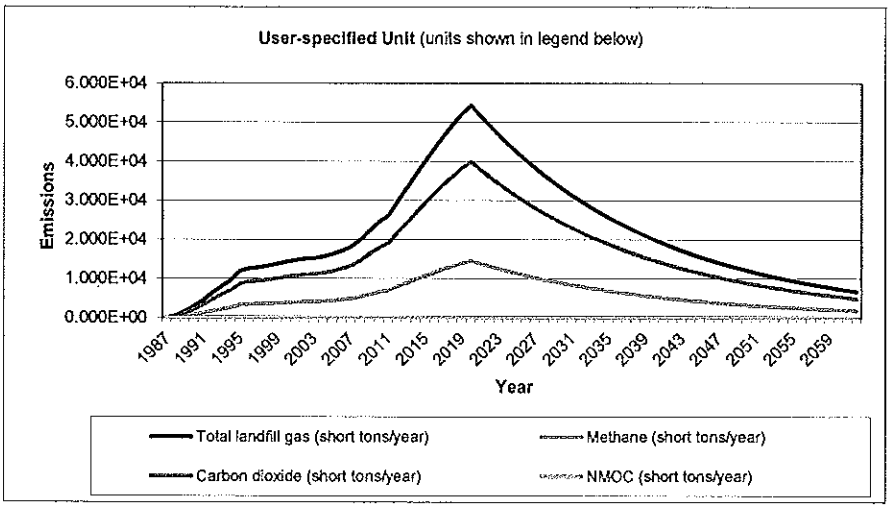
3.000E+07
2.500E+07
2.000E+07
1.500E+07
1.000E+07
5.000E+06
0.000E+00
1987 1991 1995 1999 2003 2007 2011 2015 2019 2023 2027 2031 2035 2039 2043 2047 2051 2055 2059
Year
Total landfill gas
Methane
Carbon dioxide
NMOC


User-specified Unit (units shown in legend below)
Emissions
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5.000E+04
4.000E+04
3.000E+04
2.000E+04
1.000E+04
0.000E+00
1987 1991 1995 1999 2003 2007 2011 2015 2019 2023 2027 2031 2035 2039 2043 2047 2051 2055 2059
Year
Total landfill gas (short tons/year)
Methane (short tons/year)
Carbon dioxide (short tons/year)
NMOC (short tons/year)

