

March 19, 2019

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

RE: Citrus County Central Landfill
Landfill Gas Monitoring Results – First Quarter 2019
FDEP Permit No.: 21375-025-SO-01
Jones Edmunds Project Number: 03860-069-01

Dear Mr. Morgan:

Enclosed are the First Quarter 2019 landfill gas monitoring results for the Citrus County Central Landfill conducted on February 11 and 12, 2019. The calibration log is also enclosed with this letter.

There were no detections of Methane in any of the landfill gas monitoring probes at any depths or in any of the on-site structures. However, elevated levels of carbon dioxide and decreased levels of oxygen were detected in most of the landfill gas monitoring probes. Based on these sampling results from the probes at varying depths, Methane does not exceed 100% of the LEL at the compliance boundary and the site is in compliance with the landfill gas migration rule.

The County continues to measure landfill gas concentration in the groundwater monitoring wells. Methane was at or above 100% of the LEL in groundwater monitoring wells MW-3, MW-7, MW-12, MW-16, MW-20, MW-21, and MW-22.

The results from the measurements conducted in the new landfill gas monitoring probes along with the existing probes retrofitted with tubing installed to varying depths indicate that the site is in compliance with the landfill gas migration rules. If you have any questions regarding this information, please contact me at (352) 377-5821.

Sincerely,



Troy D. Hays, PG
Sr. Manager/Vice President
730 NE Waldo Road
Gainesville, FL 32618

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xc: Ray Oates, Citrus County

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

General Data

First Quarter 2019

Date:	2/12/2019	Sampler:	Steve Messick
Time:	09:00	Sky Conditions:	Cloudy - wind < 3 mph
Air Temperature (deg C):	22°	Measuring Device:	Eagle RKI (SN E084039)

Sampling Data

Station I.D.	Date Sampled	Time Sampled	Depth of Intake (Feet)	O2 %Volume	CO2 %Volume	Methane		Station Type
						Peak Recorded Concentration as % LEL	Peak Recorded Concentration as % Volume	
GP-1	2/12/2019	14:07	20	18.9	1.2	0.0	-	Gas Well
GP-1	2/12/2019	14:05	40	18.1	2.2	0.0	-	Gas Well
GP-2	2/12/2019	14:26	20	20.1	0.8	0.0	-	Gas Well
GP-2	2/12/2019	14:24	40	15.7	2.6	0.0	-	Gas Well
GP-3	2/12/2019	14:46	20	19.0	1.2	0.0	-	Gas Well
GP-3	2/12/2019	14:44	40	19.0	1.2	0.0	-	Gas Well
GP-4	2/12/2019	12:11	20	17.2	3.4	0.0	-	Gas Well
GP-4	2/12/2019	12:12	40	18.4	2.6	0.0	-	Gas Well
GP-5	2/12/2019	12:05	20	17.0	3.8	0.0	-	Gas Well
GP-5	2/12/2019	12:03	40	18.8	2.0	0.0	-	Gas Well
GP-6	2/12/2019	11:57	20	18.2	2.6	0.0	-	Gas Well
GP-6	2/12/2019	11:55	40	18.3	2.6	0.0	-	Gas Well
GP-7	2/12/2019	11:44	20	18.5	2.2	0.0	-	Gas Well
GP-7	2/12/2019	11:42	40	18.8	1.8	0.0	-	Gas Well
GP-8	2/12/2019	11:35	20	18.1	1.8	0.0	-	Gas Well
GP-8	2/12/2019	11:33	40	16.7	2.2	0.0	-	Gas Well
GP-9	2/12/2019	11:26	20	18.8	1.8	0.0	-	Gas Well
GP-9	2/12/2019	11:25	40	20.3	0.6	0.0	-	Gas Well
GP-10	2/12/2019	11:20	20	13.9	6.0	0.0	-	Gas Well
GP-10	2/12/2019	11:18	40	16.5	3.8	0.0	-	Gas Well
GP-11	2/12/2019	11:12	20	18.7	1.2	0.0	-	Gas Well
GP-11	2/12/2019	11:10	40	17.0	1.8	0.0	-	Gas Well
GP-12	2/12/2019	11:01	25	19.1	1.4	0.0	-	Gas Well
GP-12	2/12/2019	11:03	50	19.1	1.4	0.0	-	Gas Well
GP-12	2/12/2019	11:05	75	19.3	1.2	0.0	-	Gas Well
GP-13	2/12/2019	10:55	25	18.0	1.6	0.0	-	Gas Well
GP-13	2/12/2019	10:53	50	17.2	2.0	0.0	-	Gas Well
GP-13	2/12/2019	10:50	75	17.9	1.6	0.0	-	Gas Well
GP-14	2/12/2019	10:42	25	19.8	0.6	0.0	-	Gas Well
GP-14	2/12/2019	10:40	50	18.8	1.2	0.0	-	Gas Well

