Smith, George

From: Al-Khalaf, Laila <LAl-Khalaf@scsengineers.com>
Sent: Monday, June 20, 2022 3:19 PM
To: SWD_Waste; Tafuni, Steven
Cc: Cooper, Dan; Dickey, Donovan; Anthony Detweiler (anthony.detweiler@mymanatee.org); Bryan White; Robert.shankle; Restrepo, Carlos
Subject: 2022 Second Quarter Landfill Gas Monitoring Report - Lena Road Landfill WACS #44795
Attachments: Lena Road LF - Q2 2022 Gas Probe Monitoring Report.pdf

Mr. Tafuni,

Please find the attached Landfill Gas Monitoring Report for the second quarter of 2022 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.
Staff Professional
SCS Engineers
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June 20, 2022
File No. 09217088.24

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, Second Quarter 2022
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 second quarter 2022 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. Stage II contains the most recent addition to the LFG collection system with the expansion project completed in July 2020. 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. 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 June 10th, 2022, SCS personnel monitored the LFG monitoring probes and on-site structures using a Landtec GEM-5000 gas monitor to measure gas composition. 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 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 at background concentrations in all of the monitored structures on site, as shown in **Attachment 2**. The Gem 5000 recorded 0.1 methane in ambient air during calibration. For there to be a detection in the %LEL methane would have to be detected above 0.1 or background, therefore the %LEL is still represented as 0 as methane did not exceed the background concentrations. 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 third quarter of 2022.

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

Sincerely,

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

Carlos Restrepo, P.E.
Project Manager
SCS Engineers

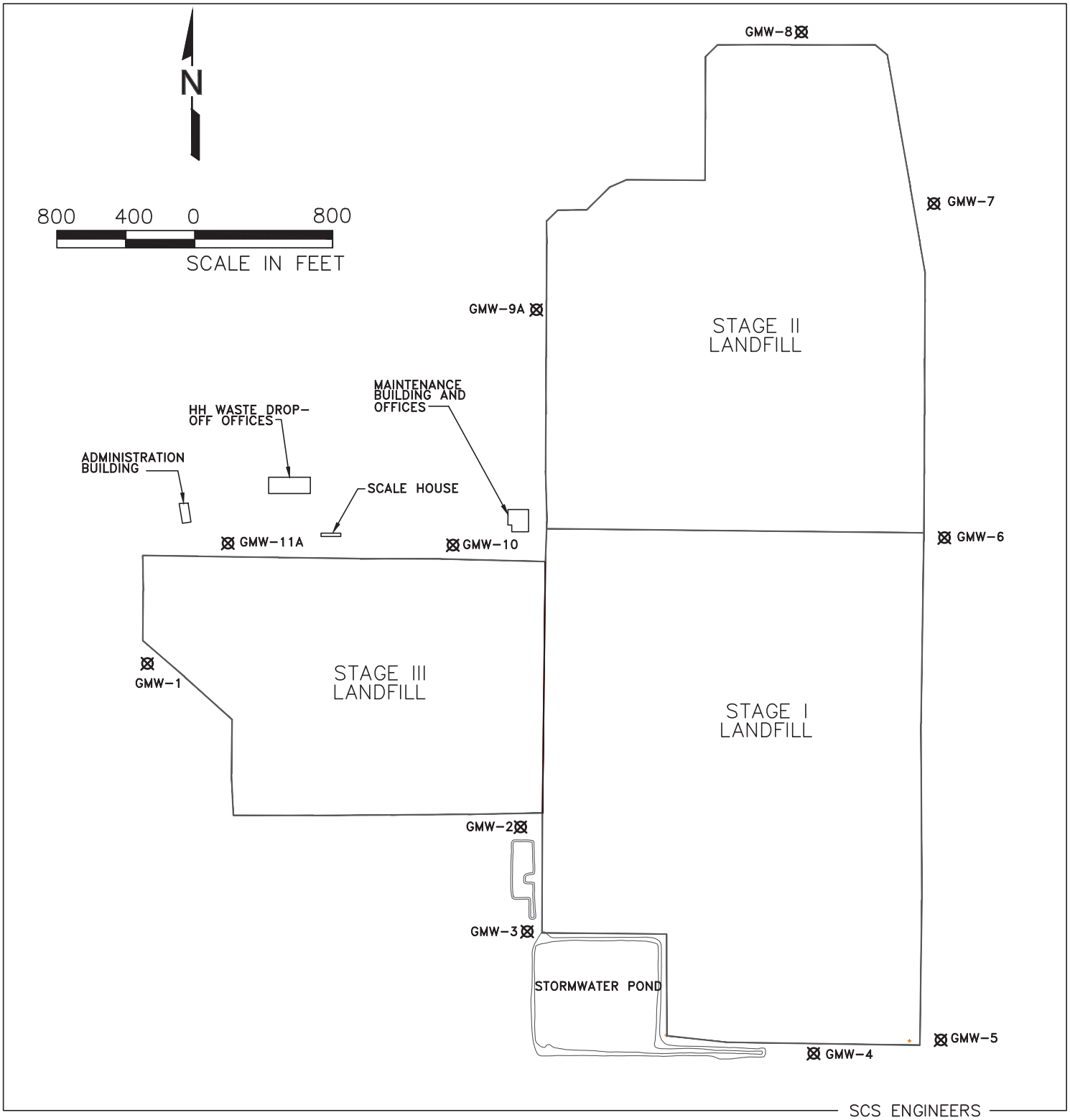
CARLOS A. RESTREPO
LICENSE
No. 70208
STATE OF FLORIDA
6/20/22
PROFESSIONAL ENGINEER