Results

Year	Total landfill gas			Methane		
	(Mg/year)	*(m^3/year)*	*(short tons/year)*	*(Mg/year)*	*(m^3/year)*	*(short tons/year)*
1987	0	0	0	0	0	0
1988	4.581E+02	3.669E+05	5.040E+02	1.224E+02	1.834E+05	1.346E+02
1989	1.492E+03	1.195E+06	1.642E+03	3.986E+02	5.975E+05	4.385E+02
1990	2.698E+03	2.161E+06	2.968E+03	7.207E+02	1.080E+06	7.928E+02
1991	3.951E+03	3.164E+06	4.346E+03	1.055E+03	1.582E+06	1.161E+03
1992	5.770E+03	4.620E+06	6.347E+03	1.541E+03	2.310E+06	1.695E+03
1993	7.310E+03	5.853E+06	8.041E+03	1.952E+03	2.927E+06	2.148E+03
1994	8.742E+03	7.000E+06	9.616E+03	2.335E+03	3.500E+06	2.569E+03
1995	1.085E+04	8.686E+06	1.193E+04	2.897E+03	4.343E+06	3.187E+03
1996	1.145E+04	9.166E+06	1.259E+04	3.057E+03	4.583E+06	3.363E+03
1997	1.166E+04	9.336E+06	1.282E+04	3.114E+03	4.668E+06	3.426E+03
1998	1.204E+04	9.639E+06	1.324E+04	3.215E+03	4.820E+06	3.537E+03
1999	1.244E+04	9.965E+06	1.369E+04	3.324E+03	4.982E+06	3.656E+03
2000	1.297E+04	1.038E+07	1.426E+04	3.464E+03	5.192E+06	3.810E+03
2001	1.337E+04	1.071E+07	1.471E+04	3.573E+03	5.355E+06	3.930E+03
2002	1.363E+04	1.091E+07	1.499E+04	3.641E+03	5.457E+06	4.005E+03
2003	1.382E+04	1.106E+07	1.520E+04	3.690E+03	5.532E+06	4.059E+03
2004	1.418E+04	1.136E+07	1.560E+04	3.788E+03	5.678E+06	4.167E+03
2005	1.478E+04	1.183E+07	1.625E+04	3.947E+03	5.916E+06	4.341E+03
2006	1.556E+04	1.246E+07	1.712E+04	4.157E+03	6.231E+06	4.573E+03
2007	1.650E+04	1.321E+07	1.815E+04	4.408E+03	6.607E+06	4.849E+03
2008	1.817E+04	1.455E+07	1.999E+04	4.853E+03	7.275E+06	5.339E+03
2009	2.044E+04	1.637E+07	2.248E+04	5.460E+03	8.183E+06	6.006E+03
2010	2.236E+04	1.791E+07	2.460E+04	5.973E+03	8.953E+06	6.571E+03
2011	2.373E+04	1.901E+07	2.611E+04	6.340E+03	9.503E+06	6.974E+03
2012	2.704E+04	2.165E+07	2.974E+04	7.221E+03	1.082E+07	7.944E+03
2013	3.019E+04	2.418E+07	3.321E+04	8.065E+03	1.209E+07	8.871E+03
2014	3.347E+04	2.680E+07	3.681E+04	8.939E+03	1.340E+07	9.833E+03
2015	3.658E+04	2.929E+07	4.024E+04	9.771E+03	1.465E+07	1.075E+04
2016	3.954E+04	3.167E+07	4.350E+04	1.056E+04	1.583E+07	1.162E+04
2017	4.236E+04	3.392E+07	4.660E+04	1.132E+04	1.696E+07	1.245E+04
2018	4.504E+04	3.607E+07	4.955E+04	1.203E+04	1.803E+07	1.323E+04
2019	4.759E+04	3.811E+07	5.235E+04	1.271E+04	1.906E+07	1.398E+04
2020	4.937E+04	3.954E+07	5.431E+04	1.319E+04	1.977E+07	1.451E+04
2021	4.697E+04	3.761E+07	5.166E+04	1.255E+04	1.880E+07	1.380E+04
2022	4.468E+04	3.577E+07	4.914E+04	1.193E+04	1.789E+07	1.313E+04
2023	4.250E+04	3.403E+07	4.675E+04	1.135E+04	1.701E+07	1.249E+04
2024	4.042E+04	3.237E+07	4.447E+04	1.080E+04	1.618E+07	1.188E+04
2025	3.845E+04	3.079E+07	4.230E+04	1.027E+04	1.540E+07	1.130E+04
2026	3.658E+04	2.929E+07	4.023E+04	9.770E+03	1.464E+07	1.075E+04
2027	3.479E+04	2.786E+07	3.827E+04	9.294E+03	1.393E+07	1.022E+04
2028	3.310E+04	2.650E+07	3.641E+04	8.840E+03	1.325E+07	9.724E+03
2029	3.148E+04	2.521E+07	3.463E+04	8.409E+03	1.260E+07	9.250E+03
2030	2.995E+04	2.398E+07	3.294E+04	7.999E+03	1.199E+07	8.799E+03
2031	2.849E+04	2.281E+07	3.133E+04	7.609E+03	1.141E+07	8.370E+03
2032	2.710E+04	2.170E+07	2.981E+04	7.238E+03	1.085E+07	7.962E+03
2033	2.578E+04	2.064E+07	2.835E+04	6.885E+03	1.032E+07	7.573E+03
2034	2.452E+04	1.963E+07	2.697E+04	6.549E+03	9.817E+06	7.204E+03
2035	2.332E+04	1.868E+07	2.565E+04	6.230E+03	9.338E+06	6.853E+03
2036	2.219E+04	1.776E+07	2.440E+04	5.926E+03	8.882E+06	6.518E+03

Results (Continued)

