Johnson, Sabrina O

From: Thompson, Madison <MThompson@scsengineers.com>
Sent: Friday, April 13, 2018 2:25 PM
To: SWD_Waste
Cc: 'bryan.white (bryan.white@mymanatee.org)'; 'Anthony Detweiler (anthony.detweiler@mymanatee.org)'; 'Lynette Falkowski'; 'Mike Gore'; Cooper, Dan
Subject: 2018 First Quarter Probe/Perimeter Monitoring Report - Lena Road Landfill WACS # 44795
Attachments: Lena Road LF - Q1 2018 Gas Probe Monitoring Report.pdf

Attached is the Landfill Gas Monitoring Report for the first quarter of 2018 for Lena Road Landfill in Manatee County (WACS # 44795).
Included is the methane perimeter probes and building sampling results.
There were no exceedances observed during this event.

Please let us know if you have any questions or require additional information.

Thank you,

Madison Thompson
Staff Professional
SCS ENGINEERS
3922 Coconut Palm Drive, Suite 102
Tampa, FL 33619
(813) 804-6704 (W)
(602) 762-4545 (M)
MThompson@SCSEngineers.com

SCSEngineers.com
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Environmental Consultants
and Contractors

3922 Coconut Palm Dr.
Suite 102
Tampa, FL 33610-9501

813 621-0080
FAX 813 623-6757
www.scsengineers.com

SCS ENGINEERS

April 13, 2018
File No. 09217088.05

Mr. John Morris, P.G.
Florida Department of Environmental Protection
Southwest District Office – Solid Waste Section
13051 N. Telecom Parkway
Temple Terrace, FL, 33737-0926

Subject: **Landfill Gas Monitoring Report, First Quarter 2018**
Methane Perimeter Probes and Buildings Sampling
Lena Road Landfill, Manatee County, Florida
Permit # 39884-018-SO/01

Dear Mr. Morris:

SCS Engineers (SCS) is pleased to submit the results of the first quarter 2018 landfill gas (LFG) perimeter probe and building monitoring at Lena Road Landfill. Provided below is a description of our activities, summary of the monitoring results, and recommendations.

BACKGROUND

At Lena Road Landfill, Stage I and Stage III are currently not accepting waste and have intermediate cover, while Stage II contains the active area of the site. Currently, there is an active landfill gas (LFG) collection system encompassing both Stage I and Stage III, with vertical LFG extraction wells removing gas from the landfill. There is no gas collection system in Stage II.

Landfill gas probes are designed to monitor whether methane and other gases are migrating underground outside of the landfill area. There are 11 LFG monitoring probes located on site around the boundaries of the Lena Road Landfill. Attachment 1 is a site map showing the LFG monitoring probe locations. This quarterly monitoring was conducted in accordance with Rule 62-701.530(2)(c), F.A.C. per specific condition Part F-2 of the landfill's operations permit #39884-018-SO-01.

Additionally, rule 62-701.530(1)(a) of the Florida Administrative Code (F.A.C.) requires the following:

- The methane concentration may not exceed 25 percent of the lower explosive limit (LEL) in structures on- or off-site. The LEL for methane is five percent by volume in air. Therefore, the maximum allowable concentration in on-site or off-site structures is 1.25 percent methane by volume.

- The methane concentration at or beyond the landfill property boundary may not exceed the LEL (i.e., five percent (5.0%) methane by volume).

MONITORING RESULTS

SCS personnel monitored the LFG monitoring probes using a Landtec GEM-2000 gas monitor to measure gas composition. SCS personnel monitored the on-site structures for the presence of LFG using a Landtec GEM-5000 gas monitor to measure gas composition. The GEM-2000 and GEM-5000 measure gas by percent volume of methane, carbon dioxide, oxygen, and balance gas, which is considered to be composed primarily of nitrogen. Both instruments were calibrated prior to use during the sampling event and the calibration sheets are included in Attachment 3.

LFG Monitoring Probes

Attachment 2 shows the readings obtained from the 11 probes along the property boundary, no methane above the allowable concentration was detected in the gas monitoring probes. A site plan showing the probe locations is included in Attachment 1.

