

Smith, George

From: Stainsby, Wendell <WStainsby@scsengineers.com>
Sent: Monday, March 13, 2017 10:16 AM
To: SWD_Waste (Shared Mailbox); Morris, John R.
Cc: bryan.white (bryan.white@mymanatee.org); Anthony Detweiler (anthony.detweiler@mymanatee.org); Lynette Falkowski; Mike Gore; Cooper, Dan
Subject: 2017 First Quarter Probe/Perimeter Monitoring Report - Lena Road Landfill FAC ID: 0810055
Attachments: Lena Road LF - Q1 2017 Gas Probe Monitoring Report.pdf

Attached please find the 2017 Manatee County First Quarter Landfill Gas Probe/Perimeter Monitoring Report for the Lena Road Landfill (FAC ID: 0810055).

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

Thank you,

Wendell Stainsby, E.I.
Staff Professional

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SCS ENGINEERS

March 13, 2017
File No. 09214113.04

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 2017
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 2017 landfill gas (LFG) 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

On March 9, 2017, SCS personnel monitored the LFG monitoring probes and on-site structures. SCS used a Landtec GEM-5000 gas monitor to measure gas composition in the monitoring probes and on-site structures. The GEM-5000 measures gas by percent volume of methane, carbon dioxide, oxygen, and balance gas, which is considered to be composed primarily of nitrogen. The instrument was 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 was detected in the gas monitoring probes. A site plan showing the probe locations is included in Attachment 1.

Monitoring of On-Site Structures

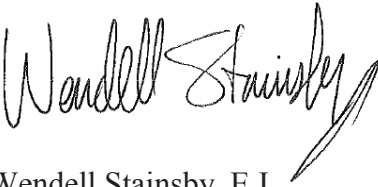
No methane was detected in the scale house building, administration building, recycling (HHW) building/offices, or maintenance building/offices, as shown in Attachment 2. In the buildings, SCS monitored both restrooms, the offices, and common areas. Readings were taken while walking around the buildings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

CONCLUSIONS

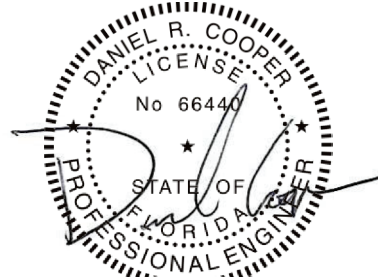
No methane was detected during this monitoring event in the 11 probes or within any of the buildings monitored on-site, which are the compliance points for migration. The facility is thus in compliance with its operations permit for gas migration and monitoring and no further tests are required until the second quarter of 2017.