Year	Total landfill gas			Methane		
	(Mg/year)	(m^3/year)	(short tons/year)	(Mg/year)	(m^3/year)	(short tons/year)
2037	2.110E+04	1.690E+07	2.321E+04	5.637E+03	8.449E+06	6.201E+03
2038	2.007E+04	1.607E+07	2.208E+04	5.362E+03	8.037E+06	5.898E+03
2039	1.909E+04	1.529E+07	2.100E+04	5.100E+03	7.645E+06	5.611E+03
2040	1.816E+04	1.454E+07	1.998E+04	4.852E+03	7.272E+06	5.337E+03
2041	1.728E+04	1.384E+07	1.901E+04	4.615E+03	6.918E+06	5.077E+03
2042	1.644E+04	1.316E+07	1.808E+04	4.390E+03	6.580E+06	4.829E+03
2043	1.563E+04	1.252E+07	1.720E+04	4.176E+03	6.259E+06	4.594E+03
2044	1.487E+04	1.191E+07	1.636E+04	3.972E+03	5.954E+06	4.369E+03
2045	1.415E+04	1.133E+07	1.556E+04	3.779E+03	5.664E+06	4.156E+03
2046	1.346E+04	1.077E+07	1.480E+04	3.594E+03	5.387E+06	3.954E+03
2047	1.280E+04	1.025E+07	1.408E+04	3.419E+03	5.125E+06	3.761E+03
2048	1.218E+04	9.750E+06	1.339E+04	3.252E+03	4.875E+06	3.577E+03
2049	1.158E+04	9.274E+06	1.274E+04	3.094E+03	4.637E+06	3.403E+03
2050	1.102E+04	8.822E+06	1.212E+04	2.943E+03	4.411E+06	3.237E+03
2051	1.048E+04	8.392E+06	1.153E+04	2.799E+03	4.196E+06	3.079E+03
2052	9.968E+03	7.982E+06	1.097E+04	2.663E+03	3.991E+06	2.929E+03
2053	9.482E+03	7.593E+06	1.043E+04	2.533E+03	3.796E+06	2.786E+03
2054	9.020E+03	7.223E+06	9.922E+03	2.409E+03	3.611E+06	2.650E+03
2055	8.580E+03	6.870E+06	9.438E+03	2.292E+03	3.435E+06	2.521E+03
2056	8.161E+03	6.535E+06	8.978E+03	2.180E+03	3.268E+06	2.398E+03
2057	7.763E+03	6.217E+06	8.540E+03	2.074E+03	3.108E+06	2.281E+03
2058	7.385E+03	5.913E+06	8.123E+03	1.973E+03	2.957E+06	2.170E+03
2059	7.025E+03	5.625E+06	7.727E+03	1.876E+03	2.813E+06	2.064E+03
2060	6.682E+03	5.351E+06	7.350E+03	1.785E+03	2.675E+06	1.963E+03
2061	6.356E+03	5.090E+06	6.992E+03	1.698E+03	2.545E+06	1.868E+03
2062	6.046E+03	4.841E+06	6.651E+03	1.615E+03	2.421E+06	1.776E+03
2063	5.751E+03	4.605E+06	6.326E+03	1.536E+03	2.303E+06	1.690E+03
2064	5.471E+03	4.381E+06	6.018E+03	1.461E+03	2.190E+06	1.607E+03
2065	5.204E+03	4.167E+06	5.724E+03	1.390E+03	2.084E+06	1.529E+03
2066	4.950E+03	3.964E+06	5.445E+03	1.322E+03	1.982E+06	1.454E+03
2067	4.709E+03	3.771E+06	5.180E+03	1.258E+03	1.885E+06	1.384E+03
2068	4.479E+03	3.587E+06	4.927E+03	1.196E+03	1.793E+06	1.316E+03
2069	4.261E+03	3.412E+06	4.687E+03	1.138E+03	1.706E+06	1.252E+03
2070	4.053E+03	3.245E+06	4.458E+03	1.083E+03	1.623E+06	1.191E+03
2071	3.855E+03	3.087E+06	4.241E+03	1.030E+03	1.544E+06	1.133E+03
2072	3.667E+03	2.937E+06	4.034E+03	9.795E+02	1.468E+06	1.077E+03
2073	3.488E+03	2.793E+06	3.837E+03	9.318E+02	1.397E+06	1.025E+03
2074	3.318E+03	2.657E+06	3.650E+03	8.863E+02	1.329E+06	9.750E+02
2075	3.156E+03	2.527E+06	3.472E+03	8.431E+02	1.264E+06	9.274E+02
2076	3.002E+03	2.404E+06	3.303E+03	8.020E+02	1.202E+06	8.822E+02
2077	2.856E+03	2.287E+06	3.142E+03	7.629E+02	1.143E+06	8.392E+02
2078	2.717E+03	2.175E+06	2.988E+03	7.257E+02	1.088E+06	7.982E+02
2079	2.584E+03	2.069E+06	2.843E+03	6.903E+02	1.035E+06	7.593E+02
2080	2.458E+03	1.968E+06	2.704E+03	6.566E+02	9.842E+05	7.223E+02
2081	2.338E+03	1.872E+06	2.572E+03	6.246E+02	9.362E+05	6.870E+02
2082	2.224E+03	1.781E+06	2.447E+03	5.941E+02	8.905E+05	6.535E+02
2083	2.116E+03	1.694E+06	2.327E+03	5.651E+02	8.471E+05	6.217E+02
2084	2.013E+03	1.612E+06	2.214E+03	5.376E+02	8.058E+05	5.913E+02
2085	1.914E+03	1.533E+06	2.106E+03	5.114E+02	7.665E+05	5.625E+02
2086	1.821E+03	1.458E+06	2.003E+03	4.864E+02	7.291E+05	5.351E+02
2087	1.732E+03	1.387E+06	1.905E+03	4.627E+02	6.936E+05	5.090E+02

Results (Continued)