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						Peak Recorded Concentration as % LEL	Peak Recorded Concentration as % Volume	
GP-14	2/12/2019	10:38	75	19.8	0.6	0.0	-	Gas Well
GP-15	2/12/2019	10:25	25	19.8	1.2	0.0	-	Gas Well
GP-15	2/12/2019	10:23	50	19.9	1.0	0.0	-	Gas Well
GP-15	2/12/2019	10:21	75	20.7	0.2	0.0	-	Gas Well
GP-16	2/12/2019	10:17	25	19.6	0.8	0.0	-	Gas Well
GP-16	2/12/2019	10:15	50	19.1	1.2	0.0	-	Gas Well
GP-16	2/12/2019	10:13	75	19.4	1.0	0.0	-	Gas Well
GP-17	2/12/2019	10:10	25	17.1	3.0	0.0	-	Gas Well
GP-17	2/12/2019	10:08	50	17.4	2.6	0.0	-	Gas Well
GP-17	2/12/2019	10:06	75	16.5	3.2	0.0	-	Gas Well
GP-18	2/12/2019	9:54	25	20.1	0.6	0.0	-	Gas Well
GP-18	2/12/2019	9:52	50	20.3	0.6	0.0	-	Gas Well
GP-18	2/12/2019	9:50	75	20.3	0.6	0.0	-	Gas Well
GP-19	2/12/2019	15:54	25	19.6	1.2	0.0	-	Gas Well
GP-19	2/12/2019	15:52	50	19.4	1.2	0.0	-	Gas Well
GP-19	2/12/2019	15:50	75	19.8	1.0	0.0	-	Gas Well
GP-20	2/12/2019	10:19	105	18.5	0.8	0.0	-	Gas Well
GP-21	2/12/2019	9:56	115	20.9	0.6	0.0	-	Gas Well
GP-22	2/12/2019	14:09	70	20.9	0.0	0.0	-	Gas Well
GP-23	2/12/2019	14:12	100	13.9	1.4	0.0	-	Gas Well
GP-24	2/12/2019	14:28	70	16.5	0.0	0.0	-	Gas Well
GP-25	2/12/2019	14:32	100	20.9	0.0	0.0	-	Gas Well
GP-26	2/12/2019	14:49	70	20.1	0.2	0.0	-	Gas Well
GP-27	2/12/2019	14:52	100	19.0	0.6	0.0	-	Gas Well
GP-28	2/12/2019	12:15	70	18.3	2.2	0.0	-	Gas Well
GP-29	2/12/2019	12:20	100	20.9	0.0	0.0	-	Gas Well
GP-30	2/12/2019	10:28	105	18.8	0.8	0.0	-	Gas Well
Admin Building	2/12/2019	8:56	-	20.9	0.0	0.0	-	Structure
Mod Bldg	2/12/2019	9:19	-	20.9	0.0	0.0	-	Structure
Shop	2/12/2019	9:12	-	20.9	0.0	0.0	-	Structure

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Sampling Data

Station I.D.	Date Sampled	Time Sampled	Depth of Intake (Feet)	O2 %Volume	CO2 %Volume	Methane		Station Type
						Peak Recorded Concentration as % LEL	Peak Recorded Concentration as % Volume	
Scale House	2/12/2019	9:02	-	20.9	0.0	0.0	-	Structure
Firing Range	2/12/2019	9:55	-	20.9	0.0	0.0	-	7 Structures
Haz Waste Drop off Center	2/12/2019	9:34	-	20.9	0.0	0.0	-	4 Structures
Storage Building	2/12/2019	9:23	-	20.9	0.0	0.0	-	Structure

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

First Quarter 2019

General Data

Date:	2/11/2019	Sampler:	Steve Messick
Time:	8:45	Sky Conditions:	Cloudy - Hazy
Air Temperature (deg C):	27°	Measuring Device:	Eagle RKI (SN E084039)

