

## Smith, George

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**From:** Brandy J. Yunko <Brandy.Yunko@citrusbocc.com>  
**Sent:** Thursday, October 06, 2016 10:41 AM  
**To:** SWD\_Waste (Shared Mailbox)  
**Cc:** JEFFREY W. ROGERS; Ed Hilton (ehilton@scsengineers.com); goughe@citrus.k12.fl.us  
**Subject:** WACS ID 39859 Citrus County Quarterly Report  
**Attachments:** LF Gas Monitoring 3rd Q 2016.pdf

Submitted on behalf of Henry Norris, Director, Solid Waste Management.

Thank you,

***Brandy Yunko***

Compliance Manager  
Citrus County Division of Solid Waste Management  
230 W. Gulf to Lake Hwy  
Lecanto, FL 34461  
Office: 352-527-7670  
Direct: 352-527-7679  
Fax: 352-527-7672  
[Brandy.Yunko@citrusbocc.com](mailto:Brandy.Yunko@citrusbocc.com)





# Board of County Commissioners

## DEPARTMENT OF PUBLIC WORKS

### SOLID WASTE MANAGEMENT DIVISION

P.O. Box 340, Lecanto, Florida 34460

Telephone: (352) 527-7670 FAX: (352) 527-7672

Email: [landfillinfo@bocc.citrus.fl.us](mailto:landfillinfo@bocc.citrus.fl.us)

TDD Telephone: (352) 527-5303

Citrus Springs/Dunnellon/Inglis/Yankeetown area Toll Free (352) 489-2120

October 7, 2016

Mr. Steve Morgan  
Solid Waste Section  
Department of Environmental Protection  
13051 N Telecom Pkwy  
Temple Terrace, FL 33637-0926

**Re: Citrus County Central Landfill – Permit No. 21375-025-SO/01  
Landfill Gas Monitoring (Electronically Submitted)**

Dear Mr. Morgan,

The attached report was prepared by SCS Engineers for the County and reports the results of gas monitoring for the Third Quarter of 2016. This monitoring is in accordance with Specific Conditions E4 and E5 of the referenced permit.

No methane was detected in any of the probes or monitoring points.

Please contact me if you have questions or require additional information.

Sincerely,

Henry C. Norris, Jr.  
Director, Division of  
Solid Waste Management

CC: Jeff Rogers, P.E., Director, Dept. of Public Works (electronic copy)  
Ed Hilton, SCS Engineers, Tampa (electronic copy)  
Ed Gough – Withlacoochee Technical Institute (electronic copy)  
Mike Penn – Division of Forestry (hard copy)

## SCS ENGINEERS

September 30, 2016  
File No. 09215088.02

Henry Norris  
Solid Waste Director  
230 W. Gulf to Lake Hwy.  
Lecanto, Florida 34461

Subject: Landfill Gas Monitoring Report, Third Quarter 2016  
Central Landfill, Citrus County, Florida

Dear Henry:

SCS Engineers (SCS) is pleased to submit the results of the third quarter landfill gas (LFG) monitoring at Citrus County Central Landfill. Provided below is a description of our activities, summary of the monitoring results, and recommendations.

### BACKGROUND

In April 2007, the Florida Department of Environmental Protection (FDEP) approved extending the compliance boundary for LFG migration monitoring at the site to coincide with the boundaries of the 2006 lease agreement between Citrus County and the Florida Division of Forestry. As a result, 18 LFG monitoring probes installed along the new property boundary were to serve as the compliance points for migration monitoring. The remaining 62 permanent LFG probes and 12 interim probes have been abandoned in place and are no longer monitored on a quarterly basis. In November 2010, as part of the Phase III cell expansion, GP-19 was installed. Figure 1 in Attachment 1 includes a site map that shows all LFG monitoring probe locations.

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).

This quarterly monitoring was conducted in accordance with Rule 62-701.530(2)(c), F.A.C.

