

Mahoney, Tobey

From: Al-Khalaf, Laila <LAI-Khalaf@scsengineers.com>
Sent: Monday, October 9, 2023 5:09 PM
To: SWD_Waste; Tafuni, Steven
Cc: Cooper, Dan; Anthony Detweiler (anthony.detweiler@mymanatee.org); Chris Collins; Jacolyn Abdala; Stephen Whaley; Sajdak, Aleksandra
Subject: 2023 Third Quarter Landfill Gas Monitoring Report - Lena Road Landfill (WACS 44795)
Attachments: Lena Road LF - Q3 2023 Gas Probe Monitoring Report.pdf

EXTERNAL MESSAGE

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Mr. Tafuni,

Please find the attached Landfill Gas Monitoring Report for the third quarter of 2023 for the Lena Road Landfill in Manatee County (WACS #44795). Included in this report are the LFG perimeter monitoring probes and buildings sampling results.

There were no exceedances observed during this event.

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

Thank you,
Laila Al-Khalaf, E.I.T.
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October 9, 2023
File No. 09217088.28

Mr. Steve Tafuni
Florida Department of Environmental Protection
Southwest District Office
13051 N. Telecom Parkway
Temple Terrace, FL, 33737-0926

Subject: Landfill Gas Monitoring Report, Third Quarter 2023
Methane Perimeter Probes and Buildings Sampling
Lena Road Landfill, Manatee County, Florida
Permit # 39884-021-SO/01

Dear Mr. Tafuni:

On behalf of Manatee County, Solid Waste Division, SCS Engineers (SCS) hereby submits the results of the third quarter 2023 landfill gas (LFG) monitoring probes and buildings monitoring at Lena Road Landfill. Monitoring was conducted in accordance with Rule 62-701.530(2)(c), F.A.C. and specific condition Part E-4 of the landfill's operations permit #39884-021-SO/01. 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. There is an active LFG collection system encompassing Stage I, Stage II, and Stage III with the most recent gas collection expansion completed in September 2023. The current LFG collection system contains vertical and horizontal LFG extraction wells removing gas from the landfill.

LFG monitoring 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 and on-site structures. This quarterly monitoring was conducted in accordance with Rule 62-701.530(2)(c), F.A.C. and specific condition Part E-4 of the landfill's operations permit #39884-021-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 September 14, 2023, SCS personnel monitored the LFG monitoring probes and on-site structures using a Landtec GEM-2000 gas monitor to measure gas composition. The GEM-2000 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 events and the calibration sheets are included in **Attachment 3**.

LFG Monitoring Probes

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

Monitoring of On-Site Structures

Methane was detected in all monitored structures on site at 0.1% except for the administration building showing 0%, as shown in **Attachment 2**. Therefore, the percent LEL for each structure was 2.0 and 0. 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

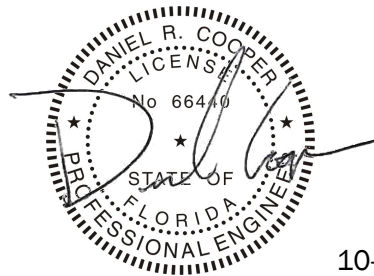
The methane percentage values are all below the regulatory threshold for the 11 LFG monitoring probes and structures. The facility is thus in compliance with its operations permit for gas migration and monitoring and no further tests are required until the fourth quarter of 2023.

Please call us at (813) 270-0518 if you have any questions or would like additional information.