Year	Total landfill gas			Methane		
	(Mg/year)	*(m^3/year)*	*(short tons/year)*	*(Mg/year)*	*(m^3/year)*	*(short tons/year)*
2088	1.648E+03	1.319E+06	1.813E+03	4.401E+02	6.597E+05	4.842E+02
2089	1.567E+03	1.255E+06	1.724E+03	4.187E+02	6.276E+05	4.605E+02
2090	1.491E+03	1.194E+06	1.640E+03	3.983E+02	5.969E+05	4.381E+02
2091	1.418E+03	1.136E+06	1.560E+03	3.788E+02	5.678E+05	4.167E+02
2092	1.349E+03	1.080E+06	1.484E+03	3.604E+02	5.401E+05	3.964E+02
2093	1.283E+03	1.028E+06	1.412E+03	3.428E+02	5.138E+05	3.771E+02
2094	1.221E+03	9.775E+05	1.343E+03	3.261E+02	4.887E+05	3.587E+02
2095	1.161E+03	9.298E+05	1.277E+03	3.102E+02	4.649E+05	3.412E+02
2096	1.105E+03	8.845E+05	1.215E+03	2.950E+02	4.422E+05	3.245E+02
2097	1.051E+03	8.413E+05	1.156E+03	2.806E+02	4.207E+05	3.087E+02
2098	9.994E+02	8.003E+05	1.099E+03	2.670E+02	4.001E+05	2.937E+02
2099	9.507E+02	7.613E+05	1.046E+03	2.539E+02	3.806E+05	2.793E+02
2100	9.043E+02	7.241E+05	9.947E+02	2.416E+02	3.621E+05	2.657E+02
2101	8.602E+02	6.888E+05	9.462E+02	2.298E+02	3.444E+05	2.527E+02
2102	8.183E+02	6.552E+05	9.001E+02	2.186E+02	3.276E+05	2.404E+02
2103	7.784E+02	6.233E+05	8.562E+02	2.079E+02	3.116E+05	2.287E+02
2104	7.404E+02	5.929E+05	8.144E+02	1.978E+02	2.964E+05	2.175E+02
2105	7.043E+02	5.640E+05	7.747E+02	1.881E+02	2.820E+05	2.069E+02
2106	6.699E+02	5.365E+05	7.369E+02	1.789E+02	2.682E+05	1.968E+02
2107	6.373E+02	5.103E+05	7.010E+02	1.702E+02	2.551E+05	1.872E+02
2108	6.062E+02	4.854E+05	6.668E+02	1.619E+02	2.427E+05	1.781E+02
2109	5.766E+02	4.617E+05	6.343E+02	1.540E+02	2.309E+05	1.694E+02
2110	5.485E+02	4.392E+05	6.033E+02	1.465E+02	2.196E+05	1.612E+02
2111	5.217E+02	4.178E+05	5.739E+02	1.394E+02	2.089E+05	1.533E+02
2112	4.963E+02	3.974E+05	5.459E+02	1.326E+02	1.987E+05	1.458E+02
2113	4.721E+02	3.780E+05	5.193E+02	1.261E+02	1.890E+05	1.387E+02
2114	4.491E+02	3.596E+05	4.940E+02	1.200E+02	1.798E+05	1.319E+02
2115	4.272E+02	3.421E+05	4.699E+02	1.141E+02	1.710E+05	1.255E+02
2116	4.063E+02	3.254E+05	4.470E+02	1.085E+02	1.627E+05	1.194E+02
2117	3.865E+02	3.095E+05	4.252E+02	1.032E+02	1.548E+05	1.136E+02
2118	3.677E+02	2.944E+05	4.044E+02	9.821E+01	1.472E+05	1.080E+02
2119	3.497E+02	2.801E+05	3.847E+02	9.342E+01	1.400E+05	1.028E+02
2120	3.327E+02	2.664E+05	3.659E+02	8.886E+01	1.332E+05	9.775E+01
2121	3.165E+02	2.534E+05	3.481E+02	8.453E+01	1.267E+05	9.298E+01
2122	3.010E+02	2.410E+05	3.311E+02	8.041E+01	1.205E+05	8.845E+01
2123	2.863E+02	2.293E+05	3.150E+02	7.648E+01	1.146E+05	8.413E+01
2124	2.724E+02	2.181E+05	2.996E+02	7.275E+01	1.091E+05	8.003E+01
2125	2.591E+02	2.075E+05	2.850E+02	6.921E+01	1.037E+05	7.613E+01
2126	2.465E+02	1.973E+05	2.711E+02	6.583E+01	9.867E+04	7.241E+01
2127	2.344E+02	1.877E+05	2.579E+02	6.262E+01	9.386E+04	6.888E+01

Results (Continued)