### MONITORING RESULTS

On September 28, 2016, SCS personnel monitored the LFG monitoring probes and on-site structures. SCS used a Landtec GEM-2000 gas monitor to measure gas composition in the



monitoring probes and on-site structures. 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 event and the calibration sheets are included in Attachment 3.

### **LFG Monitoring Probes**

Table 1 of Attachment 2 shows the readings obtained from the 19 probes along the property boundary. As shown in Table 1, 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 scalehouse, administration building, shop, leachate treatment facility, or firing range as shown in Table 1 of Attachment 2. Floor plans of the scale house and the administration building are included in Attachment 1.

SCS monitored in the restrooms of the administration building, as well as in select closets, the break room, conference room, and hallways. In the scalehouse, SCS monitored the main work area, cabinets, the restroom, and at electrical outlets. Monitoring of the leachate treatment facility included around the base of structures, at the control panel, and inside the electrical room.

At the firing range, SCS monitored the floor joints, electrical outlets, and the base of slabs or posts that penetrated the ground.

### **Methane Monitor**

A new methane monitor was installed in the leachate treatment plant electrical building in May 2015. This monitor was found functioning upon inspection. SCS monitored the old leachate treatment plant electrical building for methane gas, and confirmed that no gas was present in the building.

## **CONCLUSIONS**

No methane was detected during this monitoring event in the 19 probes, which are the compliance points for migration or within any of the buildings monitored on-site.

SCS is providing you two signed and sealed originals of this submittal. Please keep one for your files and forward the other to the FDEP Southwest District office at the following address:

Florida Department of Environmental Protection  
13051 N. Telecom Parkway  
Temple Terrace, Florida 33637-0926

Henry Norris  
September 30, 2016  
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SCS appreciates the opportunity to assist you with this work. Please call us at (813) 621-0080 if you have any questions or would like additional information.