Monitoring of On-Site Structures

No methane above the allowable concentration was detected in the scale house building, administration building, recycling (HHW) building/offices, or maintenance building/offices, as shown in Attachment 2. In the buildings, SCS monitored both restrooms, the offices, and common areas. Readings were taken while walking around the buildings and interior rooms in a continuous manner. The location of the buildings monitored can be seen in Attachment 1.

CONCLUSIONS

No methane above the allowable concentration was detected during this monitoring event in the 11 probes or within any of the buildings monitored on-site, which are the compliance points for migration. The facility is thus in compliance with its operations permit for gas migration and monitoring and no further tests are required until the second quarter of 2018.

Please call us at (813) 621-0080 if you have any questions or would like additional information.

Sincerely,

Madison Thompson
Staff Professional
SCS ENGINEERS

Daniel R. Cooper, P.E.
Project Director
SCS ENGINEERS

MJT/DRC: drc

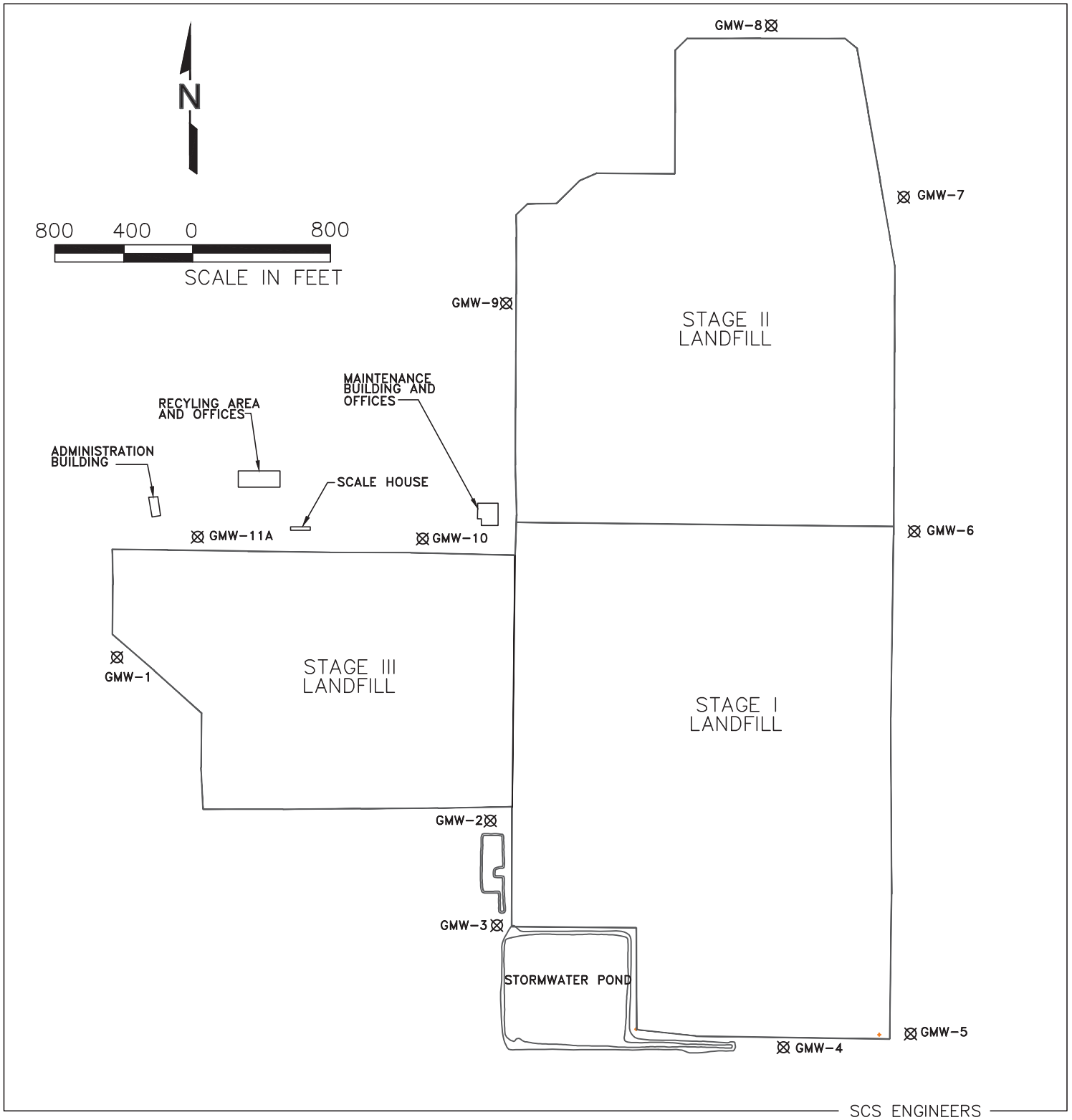
Attachment

cc: C. Mike Gore – Utilities Department Director, Manatee County (electronic)
Bryan White – Landfill Superintendent, Manatee County (electronic)
Anthony Detweiler – Operations Supervisor, Manatee County (electronic)
Lynette Falkowski – Administration, Manatee County (electronic)

ATTACHMENT 1

GAS PROBE LOCATIONS

F:\PROJECT\Manatee\09214113.04–Monitoring\Drawings\Gas Probe Map.dwg Jun 01, 2017 – 11:13am Layout Name: Map By: 4283mjt



Lena Road Landfill, Manatee County, Florida
Figure 1: Gas Monitoring Probes & Building Locations

ATTACHMENT 2

1st QUARTER PROBE/BUILDING MONITORING RESULTS

ATTACHMENT 2
LANDFILL GAS MIGRATION MONITORING,
1st QUARTER 2018
LENA ROAD LANDFILL, MANATEE COUNTY, FLORIDA

Probe No.	CH_4 (%)	CO_2 (%)	O_2 (%)	Balance (%)	Comments
GMW-1	0.0	0.1	21.3	78.6	N/A
GMW-2	0.0	0.5	21.4	78.1	N/A
GMW-3	0.0	1.4	20.1	78.5	N/A
GMW-4	0.5	0.1	21.4	78.0	N/A
GMW-5	0.0	0	21.5	78.5	N/A
GMW-6	0.4	0.4	21.4	77.8	N/A
GMW-7	0.1	0.1	21.5	78.3	N/A
GMW-8	0.1	0.6	21.2	78.1	N/A
GMW-9	0.2	0.8	21.1	77.9	N/A