Year	Carbon dioxide			NMOC		
	(Mg/year)	*(m^3/year)*	*(short tons/year)*	*(Mg/year)*	*(m^3/year)*	*(short tons/year)*
1987	0	0	0	0	0	0
1988	3.358E+02	1.834E+05	3.693E+02	1.078E-01	3.008E+01	1.186E-01
1989	1.094E+03	5.975E+05	1.203E+03	3.513E-01	9.799E+01	3.864E-01
1990	1.978E+03	1.080E+06	2.175E+03	6.351E-01	1.772E+02	6.986E-01
1991	2.896E+03	1.582E+06	3.185E+03	9.299E-01	2.594E+02	1.023E+00
1992	4.229E+03	2.310E+06	4.651E+03	1.358E+00	3.788E+02	1.494E+00
1993	5.357E+03	2.927E+06	5.893E+03	1.720E+00	4.800E+02	1.892E+00
1994	6.407E+03	3.500E+06	7.048E+03	2.058E+00	5.740E+02	2.263E+00
1995	7.950E+03	4.343E+06	8.745E+03	2.553E+00	7.122E+02	2.808E+00
1996	8.389E+03	4.583E+06	9.228E+03	2.694E+00	7.516E+02	2.963E+00
1997	8.545E+03	4.668E+06	9.399E+03	2.744E+00	7.655E+02	3.018E+00
1998	8.823E+03	4.820E+06	9.705E+03	2.833E+00	7.904E+02	3.117E+00
1999	9.120E+03	4.982E+06	1.003E+04	2.929E+00	8.171E+02	3.222E+00
2000	9.504E+03	5.192E+06	1.045E+04	3.052E+00	8.515E+02	3.357E+00
2001	9.802E+03	5.355E+06	1.078E+04	3.148E+00	8.782E+02	3.463E+00
2002	9.989E+03	5.457E+06	1.099E+04	3.208E+00	8.950E+02	3.529E+00
2003	1.013E+04	5.532E+06	1.114E+04	3.252E+00	9.072E+02	3.577E+00
2004	1.039E+04	5.678E+06	1.143E+04	3.338E+00	9.311E+02	3.671E+00
2005	1.083E+04	5.916E+06	1.191E+04	3.478E+00	9.702E+02	3.825E+00
2006	1.141E+04	6.231E+06	1.255E+04	3.663E+00	1.022E+03	4.029E+00
2007	1.209E+04	6.607E+06	1.330E+04	3.884E+00	1.084E+03	4.272E+00
2008	1.332E+04	7.275E+06	1.465E+04	4.276E+00	1.193E+03	4.704E+00
2009	1.498E+04	8.183E+06	1.648E+04	4.811E+00	1.342E+03	5.292E+00
2010	1.639E+04	8.953E+06	1.803E+04	5.263E+00	1.468E+03	5.790E+00
2011	1.739E+04	9.503E+06	1.913E+04	5.586E+00	1.558E+03	6.145E+00
2012	1.981E+04	1.082E+07	2.180E+04	6.363E+00	1.775E+03	6.999E+00
2013	2.213E+04	1.209E+07	2.434E+04	7.106E+00	1.982E+03	7.817E+00
2014	2.453E+04	1.340E+07	2.698E+04	7.877E+00	2.197E+03	8.665E+00
2015	2.681E+04	1.465E+07	2.949E+04	8.610E+00	2.402E+03	9.471E+00
2016	2.898E+04	1.583E+07	3.188E+04	9.307E+00	2.597E+03	1.024E+01
2017	3.105E+04	1.696E+07	3.415E+04	9.970E+00	2.782E+03	1.097E+01
2018	3.301E+04	1.803E+07	3.631E+04	1.060E+01	2.958E+03	1.166E+01
2019	3.488E+04	1.906E+07	3.837E+04	1.120E+01	3.125E+03	1.232E+01
2020	3.619E+04	1.977E+07	3.980E+04	1.162E+01	3.242E+03	1.278E+01
2021	3.442E+04	1.880E+07	3.786E+04	1.105E+01	3.084E+03	1.216E+01
2022	3.274E+04	1.789E+07	3.602E+04	1.051E+01	2.933E+03	1.157E+01
2023	3.115E+04	1.701E+07	3.426E+04	1.000E+01	2.790E+03	1.100E+01
2024	2.963E+04	1.618E+07	3.259E+04	9.514E+00	2.654E+03	1.047E+01
2025	2.818E+04	1.540E+07	3.100E+04	9.050E+00	2.525E+03	9.955E+00
2026	2.681E+04	1.464E+07	2.949E+04	8.609E+00	2.402E+03	9.470E+00
2027	2.550E+04	1.393E+07	2.805E+04	8.189E+00	2.285E+03	9.008E+00
2028	2.426E+04	1.325E+07	2.668E+04	7.790E+00	2.173E+03	8.569E+00
2029	2.307E+04	1.260E+07	2.538E+04	7.410E+00	2.067E+03	8.151E+00
2030	2.195E+04	1.199E+07	2.414E+04	7.048E+00	1.966E+03	7.753E+00
2031	2.088E+04	1.141E+07	2.297E+04	6.705E+00	1.870E+03	7.375E+00
2032	1.986E+04	1.085E+07	2.185E+04	6.378E+00	1.779E+03	7.015E+00
2033	1.889E+04	1.032E+07	2.078E+04	6.067E+00	1.692E+03	6.673E+00
2034	1.797E+04	9.817E+06	1.977E+04	5.771E+00	1.610E+03	6.348E+00
2035	1.709E+04	9.338E+06	1.880E+04	5.489E+00	1.531E+03	6.038E+00
2036	1.626E+04	8.882E+06	1.789E+04	5.222E+00	1.457E+03	5.744E+00