Sincerely,



9-30-16

Stephanie Liptak  
Staff Professional  
**SCS ENGINEERS**



9-30-16

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

**ATTACHMENT 1**  
**MONITORING LOCATIONS**

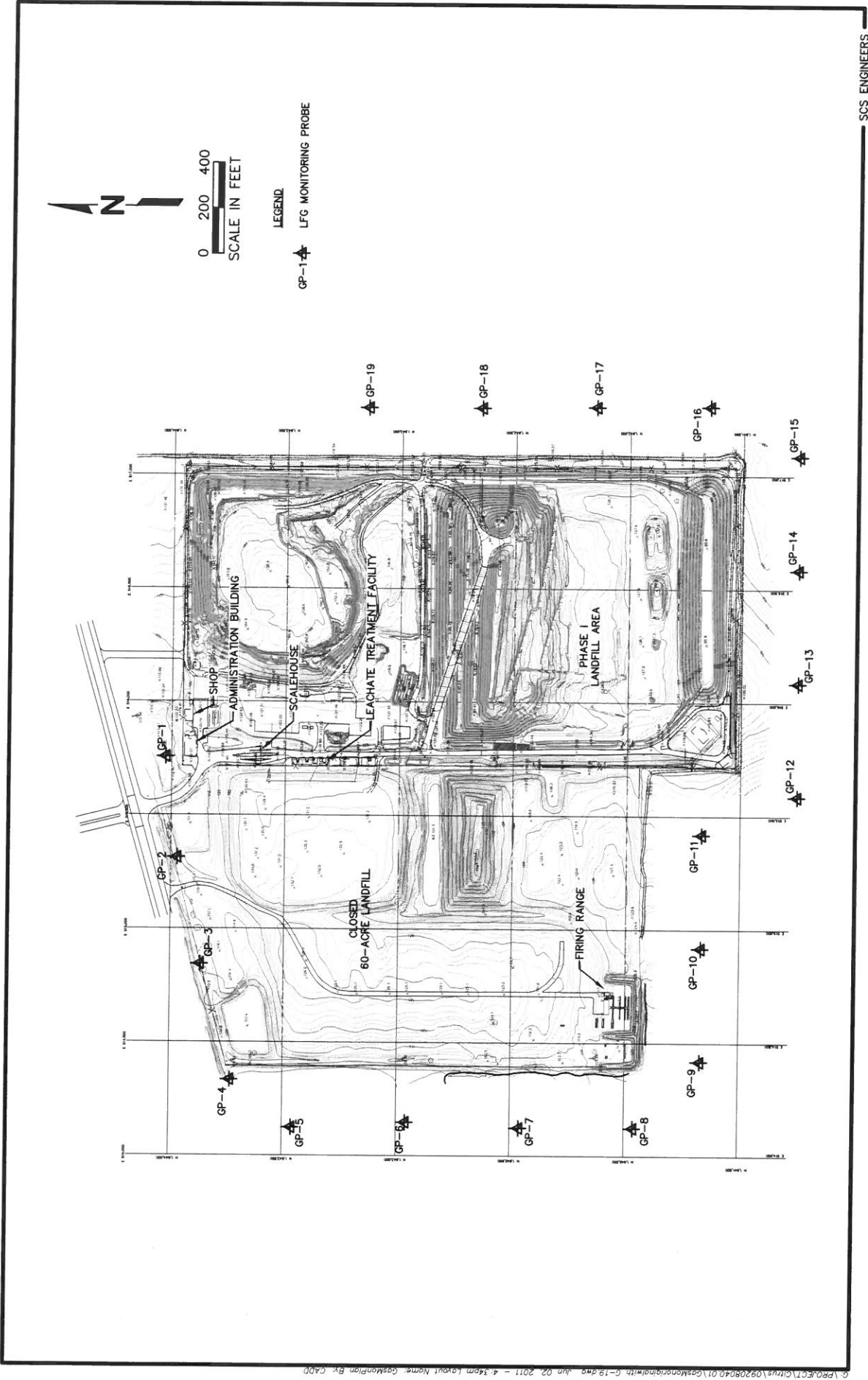


Figure 1. Landfill Gas Monitoring Probe Locations, Central Landfill, Citrus County, Florida

G:\PROJECT\Citrus\09208040.01\ADMIN\_FLOOR\_PLAN.dwg Jun 02, 2011 - 4:36pm Layout Name: ADMIN\_FLOOR\_PLAN Br CADD