GMW-10	0.0	0	21.3	78.7	N/A
GMW-11A	0.0	0.2	21.2	78.6	N/A

Notes:
1. Monitoring performed by SCS Engineers on: 3/22/2018
2. Temperature: 58 °F
3. Barometric Pressure: 30.2 in-Hg

On Site	CH4 (%)	% LEL
Recycling Area (HHW Bldg)	0.0	0.0
Recycling Office (HHW Bldg)	0.0	0.0
Scale House Bldg	0.0	0.0
Administration Bldg	0.1	2.0
Maintenance Office	0.0	0.0
Maintenance Bldg	0.1	2.0

Notes:
1. Monitoring performed by SCS Engineers on: 4/5/2017
2. Temperature: 70 °F
3. Barometric Pressure: 30.04 in-Hg
4. % LEL = % CH_4 above background / 5% Volume for CH_4 LEL * 100

ATTACHMENT 3

GEM CALIBRATION SHEETS

GEM-2000 Field Calibration Data Sheet

GEM-2000 Instrument Data

Instrument Serial No.: GM05451
Technician Name: William Granger
Date and Time: 3/22/2018 9:46 AM
Last Factory Calibration Date: September 2017

Calibration Gas Manufacturer's Data

Manufactured by: Landtec
Manufactured date: Jan-16
Lot Number: BAQ-399-1
Expiration Date: 1/14/20

Prior to taking any measurements the instrument must undergo a full calibration according to manufacturer's instructions. This should then be followe by a calibration verification using ambient air and calibration gas to verify instrument performance prior to measurement.

Tabulated below are the acceptable gas concentrations that should be demonstrated when zeroing the instrument and calibrating the span gas concentrations.

Zero Gas Composition			
CH_4 (%)	CO_2 (%)	N_2 (%)	O_2 (%)
0.0	0.0	0.0	0.0 (Calibration Gas)

Span Gas Composition			
CH_4 (%)	CO_2 (%)	N_2 (%)	O_2 (%)
50.0	35.0	15.0	0.0

Calibration must be verified by conducting the following procedures:

1) Turn on the instrument and allow it to run and purge with ambient air for 3 minutes and then record the gas concentration readings.
2) Apply calibration gas to the instrument, wait 1 minute for the readings to stabilize and then record the gas concentration readings.
3) Determine if the reading is within 10% of calibration gas concentration. If so indicate that the instrument "Passes" the field calibration for that gas.
4) If any of the sensors display a reading outside of the acceptable range, then a full manufacturer's calibration must be performed.

