

**Morris, John R.**

---

**From:** Troy Hays <thayes@jonesedmunds.com>  
**Sent:** Tuesday, January 31, 2017 1:44 PM  
**To:** Morris, John R.  
**Cc:** Roff, Nick; Henry C. Norris (Henry.Norris@citrusbocc.com); Carol Sawyer  
**Subject:** Citrus County Central Landfill Landfill Gas Measurement in the Groundwater Wells [facility #39859]  
**Attachments:** 16Q4 LFG in GW Wells.pdf

Good Afternoon John,

Attached is the letter report detailing the results of the landfill gas measurements collected in the groundwater monitoring wells at the Citrus County Central Landfill. Please call me at 352-258-9520 to discuss these results.

Thanks,

Troy D. Hays, PG  
Senior Manager / Vice President



INTEGRITY | KNOWLEDGE | SERVICE

Jones Edmunds & Associates, Inc.  
730 NE Waldo Road | Gainesville, FL 32641  
352.377.5821 ext. 1480 | Cell: 352.258.9520  
www.jonesedmunds.com

FOLLOW US ON:



*The information contained in this message including any attachment is confidential. It is intended for the private use of the intended addressee only. If you are not the intended addressee, please immediately notify the sender by reply email and destroy the original transmission and any attachment. E-mail transmission of information cannot be guaranteed to be free of error or other defect. If verification is required, request a hard-copy version. The sender disclaims liability for any defects in this message caused by e-mail transmission including a virus. It is the responsibility of the recipient to ensure that this message is virus free.*



January 30, 2017

John Morris  
Solid Waste Section  
Florida Department of Environmental Protection  
13051 N. Telecom Pkwy.  
Temple Terrace, FL 33637-0926

RE: Citrus County Central Landfill  
Landfill Gas Measured in Groundwater Monitoring Wells  
FDEP Permit No.: 21375-025-SO-01  
Jones Edmunds Project Number: 03860-058-01

Dear Mr. Morris:

In response to landfill gas being measured in groundwater monitoring wells MW-10 and MW-19 at the Citrus County Central Landfill, FDEP requested that Citrus County take measurements of landfill gas concentration in all of the groundwater monitoring wells. The landfill gas measurements are included as Attachment 1 to this letter. A map showing the gas concentrations in each well is provided as Attachment 2.

The landfill gas measurements were taken in each well by lowering 100 feet of tubing into each well and covering the top of the well to prohibit any landfill gas from entering the well at the surface. All of the groundwater wells at the site are screened at least 100 feet below land surface and most wells span the water table. The tubing was connected to a calibrated Eagle Rkl portable gas detector and the landfill gas concentration in each well was monitored for at least 2 minutes. The concentrations of Oxygen, Carbon Dioxide, and the peak concentrations of Methane, reported as % of the Lower Explosive Limit (LEL) or %Volume, were documented.

Most of the groundwater monitoring wells appear to have landfill gas in the riser as evidenced by lower than expected Oxygen concentrations or by elevated Methane concentrations. The Methane concentrations in MW-1R, MW-3, MW-6, MW-7, MW-10, MW-16, and MW-21 exceeded the LEL.

Citrus County requests a meeting with FDEP to discuss these results. Please contact me at 352-377-5821 to schedule the meeting at your earliest convenience.

Sincerely,

A handwritten signature in blue ink, appearing to read "Troy D. Hays".

Troy D. Hays, PG  
Sr. Manager/Vice President

M:\03860-CitrusCounty\058-01 LF Gas Routine and Non-Routine Monitoring and Maintenance\Consent Order Assistance\16Q4 LFG in GW Wells\16Q4 LFG in GW wells.doc