Sampling Data

Station I.D.	Date Sampled	Time Sampled	O2 %Volume	CO2 %Volume	Methane		Station Type
					Peak Recorded Concentration as % LEL	Peak Recorded Concentration as % Volume	
MW-1R	2/11/2019	16:09	18.4	2.4	0.0	-	Groundwater Well
MW-2	2/11/2019	15:34	10.8	4.2	0.0	-	Groundwater Well
MW-3	2/11/2019	9:54	3.8	30.2	-	56.5	Groundwater Well
MW-5	2/11/2019	9:37	4.9	18.4	22.0	-	Groundwater Well
MW-6	2/11/2019	9:34	3.8	19.6	22.0	-	Groundwater Well
MW-7	2/11/2019	10:02	5.4	31.8	-	44.5	Groundwater Well
MW-8R	2/11/2019	12:43	14.8	9.0	3.0	-	Groundwater Well
MW-9	2/11/2019	12:08	3.2	8.2	65.0	-	Groundwater Well
MW-10	2/11/2019	11:14	13.8	10.2	0.0	-	Groundwater Well
MW-11	2/11/2019	15:13	5.4	7.2	31.0	-	Groundwater Well
MW-12	2/11/2019	14:48	2.4	8.6	-	5.5	Groundwater Well
MW-13	2/11/2019	14:09	4.7	12.6	0.0	-	Groundwater Well
MW-14	2/11/2019	13:25	4.8	6.4	0.0	-	Groundwater Well
MW-15	2/11/2019	13:35	8.3	11.4	22.0	-	Groundwater Well
MW-16	2/11/2019	9:46	3.4	31.8	-	57.5	Groundwater Well
MW-17	2/11/2019	13:48	8.8	11.2	23.0	-	Groundwater Well
MW-18	2/11/2019	11:05	12.3	8.4	0.0	-	Groundwater Well
MW-18D	2/11/2019	11:02	14.4	6.4	0.0	-	Groundwater Well
MW-19	2/11/2019	11:18	11.9	13.4	0.0	-	Groundwater Well
MW-19D	2/11/2019	11:22	17.8	2.0	0.0	-	Groundwater Well
MW-20	2/11/2019	10:13	4.1	34.2	-	49.5	Groundwater Well
MW-21	2/11/2019	10:25	4.5	23.8	-	21.0	Groundwater Well
MW-22	2/11/2019	10:34	3.7	22.8	-	5.0	Groundwater Well
MW-AA	2/11/2019	14:27	7.7	10.0	0.0	-	Groundwater Well
MW-B	2/11/2019	12:26	8.0	9.6	4.0	-	Groundwater Well
MW-E	2/11/2019	15:00	8.1	6.0	69.0	-	Groundwater Well
PZ-1	2/11/2019	11:46	6.1	6.8	53.0	-	Groundwater Well
PZ-2	2/11/2019	10:41	11.8	4.8	0.0	-	Groundwater Well

Form FD 9000-8: FIELD INSTRUMENT CALIBRATION RECORDS

SITE NAME Citrus County

DATE 02/11/2019

INSTRUMENT (MAKE/MODEL#) Eagle Multi-Gas Detector INSTRUMENT # GNV 80023*

Instrument Calibration Date 11/11/16 Reference Meter Book Eagle Meter Book 1

PARAMETER: [check only one]

- TEMPERATURE CONDUCTIVITY SALINITY pH ORP
 TURBIDITY RESIDUAL CI DO OTHER LANDFILL GAS

STANDARDS: [Specify the type(s) of standards used for calibration, the origin of the standards, the standard values, and the date the standards were prepared or purchased]

Standard A 15.33 % Methane (Volume), 15.04 % CO₂ (Volume), Balance Nitrogen

Standard Source Airgas Lot # 122-40110286-1

Standard B Zero Air (0 % Methane) (0% CO₂) (21.0 % O₂)

Standard Source Airgas Lot # 55-400483127-1

Standard C % LEL Methane, % CO₂ (Volume), 0% O₂ (Volume), Bal Nitrogen

Standard Source _____ Lot # _____

DATE (yy/mm/dd)	TIME (hr:min)	STD (A, B, C)	CH ₄ STD VALUE (% Vol)	CO ₂ STD VALUE (% Vol)	O ₂ STD VALUE (% Vol)	INSTRUMENT RESPONSE (%) DEVIATION (LIMITS +/- 5%)						CALIB- RATED (YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS
						CH ₄		CO ₂		O ₂				
						RES	DEV	RES	DEV	RES	DEV			
19/02/11	0835	A	15.33	15.04	—	15.5	<2	15.0	<1	—	—	Yes	Init.	Am
	0839	B	—	—	21.0	—	—	—	—	20.9	<1	Yes	Init.	Am
	1621	A	15.33	15.04	—	15.0	<3	15.2	<2	—	—	Yes	Cont.	Am
	1628	B	—	—	21.0	—	—	—	—	20.9	<1	Yes	Cont.	Am
19/02/12	0811	A	15.33	15.04	—	15.6	<3	15.0	<1	—	—	Yes	Init.	Am
	0815	B	—	—	21.0	—	—	—	—	20.9	<1	Yes	Init.	Am
	1227	A	15.33	15.04	—	15.0	<3	15.0	<1	—	—	Yes	Cont.	Am
	1229	B	—	—	21.0	—	—	—	—	20.9	<1	Yes	Cont.	Am

* Eagle SN E084039