Sincerely,



Laila Al-Khalaf, E.I.T.
Project Professional I
SCS Engineers



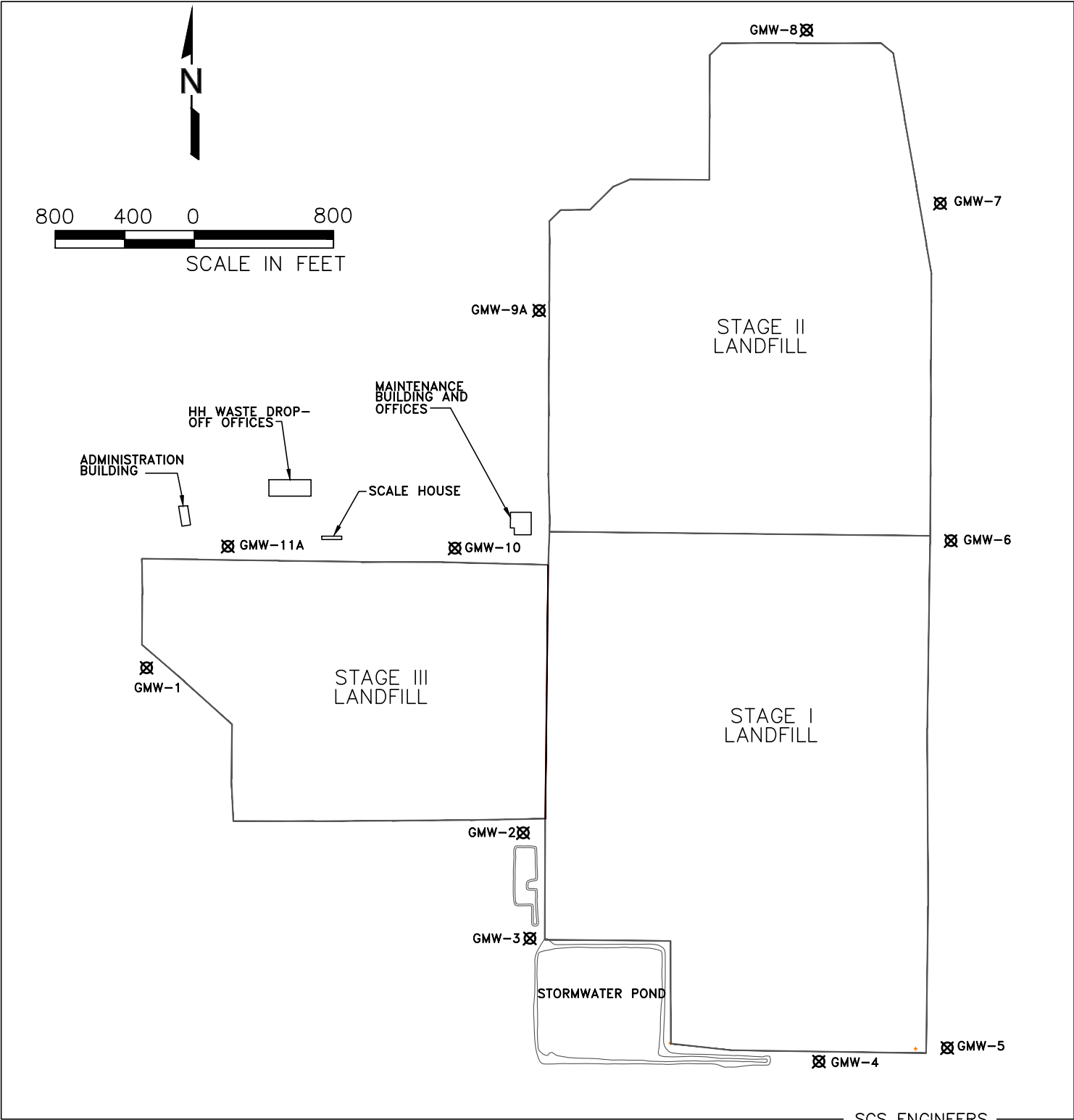
Daniel Cooper, P.E.
Vice President/Project Director
SCS Engineers

10-9-2023

Attachment

cc: Chris Collins – Deputy Director, Manatee County (electronic)
Jacolyn Abdala – Compliance Coordinator, Manatee County (electronic)
Stephen Whaley – Landfill Superintendent, Manatee County (electronic)
Anthony Detweiler – Operations Supervisor, Manatee County (electronic)

ATTACHMENT 1
LFG MONITORING PROBE LOCATIONS



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

ATTACHMENT 2

2023 3RD QUARTER PROBE/BUILDING MONITORING RESULTS

ATTACHMENT 2
LANDFILL GAS MIGRATION MONITORING
3RD QUARTER 2023
LENA ROAD LANDFILL, MANATEE COUNTY, FLORIDA

| Probe No. | CH₄ (%) | CO₂ (%) | O₂ (%) | Balance (%) |
|------------------|-------------------------------|-------------------------------|------------------------------|------------------------|
| GMW-1 | 0.1 | 0.0 | 20.8 | 79.1 |
| GMW-2 | 0.1 | 0.0 | 20.4 | 79.5 |
| GMW-3 | 0.1 | 0.0 | 20.5 | 79.4 |
| GMW-4 | 0.1 | 0.0 | 20.5 | 79.4 |
| GMW-5 | 0.1 | 0.0 | 20.3 | 79.6 |
| GMW-6 | 0.1 | 0.0 | 20.3 | 79.6 |
| GMW-7 | 0.1 | 0.0 | 20.3 | 79.6 |
| GMW-8 | 0.1 | 0.0 | 20.4 | 79.5 |
| GMW-9A | 0.1 | 0.0 | 20.6 | 79.3 |
| GMW-10 | 0.1 | 0.0 | 20.8 | 79.1 |
| GMW-11A | 0.1 | 0.0 | 20.9 | 79.0 |

| On-Site Structures | CH₄ (%) | % LEL |
|--|---------------------------|--------------|
| HH Waste Drop-off Area (Recycling Bldg) | 0.1 | 2.0 |
| HH Waste Drop-off Office (Recycling Bldg) | 0.1 | 2.0 |
| Scale House Bldg | 0.1 | 2.0 |
| Administration Bldg | 0.0 | 0.0 |
| Maintenance Office | 0.1 | 2.0 |
| Maintenance Bldg | 0.1 | 2.0 |
| Maintenance Shop | 0.1 | 2.0 |

Notes:

1. Monitoring performed by SCS Engineers on: 9/14/2023
2. Temperature: 85°F
3. % LEL = % CH₄ above background / 5% Volume for CH₄ LEL * 100

ATTACHMENT 3
GEM CALIBRATION SHEET

GEM-5000 Field Calibration Data Sheet

GEM-5000 Instrument Data

Instrument Serial No.: GM12859

Technician Name: Kelly Milbrandt

Date and Time: 9/14/23 11:50:00 AM

Last Factory Calibration Date: 6/30/23

Calibration Gas Manufacturer's Data

Manufactured by: LandTEC

Manufactured date:

Lot Number: 10

Expiration Date: 12/30/23

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 (%) |
| 15.0 | 15.0 | Bal | 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 | 14.7 | 13.5 - 16.5 | Pass |
| CO ₂ | 0.0 | 0.0 - 0.3 | 14.0 | 13.5 - 16.5 | Pass |
| O ₂ | 20.0 | 19.9 - 21.9 | 0.4 | 0.0 - 1.0 | Pass |