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

Sincerely,



Wendell Stainsby, E.I.
Staff Professional
SCS ENGINEERS



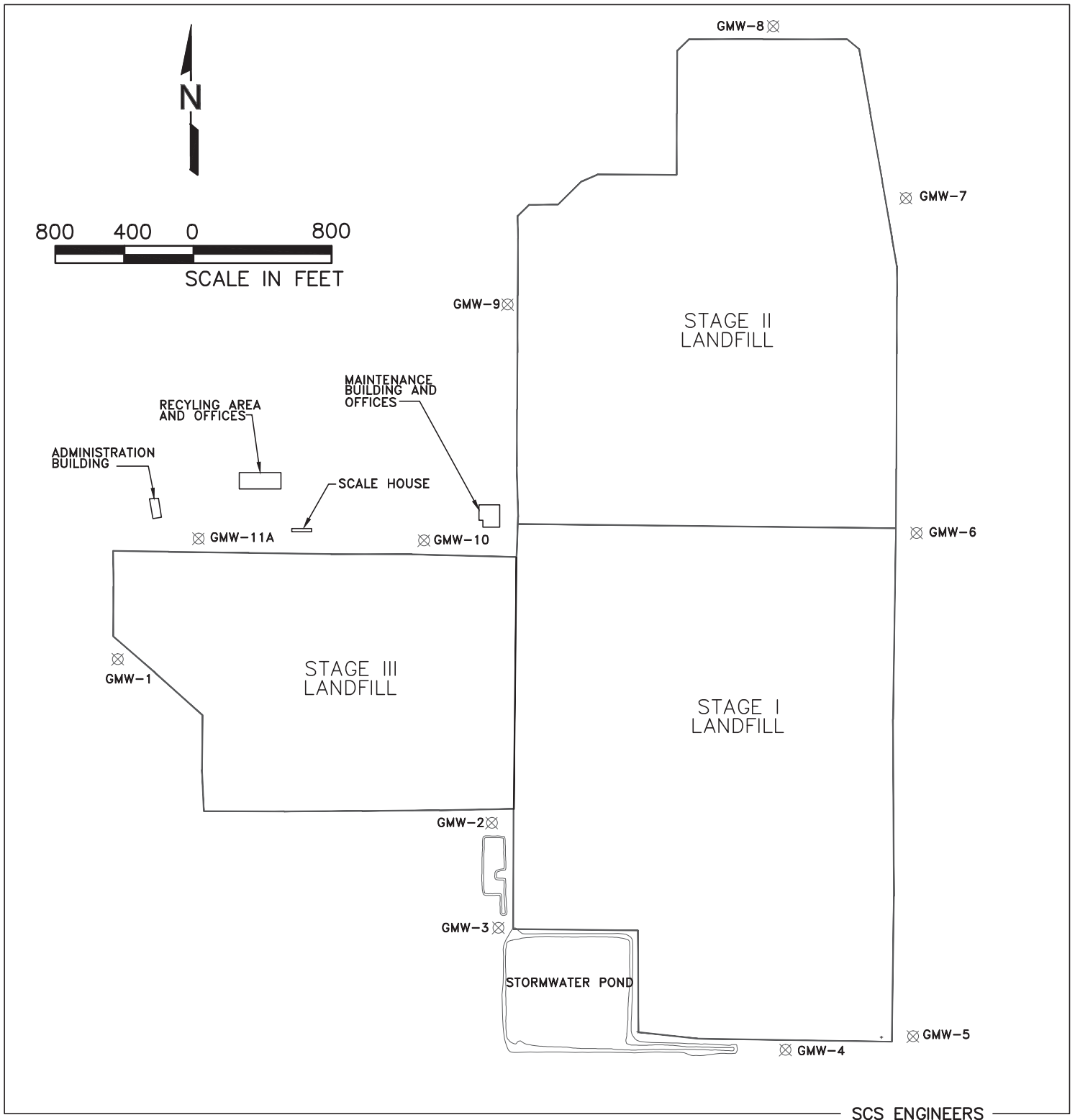
Daniel R. Cooper, P.E.
Project Director
SCS ENGINEERS

WJS/DRC: wjs

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



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 2017
LENA ROAD LANDFILL, MANATEE COUNTY, FLORIDA

| Probe No. | CH₄ (%) | CO₂ (%) | O₂ (%) | Balance (%) | Comments |
|------------------|-------------------------------|-------------------------------|------------------------------|------------------------|-----------------|
| GMW-1 | 0.0 | 1.2 | 19.0 | 79.8 | |
| GMW-2 | 0.0 | 0.5 | 20.2 | 79.3 | |
| GMW-3 | 0.0 | 0.9 | 19.5 | 79.6 | |
| GMW-4 | 0.0 | 0.7 | 19.2 | 80.1 | |
| GMW-5 | 0.0 | 2.7 | 18.3 | 79.0 | |
| GMW-6 | 0.0 | 0.4 | 19.1 | 80.5 | |
| GMW-7 | 0.0 | 0.1 | 19.3 | 80.6 | |
| GMW-8 | 0.0 | 0.2 | 19.4 | 80.4 | |
| GMW-9A | 0.0 | 1.1 | 18.9 | 80.0 | |
| GMW-10 | 0.0 | 0.1 | 19.5 | 80.3 | |
| GMW-11A | 0.0 | 6.0 | 12.1 | 81.9 | |

| 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 | 0.0 | 0.0 |
| Maintenance Office | 0.0 | 0.0 |
| Maintenance Bldg | 0.0 | 0.0 |

Notes:

1. Monitoring performed by SCS Engineers on: 3/9/2107
2. Temperature: 78 deg. F
3. Barometric Pressure: 30.17 in-Hg

ATTACHMENT 3
GEM CALIBRATION SHEETS

GEM-5000 Field Calibration Data Sheet

GEM-5000 Instrument Data

Calibration Gas Manufacturer's Data

Instrument Serial No.: G501756
Technician Name: Bill Granger
Date and Time: 3/9/17 10:00
Last Factory Calibration Date: Feb 2017

Manufactured by: Landtec
Manufactured date: 2016
Lot Number: 4618498
Expiration Date: July 2019

Prior to taking any measurements the instrument must undergo a full calibration according to manufacturer's instructions. This should then be followed 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 | 49.7 | 47.0 - 53.0 | pass |
| CO ₂ | 0.0 | 0.0 - 0.3 | 35.0 | 32.0 - 38.0 | pass |
| O ₂ | 20.8 | 19.9 - 21.9 | 0.3 | 0.0 - 1.0 | pass |

CERTIFICATION OF CALIBRATION

ISSUED BY: QED Environmental Systems, Inc. Services Facility

Date Of Calibration: February 10, 2017

Certificate Number: G500213_10/31455



No. 66916

Page 1 of 2

Approved By Signatory

Joshua Engel
Laboratory Inspection



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
USA

Description: Gas Analyser

Model: GEM5000

Serial Number: G500213

Accredited Results:

| Methane (CH ₄) | | |
|----------------------------|------------------------|-----------------|
| Certified Gas (%) | Instrument Reading (%) | Uncertainty (%) |
| 5.0 | 5.0 | 0.42 |
| 15.0 | 15.0 | 0.66 |
| 50.0 | 49.8 | 1.03 |

| Carbon Dioxide (CO ₂) | | |
|-----------------------------------|------------------------|-----------------|
| Certified Gas (%) | Instrument Reading (%) | Uncertainty (%) |
| 5.0 | 4.9 | 0.43 |
| 15.0 | 14.8 | 0.71 |
| 50.0 | 49.9 | 1.19 |

| Oxygen (O ₂) | | |
|--------------------------|------------------------|-----------------|
| 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: 31.9 °C/89.4 °F

Barometric Pressure: 28.80 "Hg

O₂ readings recorded at: 22.4 °C/72.4 °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.

The calibration results published in this certificate were obtained using equipment capable of producing results that are traceable through NIST to the International System of Units (SI). Certification only applies to results shown. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.

CERTIFICATION OF CALIBRATION

PJLA ACCREDITED CALIBRATION LABORATORY NO. 66916

Certificate Number
G500213_10/31455

Page 2 of 2

Non Accredited results:

| Pressure Transducers (inches of water column) | | | | | |
|---|-----------------|---------------|------------------|----------------|----------|
| Transducer | Certified (Low) | Reading (Low) | Certified (High) | Reading (High) | Accuracy |
| Static | 0" | 0.00" | 40" | 40.08" | 2.0" |
| Differential | 0" | 0.00" | 4" | 3.89" | 0.7" |

| Barometer (mbar) | |
|-----------------------|-----------------------|
| Reference | Instrument Reading |
| 0975 mbar / 28.80 "Hg | 0978 mbar / 28.89 "Hg |

| Additional Gas Cells | | |
|----------------------|---------------------|--------------------------|
| Gas | Certified Gas (ppm) | Instrument Reading (ppm) |
| CO | 500 | 500 |
| H2S | 200 | 200 |

As received gas check readings:

| Methane (CH4) | |
|-------------------|------------------------|
| Certified Gas (%) | Instrument Reading (%) |
| 5.0 | 4.8 |
| 15.0 | 15.0 |
| 50.0 | 51.2 |

| Carbon Dioxide (CO2) | |
|----------------------|------------------------|
| Certified Gas (%) | Instrument Reading (%) |
| 5.0 | 5.2 |
| 15.0 | 15.1 |
| 50.0 | 48.0 |

| Oxygen (O2) | |
|-------------------|------------------------|
| Certified Gas (%) | Instrument Reading (%) |
| 20.7 | 20.8 |

As received Gas readings recorded at: 31.9 °C/89.4 °F

As received Barometric Pressure recorded at: 22.4 °C/72.4 °F

As received gas check readings are only recorded if the instrument is received in a working condition.
Where the instrument is received damaged no reading can be taken.

End of Certificate