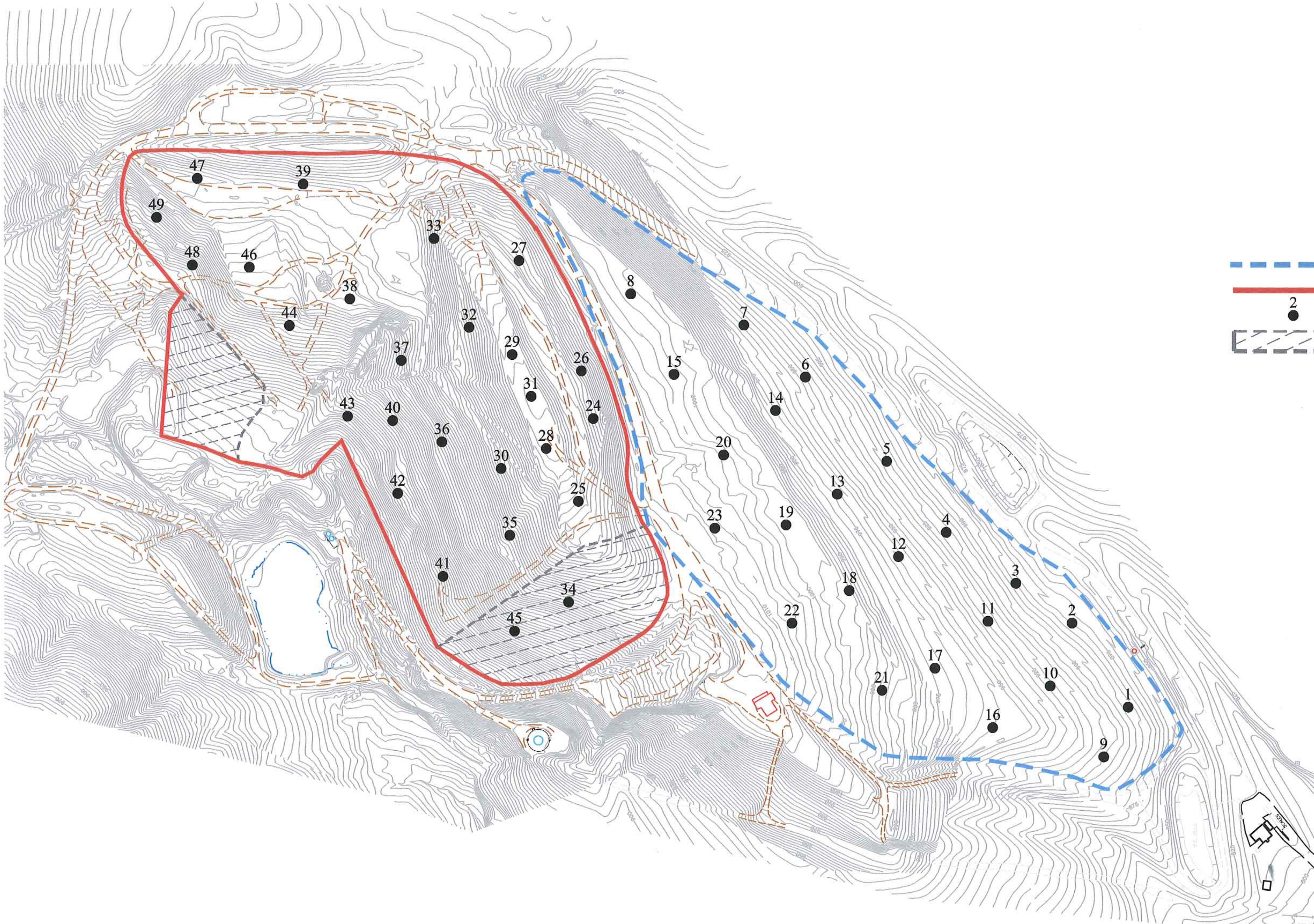
Results (Continued)