Target Gas (%)	Ambient Air Purge Gas Readings (%)	Acceptable Ambient Air Range (%)	Calibration Gas Instrument Readings (%)	Acceptable Calibration Gas Range (%)	Pass/Fail
CH_4	**0.0**	0.0 - 0.3	**48.3**	47.0 - 53.0	**Pass**
CO_2	**0.0**	0.0 - 0.3	**35.1**	32.0 - 38.0	**Pass**
O_2	**20.8**	19.9 - 21.9	**0.5**	0.0 - 1.0	**Pass**

CERTIFICATION OF CALIBRATION

ISSUED BY: QED Environmental Systems, Inc. Services Facility
Date Of Calibration: September 19, 2017
Certificate Number: GM05451_10/32840

PJLA Calibration
No. 66916

Approved By Signatory

Timothy Hutchin
Laboratory Inspection

LANDTEC

QED Environmental Systems, Inc. Services Facility,
2355 Bishop Circle West, Dexter, MI 48130
www.qedenv.com

Customer: ***SCS Engineers***

3900 Kilroy Airport Way Suite 100
Long Beach, CA 90806-6816
USA

Description: Gas Analyser ***Model:*** GEM2000

Serial Number: GM05451

Accredited Results:

Methane (CH4)		
Certified Gas (%)	**Instrument Reading (%)**	**Uncertainty (%)**
5.0	5.0	0.43
15.0	14.9	0.80
50.0	49.1	1.39

Carbon Dioxide (CO2)		
Certified Gas (%)	**Instrument Reading (%)**	**Uncertainty (%)**
5.0	4.8	0.49
15.0	14.9	0.99
50.0	50.7	1.46

Oxygen (O2)		
Certified Gas (%)	**Instrument Reading (%)**	**Uncertainty (%)**
20.7	20.7	0.27

Gas cylinders are traceable and details can be provided if requested.

CH4, CO2 readings recorded at: 31.9 °C/89.4 °F Barometric Pressure: 28.97 "Hg

O2 readings recorded at: 23.3 °C/73.9 °F

Method of Test: The analyzer is calibrated in a temperature controlled chamber using reference gases. All analyzers are calibrated in accordance with our procedure ISP-17 using high purity grade gas.

All calibrations are performed in accordance with ISO 17025 at LANDTEC, an ISO 17025:2005 – accredited service facility through PJLA.

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance with NIST requirements.

CERTIFICATION OF CALIBRATION

PJLA ACCREDITED CALIBRATION LABORATORY NO. 66916

Certificate Number
GM05451_10/32840

Non Accredited results:

Pressure Transducers (inches of water column)					
Transducer	**Certified (Low)**	**Reading (Low)**	**Certified (High)**	**Reading (High)**	**Accuracy**
Static	0"	0.00"	40"	39.6"	2.0"
Differential	0"	0.00"	4"	3.95"	0.7"

Barometer (mbar)	
Reference	**Instrument Reading**
0981 mbar / 28.97 "Hg	0981 mbar / 28.98 "Hg

As received gas check readings:

Methane (CH4)	
Certified Gas (%)	**Instrument Reading (%)**
5.0	4.9
15.0	15.0
50.0	50.4

Carbon Dioxide (CO2)	
Certified Gas (%)	**Instrument Reading (%)**
5.0	5.3
15.0	15.4
50.0	51.0

Oxygen (O2)	
Certified Gas (%)	**Instrument Reading (%)**
20.7	19.3

As received Gas readings recorded at: 31.9 °C/89.4 °F
As received Barometric Pressure recorded at: 23.3 °C/73.9 °F

End of Certificate

GEM-5000 Field Calibration Data Sheet

GEM-5000 Instrument Data

Instrument Serial No.: G500213
Technician Name: Madison Thompson
Date and Time: 4/5/2018 2:02 PM
Last Factory Calibration Date: March 2018

Calibration Gas Manufacturer's Data

Manufactured by: Landtec
Manufactured date: Jan-16
Lot Number: BAQ-399-1
Expiration Date: 1/14/20

Prior to taking any measurements the instrument must undergo a full calibration according to manufacturer's instructions. This should then be followe by a calibration verification using ambient air and calibration gas to verify instrument performance prior to measurement.