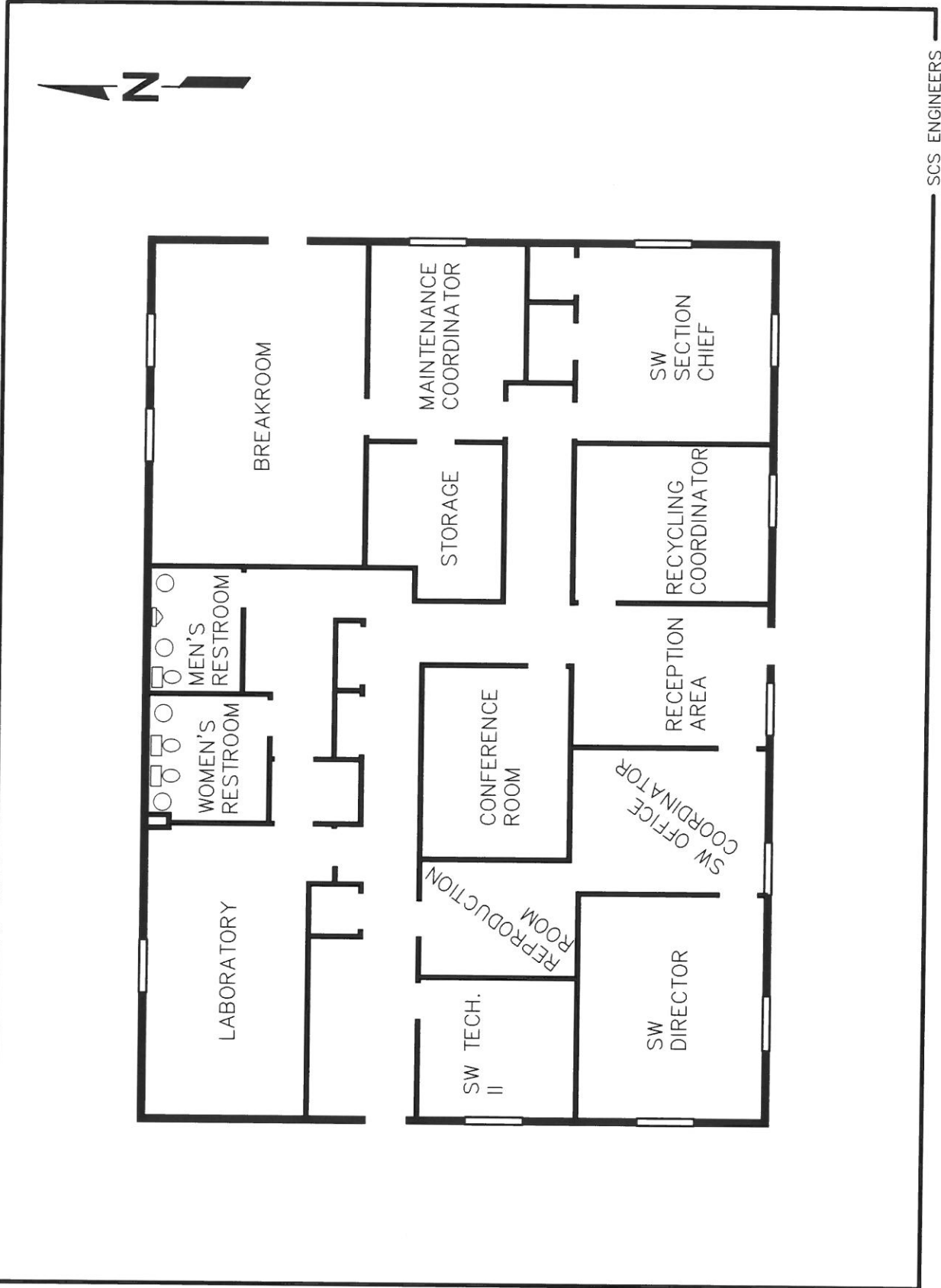


Figure 2. Administration Building Floor Plan



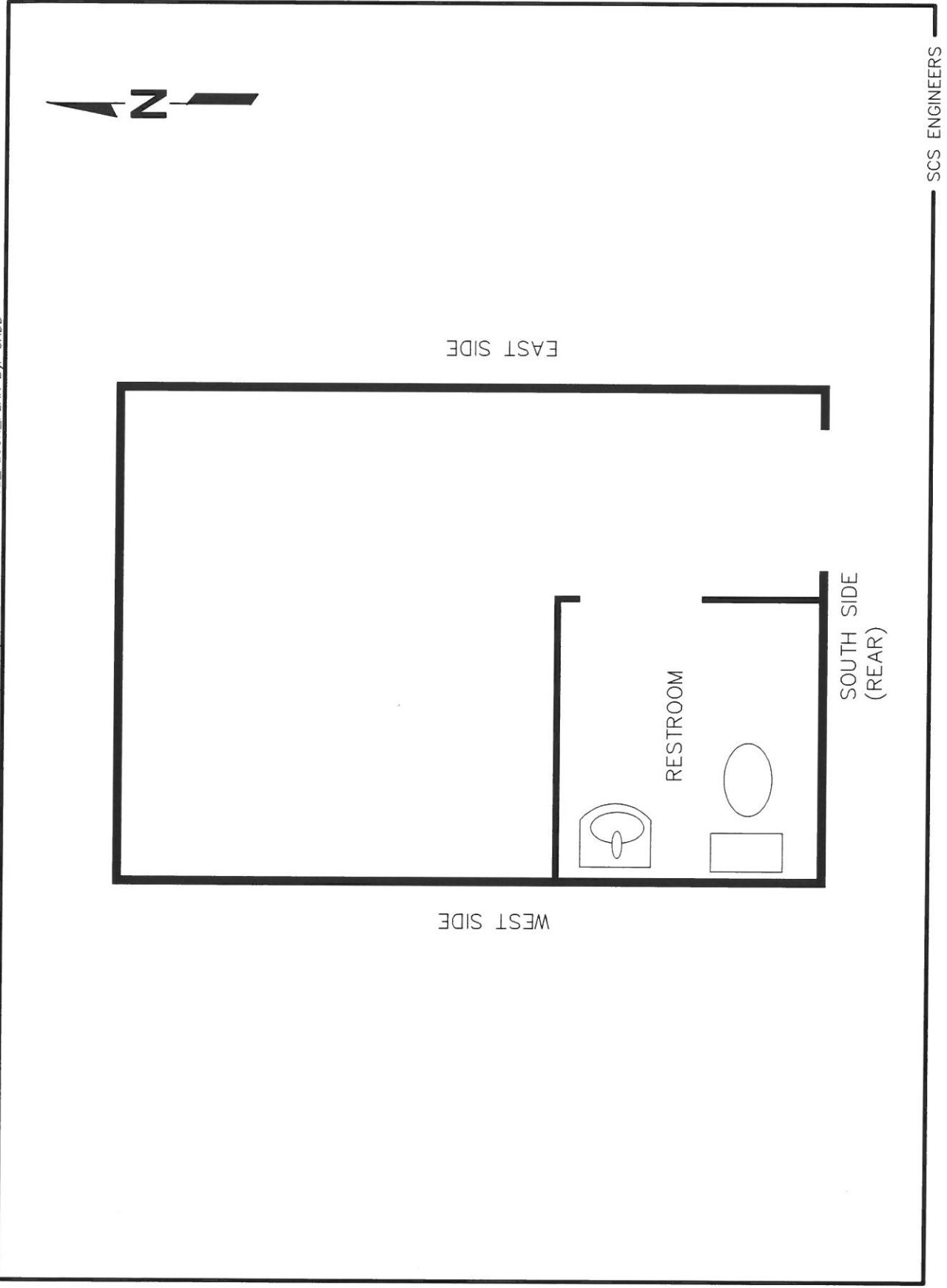


Figure 3. Scalehouse Floor Plan

**ATTACHMENT 2**  
**LFG MONITORING RESULTS**

**TABLE 1**  
**LANDFILL GAS MIGRATION MONITORING, THIRD QUARTER 2016**  
**CENTRAL LANDFILL, CITRUS COUNTY**

Probe No.	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Balance (%)	Comments
GP-1	0.0	0.0	20.6	79.4	
GP-2	0.0	0.5	20.0	79.3	
GP-3	0.0	0.0	20.3	79.6	
GP-4	0.0	2.0	19.0	79.0	
GP-5	0.0	0.9	19.7	79.3	
GP-6	0.0	2.2	18.8	78.9	
GP-7	0.0	0.2	20.2	79.5	
GP-8	0.0	0.6	20.0	79.2	
GP-9	0.0	1.1	19.5	79.3	
GP-10	0.0	2.5	17.1	80.3	
GP-11	0.0	0.4	20.1	79.4	
GP-12	0.0	0.2	20.2	79.5	
GP-13	0.0	1.5	18.6	79.8	
GP-14	0.0	0.7	19.4	79.8	
GP-15	0.0	0.1	20.3	79.5	
GP-16	0.0	0.9	19.6	79.4	
GP-17	0.0	1.3	19.1	79.6	
GP-18	0.0	0.4	19.9	79.6	
GP-19	0.0	0.4	20.2	79.3	

On Site	CH <sub>4</sub> (%)	% LEL
Scalehouse	0.0	0.0
Shop	0.0	0.0
Administration Building	0.0	0.0
Treatment Facility	0.0	0.0
Firing Range	0.0	0.0

Notes:

1. Monitoring performed by SCS Engineers (813) 621-0080 on: 9/28/2016
2. Temperature: 79 deg F
3. Barometric Pressure: 29.97 in. Hg

**ATTACHMENT 3**  
**INSTRUMENT CALIBRATION DATA**

## GEM-2000 Field Calibration Data Sheet

### GEM-2000 Instrument Data

Instrument Serial No.: GM0879  
Technician Name: Stephanie Liptak  
Date and Time: 9/28/2016 9:03 AM  
Last Factory Calibration Date: July 25, 2016