Year	Carbon dioxide			NMOC		
	(Mg/year)	*(m^3/year)*	*(short tons/year)*	*(Mg/year)*	*(m^3/year)*	*(short tons/year)*
2037	1.547E+04	8.449E+06	1.701E+04	4.967E+00	1.386E+03	5.464E+00
2038	1.471E+04	8.037E+06	1.618E+04	4.725E+00	1.318E+03	5.197E+00
2039	1.399E+04	7.645E+06	1.539E+04	4.494E+00	1.254E+03	4.944E+00
2040	1.331E+04	7.272E+06	1.464E+04	4.275E+00	1.193E+03	4.703E+00
2041	1.266E+04	6.918E+06	1.393E+04	4.067E+00	1.134E+03	4.473E+00
2042	1.205E+04	6.580E+06	1.325E+04	3.868E+00	1.079E+03	4.255E+00
2043	1.146E+04	6.259E+06	1.260E+04	3.680E+00	1.027E+03	4.048E+00
2044	1.090E+04	5.954E+06	1.199E+04	3.500E+00	9.765E+02	3.850E+00
2045	1.037E+04	5.664E+06	1.140E+04	3.329E+00	9.288E+02	3.662E+00
2046	9.862E+03	5.387E+06	1.085E+04	3.167E+00	8.835E+02	3.484E+00
2047	9.381E+03	5.125E+06	1.032E+04	3.013E+00	8.405E+02	3.314E+00
2048	8.923E+03	4.875E+06	9.816E+03	2.866E+00	7.995E+02	3.152E+00
2049	8.488E+03	4.637E+06	9.337E+03	2.726E+00	7.605E+02	2.998E+00
2050	8.074E+03	4.411E+06	8.882E+03	2.593E+00	7.234E+02	2.852E+00
2051	7.680E+03	4.196E+06	8.448E+03	2.466E+00	6.881E+02	2.713E+00
2052	7.306E+03	3.991E+06	8.036E+03	2.346E+00	6.545E+02	2.581E+00
2053	6.949E+03	3.796E+06	7.644E+03	2.232E+00	6.226E+02	2.455E+00
2054	6.611E+03	3.611E+06	7.272E+03	2.123E+00	5.923E+02	2.335E+00
2055	6.288E+03	3.435E+06	6.917E+03	2.019E+00	5.634E+02	2.221E+00
2056	5.981E+03	3.268E+06	6.580E+03	1.921E+00	5.359E+02	2.113E+00
2057	5.690E+03	3.108E+06	6.259E+03	1.827E+00	5.098E+02	2.010E+00
2058	5.412E+03	2.957E+06	5.953E+03	1.738E+00	4.849E+02	1.912E+00
2059	5.148E+03	2.813E+06	5.663E+03	1.653E+00	4.613E+02	1.819E+00
2060	4.897E+03	2.675E+06	5.387E+03	1.573E+00	4.388E+02	1.730E+00
2061	4.658E+03	2.545E+06	5.124E+03	1.496E+00	4.174E+02	1.646E+00
2062	4.431E+03	2.421E+06	4.874E+03	1.423E+00	3.970E+02	1.565E+00
2063	4.215E+03	2.303E+06	4.637E+03	1.354E+00	3.776E+02	1.489E+00
2064	4.009E+03	2.190E+06	4.410E+03	1.288E+00	3.592E+02	1.416E+00
2065	3.814E+03	2.084E+06	4.195E+03	1.225E+00	3.417E+02	1.347E+00
2066	3.628E+03	1.982E+06	3.991E+03	1.165E+00	3.250E+02	1.282E+00
2067	3.451E+03	1.885E+06	3.796E+03	1.108E+00	3.092E+02	1.219E+00
2068	3.283E+03	1.793E+06	3.611E+03	1.054E+00	2.941E+02	1.160E+00
2069	3.123E+03	1.706E+06	3.435E+03	1.003E+00	2.798E+02	1.103E+00
2070	2.970E+03	1.623E+06	3.267E+03	9.539E-01	2.661E+02	1.049E+00
2071	2.825E+03	1.544E+06	3.108E+03	9.074E-01	2.531E+02	9.981E-01
2072	2.688E+03	1.468E+06	2.956E+03	8.631E-01	2.408E+02	9.494E-01
2073	2.557E+03	1.397E+06	2.812E+03	8.210E-01	2.291E+02	9.031E-01
2074	2.432E+03	1.329E+06	2.675E+03	7.810E-01	2.179E+02	8.591E-01
2075	2.313E+03	1.264E+06	2.545E+03	7.429E-01	2.073E+02	8.172E-01
2076	2.200E+03	1.202E+06	2.421E+03	7.067E-01	1.971E+02	7.773E-01
2077	2.093E+03	1.143E+06	2.302E+03	6.722E-01	1.875E+02	7.394E-01
2078	1.991E+03	1.088E+06	2.190E+03	6.394E-01	1.784E+02	7.034E-01
2079	1.894E+03	1.035E+06	2.083E+03	6.082E-01	1.697E+02	6.691E-01
2080	1.802E+03	9.842E+05	1.982E+03	5.786E-01	1.614E+02	6.364E-01
2081	1.714E+03	9.362E+05	1.885E+03	5.503E-01	1.535E+02	6.054E-01
2082	1.630E+03	8.905E+05	1.793E+03	5.235E-01	1.460E+02	5.759E-01
2083	1.551E+03	8.471E+05	1.706E+03	4.980E-01	1.389E+02	5.478E-01
2084	1.475E+03	8.058E+05	1.623E+03	4.737E-01	1.322E+02	5.211E-01
2085	1.403E+03	7.665E+05	1.543E+03	4.506E-01	1.257E+02	4.956E-01
2086	1.335E+03	7.291E+05	1.468E+03	4.286E-01	1.196E+02	4.715E-01
2087	1.270E+03	6.936E+05	1.397E+03	4.077E-01	1.137E+02	4.485E-01

Results (Continued)

