

Smith, George

From: Ray Oates <ray.oates@citrusbocc.com>
Sent: Tuesday, May 09, 2017 10:36 AM
To: SWD_Waste
Subject: Citrus County Central Landfill, March 2017 Gas Monitoring Report
Attachments: GCCS gas monitoring 5.4.2017.pdf

Dear Mr. Morgan or Ms. Madden:

Please accept the above-referenced report as it pertains to the Citrus County Landfill, Operations Permit #21375-025-SO-018-0.

Should you have any questions regarding this matter, please do not hesitate to contact me.

Ray Oates, PG
Solid Waste Compliance Manager
Division of Solid Waste Management
230 W. Gulf to Lake Hwy
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May 4, 2017

Henry Norris, Jr.
Director
Division of Solid Waste Management
Citrus County Central Landfill
230 W. Gulf to Lake Hwy
Lecanto, Florida 34460

Re: Citrus County Central Landfill
Gas Collection and Control System
FDEP Title V Air Operations Permit No.: 0170366-006-AV
March 2017 Wellfield Monitoring
Jones Edmunds Project No.: 03860-058-01

Dear Mr. Norris:

Sullivan Environmental conducted the monthly landfill gas wellfield monitoring event on March 6, 2017. The monitoring event included taking landfill gas readings at each well, inspecting each wellhead, taking landfill gas readings at the flare station, and measuring liquid levels in the gas collection wells. This letter report summarizes the monitoring event and presents our findings and recommendations.

Citrus County elected to install an active gas collection and control system (GCCS) before reaching regulatory thresholds as defined in NSPS 40 CFR Part 60, Subpart WWW. In accordance with the site's Title V Air Operations Permit, the GCCS is not subject to the operational standards of Subpart WWW; however, the wellfield is monitored monthly and maintained in an effort to control landfill gas emissions.

The landfill gas wells were monitored with a GEM™2000 instrument. This instrument samples and analyzes methane, carbon dioxide, and oxygen content of landfill gas; and reports balance gases, pressure, and flow rate. The wellfield data is provided in Table 1.

Wellfield observations and recommendations for this month are provided in Table 2 and summarized below:

- Wells that require new Kanaflex: EW-08R and EW-07
- Wells that require new wellhead valve: EW-04, EW-06, EW-07
- Wells that are possibly pinched or broken: EW-04, EW-05, EW-07, EW-08R, EW-09R, EW-10R and EW-11
- Wells that are partially blocked with liquid: EW-06 and EW-09
- Wells with high oxygen content: EW-04, EW-06, and EW-07

The average oxygen and methane concentrations were 3.3% and 47%, respectively. Based on liquid level readings, several of the wells are likely pinched or broken below grade. This tends to occur as waste

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settles. The proposed GCCS expansion project will include new vertical wells to augment gas collection; we will recommend that damaged or non-producing gas wells be abandoned. We will continue to monitor and maintain the GCCS to optimize gas flow and gas quality and to minimize oxygen intrusion. As part of the GCCS expansion project, we may recommend that several of the wells be replaced since they appear to be possibly pinched below grade.

If you have any questions or would like to discuss any of the observation or recommendations, please contact me at (352) 377-5821 or at csawyer@jonesedmunds.com.

Sincerely,



Carol G. Sawyer, PE
Project Manager

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Enclosures

Table 1

Citrus County Central Landfill
Active Gas Collection and Control System - Monitoring Log