### Calibration Gas Manufacturer's Data

Manufactured by: Landtec  
Manufactured date: \_\_\_\_\_  
Lot Number: LAN-399-2  
Expiration Date: July 25, 2017

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 <sub>4</sub> (%)	CO <sub>2</sub> (%)	N <sub>2</sub> (%)	O <sub>2</sub> (%)
0.0	0.0	0.0	0.0 (Calibration Gas)

Span Gas Composition			
CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	N <sub>2</sub> (%)	O <sub>2</sub> (%)
50.0	35.0	15.0	20.1 (Ambient Air)

### 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 <sub>4</sub>	0.0	0.0 - 0.3	48.5	47.0 - 53.0	Pass
CO <sub>2</sub>	0.0	0.0 - 0.3	35.8	32.0 - 38.0	Pass
O <sub>2</sub>	20.7	19.9 - 21.9	0.0	0.0 - 1.0	Pass



# CERTIFICATION OF CALIBRATION

ISSUED BY: QED Environmental Systems, Inc. Services Facility

Date Of Calibration: July 25, 2016

Certificate Number: GM08790\_8/30154



No. 66916

Page 1 of 2



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

Approved By Signatory

Jake Aughton  
Laboratory Inspection

Customer: SCS Engineers

4041 Park Oaks Blvd  
Suite 100  
Tampa, FL 33610  
USA

Description: Gas Analyser

Model: GEM2000

Serial Number: GM08790

## Accredited Results:

Methane (CH <sub>4</sub> )		
Certified Gas (%)	Instrument Reading (%)	Uncertainty (%)
5.0	4.8	0.43
15.0	14.8	0.80
50.0	49.4	1.39

Carbon Dioxide (CO <sub>2</sub> )		
Certified Gas (%)	Instrument Reading (%)	Uncertainty (%)
5.0	4.7	0.49
15.0	14.3	0.99
50.0	50.0	1.46

Oxygen (O <sub>2</sub> )		
Certified Gas (%)	Instrument Reading (%)	Uncertainty (%)
20.7	20.8	0.27

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

CH<sub>4</sub>, CO<sub>2</sub> readings recorded at:

31.8 °C/89.2 °F

Barometric Pressure: 28.96 "Hg

O<sub>2</sub> readings recorded at:

23.2 °C/73.8 °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.

LP01SLNANIST-1.1

QED Instrument Services Facility - 2355 Bishop Circle West, Dexter, MI. 48130

# CERTIFICATION OF CALIBRATION

PJLA ACCREDITED CALIBRATION LABORATORY NO. 66916

Certificate Number  
GM08790\_8/30154

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## Non Accredited results:

Pressure Transducers (inches of water column)					
Transducer	Certified (Low)	Reading (Low)	Certified (High)	Reading (High)	Accuracy
Static	0"	0.00"	40"	39.90"	2.0"
Differential	0"	0.000"	4"	4.060"	0.7"

Barometer (mbar)	
Reference	Instrument Reading
0981 mbar / 28.96 "Hg	0982 mbar / 28.99 "Hg

As received gas check readings:

Methane (CH <sub>4</sub> )	
Certified Gas (%)	Instrument Reading (%)
5.0	4.7
15.0	14.3
50.0	49.1

Carbon Dioxide (CO <sub>2</sub> )	
Certified Gas (%)	Instrument Reading (%)
5.0	5.2
15.0	15.3
50.0	49.7

Oxygen (O <sub>2</sub> )	
Certified Gas (%)	Instrument Reading (%)
20.7	0.0

As received Gas readings recorded at: 31.8 °C/89.2 °F

As received Barometric Pressure recorded at: 23.2 °C/73.8 °F

End of Certificate

LP01SLNANT-1.1

**WWW.LANDTECNA.COM**

QED Instrument Services Facility - 2355 Bishop Circle West, Dexter, MI. 48130