xc: Henry Norris, Citrus County

# **ATTACHMENT 1**

**LANDFILL GAS MONITORING RESULTS  
CENTRAL LANDFILL, CITRUS COUNTY**

**Fourth Quarter 2016**

**General Data**

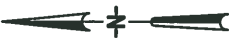
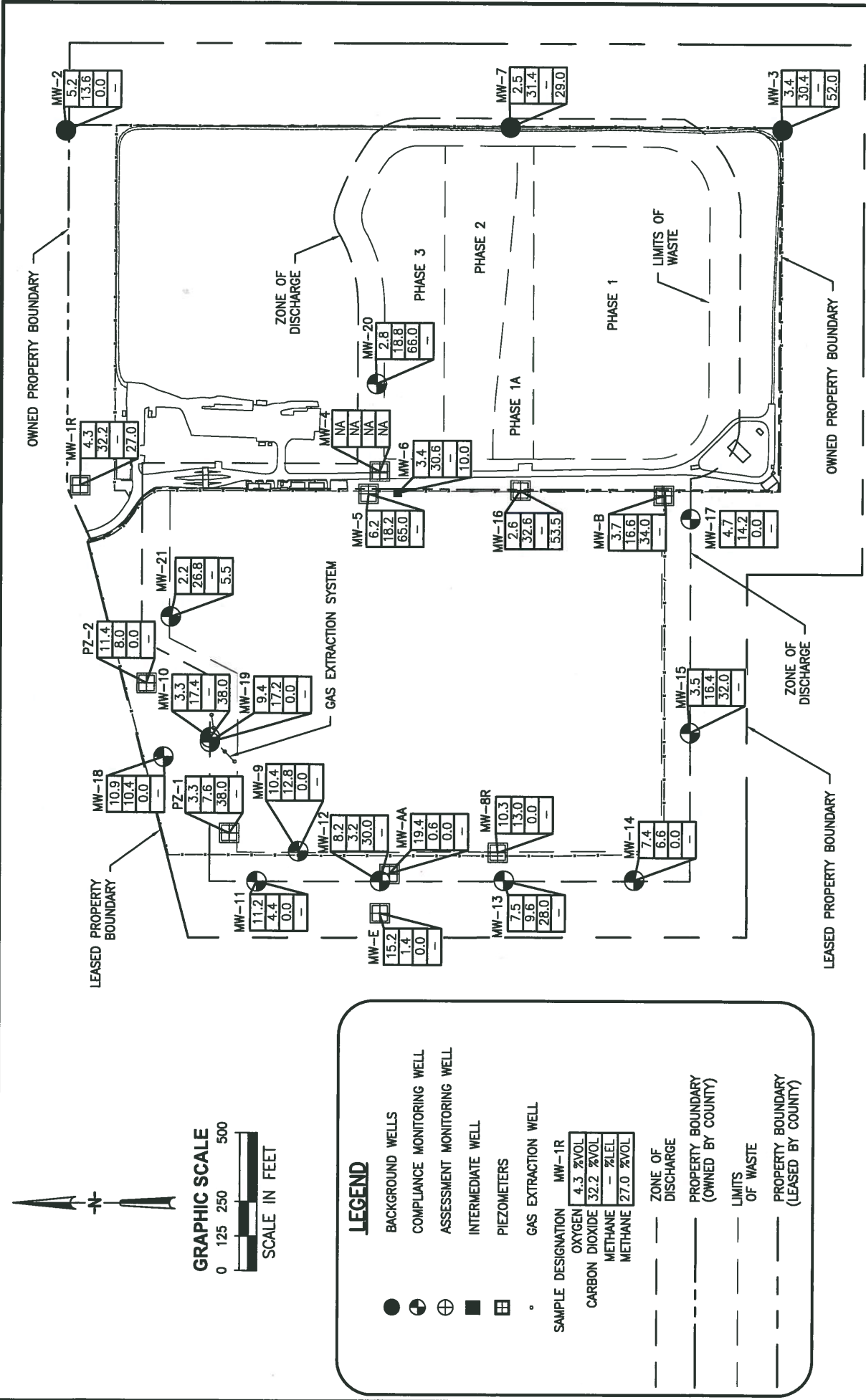
<b>Date:</b>	12/16/2016	<b>Sampler:</b>	Steve Messick
<b>Time:</b>	8:35	<b>Sky Conditions:</b>	Clear
<b>Air Temperature (deg C):</b>	18	<b>Measuring Device:</b>	Eagle RKI (SN E084039)

**Sampling Data**

Station I.D.	Time Sampled	O2 %Volume	CO2 %Volume	Methane		Station Type
				Peak Recorded Concentration as % LEL	Peak Recorded Concentration as % Volume	
MW-1R	1625	4.3	32.2	-	27.0	GW Well
MW-2	1101	5.2	13.6	0.0	-	GW Well
MW-3	1606	3.4	30.4	-	52.0	GW Well
MW-5	1538	6.2	18.2	65.0	-	GW Well
MW-6	1533	3.4	30.6	-	10.0	GW Well
MW-7	1612	2.5	31.4	-	29.0	GW Well
MW-8R	1421	10.3	13.0	0.0	-	GW Well
MW-9	1428	10.4	12.8	0.0	-	GW Well
MW-10	1441	3.3	17.4	-	38.0	GW Well
MW-11	1312	11.2	4.4	0.0	-	GW Well
MW-12	1339	8.2	3.2	30.0	-	GW Well
MW-13	1347	7.5	9.6	28.0	-	GW Well
MW-14	1355	7.4	6.6	0.0	-	GW Well
MW-15	1402	3.5	16.4	32.0	-	GW Well
MW-16	1559	2.6	32.6	-	53.5	GW Well
MW-17	1005	4.7	14.2	0.0	-	GW Well
MW-18	1452	10.9	10.4	0.0	-	GW Well
MW-19	1446	9.4	17.2	0.0	-	GW Well
MW-20	1545	2.8	18.8	66.0	-	GW Well
MW-21	1504	2.2	26.8	-	5.5	GW Well
MW-AA	1330	19.4	0.6	0.0	-	GW Well
MW-B	1413	3.7	16.6	34.0	-	GW Well
MW-E	1323	15.2	1.4	0.0	-	GW Well
PZ-1	1434	3.3	7.6	38.0	-	GW Well
PZ-2	1458	11.4	8.0	0.0	-	GW Well

## **ATTACHMENT 2**

CITRUS COUNTY CENTRAL LANDFILL  
 GAS CONCENTRATION IN GROUNDWATER MONITORING WELLS  
 DECEMBER 16, 2016



**LEGEND**

- BACKGROUND WELLS
- ⊕ COMPLIANCE MONITORING WELL
- ⊗ ASSESSMENT MONITORING WELL
- INTERMEDIATE WELL
- ▣ PIEZOMETERS
- GAS EXTRACTION WELL

SAMPLE DESIGNATION	MW-1R
OXYGEN	4.3 %VOL
CARBON DIOXIDE	32.2 %VOL
METHANE	— %LEL
METHANE	27.0 %VOL

- ZONE OF DISCHARGE
- PROPERTY BOUNDARY (OWNED BY COUNTY)
- LIMITS OF WASTE
- PROPERTY BOUNDARY (LEASED BY COUNTY)