Year	Carbon dioxide			NMOC		
	(Mg/year)	*(m^3/year)*	*(short tons/year)*	*(Mg/year)*	*(m^3/year)*	*(short tons/year)*
2088	1.208E+03	6.597E+05	1.328E+03	3.878E-01	1.082E+02	4.266E-01
2089	1.149E+03	6.276E+05	1.264E+03	3.689E-01	1.029E+02	4.058E-01
2090	1.093E+03	5.969E+05	1.202E+03	3.509E-01	9.790E+01	3.860E-01
2091	1.039E+03	5.678E+05	1.143E+03	3.338E-01	9.312E+01	3.672E-01
2092	9.887E+02	5.401E+05	1.088E+03	3.175E-01	8.858E+01	3.493E-01
2093	9.405E+02	5.138E+05	1.035E+03	3.020E-01	8.426E+01	3.322E-01
2094	8.946E+02	4.887E+05	9.841E+02	2.873E-01	8.015E+01	3.160E-01
2095	8.510E+02	4.649E+05	9.361E+02	2.733E-01	7.624E+01	3.006E-01
2096	8.095E+02	4.422E+05	8.905E+02	2.600E-01	7.253E+01	2.860E-01
2097	7.700E+02	4.207E+05	8.470E+02	2.473E-01	6.899E+01	2.720E-01
2098	7.325E+02	4.001E+05	8.057E+02	2.352E-01	6.562E+01	2.587E-01
2099	6.967E+02	3.806E+05	7.664E+02	2.238E-01	6.242E+01	2.461E-01
2100	6.628E+02	3.621E+05	7.290E+02	2.128E-01	5.938E+01	2.341E-01
2101	6.304E+02	3.444E+05	6.935E+02	2.025E-01	5.648E+01	2.227E-01
2102	5.997E+02	3.276E+05	6.597E+02	1.926E-01	5.373E+01	2.118E-01
2103	5.704E+02	3.116E+05	6.275E+02	1.832E-01	5.111E+01	2.015E-01
2104	5.426E+02	2.964E+05	5.969E+02	1.743E-01	4.862E+01	1.917E-01
2105	5.162E+02	2.820E+05	5.678E+02	1.658E-01	4.624E+01	1.823E-01
2106	4.910E+02	2.682E+05	5.401E+02	1.577E-01	4.399E+01	1.734E-01
2107	4.670E+02	2.551E+05	5.137E+02	1.500E-01	4.184E+01	1.650E-01
2108	4.443E+02	2.427E+05	4.887E+02	1.427E-01	3.980E+01	1.569E-01
2109	4.226E+02	2.309E+05	4.649E+02	1.357E-01	3.786E+01	1.493E-01
2110	4.020E+02	2.196E+05	4.422E+02	1.291E-01	3.602E+01	1.420E-01
2111	3.824E+02	2.089E+05	4.206E+02	1.228E-01	3.426E+01	1.351E-01
2112	3.637E+02	1.987E+05	4.001E+02	1.168E-01	3.259E+01	1.285E-01
2113	3.460E+02	1.890E+05	3.806E+02	1.111E-01	3.100E+01	1.222E-01
2114	3.291E+02	1.798E+05	3.620E+02	1.057E-01	2.949E+01	1.163E-01
2115	3.131E+02	1.710E+05	3.444E+02	1.005E-01	2.805E+01	1.106E-01
2116	2.978E+02	1.627E+05	3.276E+02	9.564E-02	2.668E+01	1.052E-01
2117	2.833E+02	1.548E+05	3.116E+02	9.097E-02	2.538E+01	1.001E-01
2118	2.695E+02	1.472E+05	2.964E+02	8.654E-02	2.414E+01	9.519E-02
2119	2.563E+02	1.400E+05	2.819E+02	8.231E-02	2.296E+01	9.055E-02
2120	2.438E+02	1.332E+05	2.682E+02	7.830E-02	2.184E+01	8.613E-02
2121	2.319E+02	1.267E+05	2.551E+02	7.448E-02	2.078E+01	8.193E-02
2122	2.206E+02	1.205E+05	2.427E+02	7.085E-02	1.977E+01	7.793E-02
2123	2.099E+02	1.146E+05	2.308E+02	6.739E-02	1.880E+01	7.413E-02
2124	1.996E+02	1.091E+05	2.196E+02	6.411E-02	1.788E+01	7.052E-02
2125	1.899E+02	1.037E+05	2.089E+02	6.098E-02	1.701E+01	6.708E-02
2126	1.806E+02	9.867E+04	1.987E+02	5.801E-02	1.618E+01	6.381E-02
2127	1.718E+02	9.386E+04	1.890E+02	5.518E-02	1.539E+01	6.070E-02

APPENDIX D



NOTES:

1. 2 SAMPLES PER HECTARE (HA)
2. 1 HA = 2.47 ACRES
3. 60.5 AC ÷ 2.47 AC/HA = 24.49 HA
   a. 24.49 HA * 2 SAMPLES/HA = 49 SAMPLES

SAMPLING AREA		
LOCATION	ACREAGE	REQUIRED SAMPLING POINTS
ACTIVE LF	32.3	26
CLOSED LF	28.2	23
TOTAL	60.5	49

LEGEND

- CLOSED LANDFILL LIMITS
- ACTIVE LANDFILL LIMITS
- 2 — TIER 2 SAMPLING LOCATION
- WASTE FILL LESS THAN TWO YEARS OLD (MODULES F & H)

300 150 0 150 300
SCALE 1" = 300

DATE	DRWN	CHKD	REVISION

TIER 2 SAMPLING POINTS

MATLOCK BEND LANDFILL
LOUDON COUNTY, TENNESSEE

SANTEK ENVIRONMENTAL
650 25TH STREET NW
SUITE 100
CLEVELAND, TENNESSEE

SCALE: AS NOTED
DATE: 4/22/13
DRAWN BY: RH
CHECKED BY: WM
APPROVED BY: RV
FILE: 200-1420
JOB NO: 200-1420

1
sheet number

G:\WORK\LOUDON\200-1420\TIER 2 SAMPLING POINTS.dwg, 5/28/2014 2:27:01 AM, \\WOODYDELL-PC\HP Deskjet 3680 Printer (Copy 2)