March 6, 2017

Facility ID: 0170366

Device ID	Date/Time	CH4 %	CO2 %	O2 %	Balance %	%LEL %	Init. Static Press. inches H2O	Adj. Static Press. inches H2O	Init. Diff. Press. inches H2O	Adj. Diff. Press. inches H2O	Init. Gas Temp. DegF	Adj. Gas Temp. DegF	Comments
CALGAS01	3/6/2017 11:13	0.1	0.1	4	95.8	2	0.1	0	-0.044	-0.002	0	0	
CALGAS01	3/6/2017 11:15	49.9	34.8	0	15.3	998	0	0	-0.025	-0.027	0	0	
FLAREIN1	3/6/2017 13:18	55.8	43.8	0.2	3.2	1116	-59.6	-59.8	>>>>	>>>>	895	0	
FLAREIN1	3/7/2017 14:34	54	41.8	1	3.2	1080	-57.4	-57.4	>>>>	>>>>	1016	0	
FLAREOUT	3/6/2017 13:21	55.8	42.1	1	1.1	1116	2.3	2.3	-2.464	-2.5	895	0	
CCLFEW01	3/6/2017 13:26	55.6	44.1	0.1	0.2	1112	-51.9	-52	>>>>	>>>>	118	0	
CCLFEW02	3/6/2017 13:29	55.2	44.7	0	0.1	1104	-53.5	-53.4	>>>>	>>>>	109	0	
CCLFRW02	3/6/2017 14:00	56.2	43.7	0	0.1	1124	0.1	-0.3	-0.059	0.52	79	79	
CCLFEW03	3/6/2017 13:31	55.5	44.3	0	0.2	1110	-52.7	-52.7	>>>>	>>>>	122	0	
CCLFRW03	3/6/2017 14:03	5.1	3.9	19	72	102	-0.4	-0.1	0.534	0.218	80	80	
CCLFEW04	3/6/2017 13:35	55.3	44.6	0	0.1	1106	-55.1	-55.2	>>>>	>>>>	87	0	Possibly broken below grade; needs new wellhead valve.
CCLFRW04	3/6/2017 14:06	0.9	0.8	21.3	77	18	0	0	0.062	0.038	80	0	
CCLFEW05	3/6/2017 13:38	55.2	44.7	0	0.1	1104	-0.4	-1.2	0.514	1.367	94	94	Cracked valve open.
CCLFRW05	3/6/2017 14:14	55.8	33.2	2.6	8.4	1116	0.1	-0.1	-0.02	0.253	80	0	
CCLFEW06	3/6/2017 13:40	55.5	44.4	0	0.1	1110	-48.4	-48.3	>>>>	>>>>	104	0	Sludge found in well; needs new wellhead valve.
CCLFRW06	3/6/2017 14:16	14.3	7.8	16.4	61.5	286	0	0	0.017	0.015	78	0	
CCLFEW07	3/6/2017 13:42	53.7	46.2	0	0.1	1074	-7	-7.5	7.551	7.454	118	0	Vacuum surging; needs new wellhead valve and Kanaflex.
CCLFRW07	3/6/2017 14:24	56.9	43	0	0.1	1138	0	-0.1	-0.06	0.22	80	80	
CCLFE08R	3/6/2017 13:44	54.8	44.7	0.4	0.1	1096	-48.5	-49.5	>>>>	>>>>	95	0	Needs 1 power clamp and new Kanaflex.
CCLFRW09	3/6/2017 14:28	36.9	28.7	7.1	27.3	738	-51.9	-47	>>>>	>>>>	84	84	Laying down and partially blocked with liquid.
CCLFE09R	3/6/2017 13:49	43.7	37.3	4	15	874	-53.9	-51	>>>>	>>>>	82	0	Possibly pinched.
CCLFE10R	3/6/2017 13:53	53.9	46	0	0.1	1078	0.1	-1.2	-0.012	1.572	80	80	Possibly pinched. Cracked valve open.
CCLFEW11	3/6/2017 13:57	55.3	44.6	0	0.1	1106	-56	-55.9	>>>>	>>>>	102	0	Possibly pinched.

CCLFRW = remote wellhead

Table 2

Citrus County Central Landfill
Facility ID: 0170366
Active Gas Collection and Control System
Liquid Level and Wellfield Observations

March 2017

WELL ID	DATE	DTL (feet)	DTB (feet)	LIQUID IN WELL (feet)	Well depth from 08/24/10 completion report (feet)	HEIGHT OF STICKUP (feet)	Notes
CCLFEW01	3/6/2017	61.1	87.6	26.5	90	4.2	
CCLFEW02	3/6/2017	43.11	90	46.89	90	3.1	
CCLFEW03	3/6/2017	56.5	95.6	39.1	90	4.0	
CCLFEW04	3/6/2017	21.8	27.2	5.4	70	4.0	Possibly broken below grade
CCLFEW05	3/6/2017	40.2	46.9	6.7	81	3.7	Cracked valve open
CCLFEW06	3/6/2017	46.1	66.11*	14.01	50	2.6	Sludge found in well
CCLFEW07	3/6/2017	25.7	26.3	0.6	73	4.5	Vacuum surging
CCLFW08R	3/6/2017	18.6	20.5	1.9	70	4.1	Needs 1 power clamp and new Kanaflex
CCLFW09R	3/6/2017	18.5	18.5	0	70	4.0	Possibly pinched
CCLFW10R	3/6/2017	13.2	15.7	2.5	70	4.8	Possibly pinched. Cracked valve open
CCLFEW11	3/6/2017	17.6	18	0.4	66	3.1	Possibly pinched
CCLFRW02	3/6/2017	NA	NA	NA			
CCLFRW03	3/6/2017	NA	NA	NA			
CCLFRW04	3/6/2017	NA	NA	NA			Needs new wellhead valve
CCLFRW05	3/6/2017	NA	NA	NA			
CCLFRW06	3/6/2017	NA	NA	NA			Needs new wellhead valve
CCLFRW07	3/6/2017	NA	NA	NA			Needs new wellhead valve and Kanaflex
CCLFRW09	3/6/2017	NA	NA	NA			Laying down and partially blocked with liquid

DTL = depth to liquid (feet)

DTB = depth to bottom (feet)

Readings and observations by Sullivan Environmental.

** Verify this reading next month; depth greater than depth of well.*