Attachment

cc: Robert Shankle – Utilities Department Director, Manatee County (electronic)
Bryan White – 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

2ND QUARTER PROBE/BUILDING MONITORING RESULTS

ATTACHMENT 2
LANDFILL GAS MIGRATION MONITORING
2nd QUARTER 2022
LENA ROAD LANDFILL, MANATEE COUNTY, FLORIDA

Probe No.	CH_4 (%)	CO_2 (%)	O_2 (%)	Balance (%)
GMW-1	0.2	1.5	19.3	79.0
GMW-2	0.2	0.5	18.7	80.6
GMW-3	0.2	1.5	17.9	80.4
GMW-4	0.2	1.6	18.1	80.1
GMW-5	0.1	3.1	16.3	80.5
GMW-6	0.1	0.0	19.2	80.7
GMW-7	0.1	0.3	19.3	80.3
GMW-8	0.1	0.5	19.4	80.0
GMW-9A	0.1	4.3	15.3	80.3
GMW-10	0.1	0.4	19.7	79.8
GMW-11A	0.1	6.5	13.3	80.1

On-Site Structures	CH_4 (%)	% LEL
HH Waste Drop-off Area (Recycling Bldg)	0.1	0.0
HH Waste Drop-off Office (Recycling Bldg)	0.1	0.0
Scale House Bldg	0.1	0.0
Administration Bldg	0.1	0.0
Maintenance Office	0.1	0.0
Maintenance Bldg	0.1	0.0
Maintenance Shop	0.1	0.0

Notes:
1. Monitoring performed by SCS Engineers on: 6/10/2022
2. Temperature: 73˚F
3. Barometric Pressure: 29.89"
4. % LEL = % CH_4 above background / 5% Volume for CH_4 LEL * 100

ATTACHMENT 3

GEM CALIBRATION SHEET

GEM-5000 Field Calibration Data Sheet

GEM-5000 Instrument Data

Instrument Serial No.: G500213
Technician Name: Donovan Dickey
Date and Time: 6/10/2022 1245 P.M.
Last Factory Calibration Date: May 2022

Calibration Gas Manufacturer's Data

Manufactured by:	Pine
Manufactured date:	18-Oct
Lot Number:	KBI-399-S-4
Expiration Date:	10/24/2022

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	**15.9**	12.0 - 18.0	**Pass**
CO_2	**0.0**	0.0 - 0.3	**14.7**	12.0 - 18.0	**Pass**
O_2	**20.1**	19.9 - 21.9	**0.1**	0.0 - 1.0	**Pass**