Tabulated below are the acceptable gas concentrations that should be demonstrated when zeroing the instrument and calibrating the span gas concentrations.

Zero Gas Composition			
CH_4 (%)	CO_2 (%)	N_2 (%)	O_2 (%)
0.0	0.0	0.0	0.0 (Calibration Gas)

Span Gas Composition			
CH_4 (%)	CO_2 (%)	N_2 (%)	O_2 (%)
50.0	35.0	15.0	0.0

Calibration must be verified by conducting the following procedures:

1) Turn on the instrument and allow it to run and purge with ambient air for 3 minutes and then record the gas concentration readings.
2) Apply calibration gas to the instrument, wait 1 minute for the readings to stabilize and then record the gas concentration readings.
3) Determine if the reading is within 10% of calibration gas concentration. If so indicate that the instrument "Passes" the field calibration for that gas.
4) If any of the sensors display a reading outside of the acceptable range, then a full manufacturer's calibration must be performed.

Target Gas (%)	Ambient Air Purge Gas Readings (%)	Acceptable Ambient Air Range (%)	Calibration Gas Instrument Readings (%)	Acceptable Calibration Gas Range (%)	Pass/Fail
CH_4	**0.1**	0.0 - 0.3	**49.5**	47.0 - 53.0	**Pass**
CO_2	**0.1**	0.0 - 0.3	**34.7**	32.0 - 38.0	**Pass**
O_2	**20.5**	19.9 - 21.9	**0.4**	0.0 - 1.0	**Pass**

CERTIFICATION OF CALIBRATION

ISSUED BY: QED Environmental Systems, Inc. Services Facility
Date Of Calibration: March 23, 2018
Certificate Number: G500213_10/33943

PJLA Calibration
No. 66916

Approved By Signatory

John Parisho
Laboratory Inspection

LANDTEC

QED Environmental Systems, Inc. Services Facility,
2355 Bishop Circle West, Dexter, MI 48130
www.qedenv.com

Customer: ***SCS Field Services***

3900 Kilroy Airport Way
Suite 100
Long Beach, CA 90806-6816
USA

Description: Gas Analyser ***Model:*** GEM5000
Serial Number: G500213

Accredited Results:

Methane (CH4)		
Certified Gas (%)	**Instrument Reading (%)**	**Uncertainty (%)**
5.0	5.0	0.42
15.0	14.9	0.66
50.0	49.5	1.03

Carbon Dioxide (CO2)		
Certified Gas (%)	**Instrument Reading (%)**	**Uncertainty (%)**
5.0	4.8	0.43
15.0	14.8	0.71
50.0	49.9	1.19

Oxygen (O2)		
Certified Gas (%)	**Instrument Reading (%)**	**Uncertainty (%)**
20.7	20.7	0.25

Gas cylinders are traceable and details can be provided if requested.

CH4, CO2 readings recorded at: 34.1 °C/93.4 °F Barometric Pressure: 29.28 "Hg
O2 readings recorded at: 24.3 °C/75.7 °F

Method of Test: The analyzer is calibrated in a temperature controlled chamber using reference gases. All analyzers are calibrated in accordance with our procedure ISP-17 using high purity grade gas.

All calibrations are performed in accordance with ISO 17025 at LANDTEC, an ISO 17025:2005 – accredited service facility through PJLA.

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance with NIST requirements.

CERTIFICATION OF CALIBRATION

PJLA ACCREDITED CALIBRATION LABORATORY NO. 66916

Certificate Number
G500213_10/33943

Non Accredited results:

Pressure Transducers (inches of water column)					
Transducer	**Certified (Low)**	**Reading (Low)**	**Certified (High)**	**Reading (High)**	**Accuracy**
Static	0"	0"	40"	40.5"	2.0"
Differential	0"	0"	4"	3.97"	0.7"

Barometer (mbar)	
Reference	**Instrument Reading**
0992 mbar / 29.28 "Hg	0993 mbar / 29.33 "Hg

Additional Gas Cells		
Gas	**Certified Gas (ppm)**	**Instrument Reading (ppm)**
CO	501	497
H2S	203.5	204

End of Certificate