

## Smith, George

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**From:** Bayne, Bradley J <Bradley.Bayne@atkinsglobal.com>  
**Sent:** Thursday, October 13, 2016 8:55 AM  
**To:** SWD\_Waste (Shared Mailbox)  
**Cc:** Morris, John R.; Tafuni, Steven; Lynette Falkowski; Anthony Detweiler; Mopps, Charles L; Cronyn, Edward  
**Subject:** 0810055-012-AV / Manatee County -Lena Road Landfill Monthly Report\_September 2016  
**Attachments:** 0810055-012-AV\_Manatee County-Lena Road Landfill Monthly Report\_DEP-September 2016.pdf

Mr. Morris,

Attached is the Manatee County Lena Road Landfill Monthly Report (for September 2016) which includes the following:

- Monthly Water Balance Report (Exhibit A)
- Monthly Leachate Tracking Summary – 2016 (Exhibit B)
- Monthly Leachate Readings
- Monthly Rainfall
- Monthly Groundwater Gradient Report

If you should have any questions concerning this report, please call me at 813-281-8377.

Thanks,

**Brad Bayne, P.G.**

Senior Scientist II, GeoSciences Group

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October 13, 2016

Mr. John Morris, P.G.  
Florida Department of Environmental Protection  
Southwest District Office - Solid Waste Section  
13051 N. Telecom Parkway  
Temple Terrace, Florida 33637-0926

**Re: Manatee County Lena Road Landfill  
Monthly Report –September 2016**

Dear Mr. Morris:

This letter includes the following monthly reports: Monthly Water Balance Report (Exhibit A), Monthly Leachate Tracking Summary - 2016 (Exhibit B), Monthly Leachate Meter Readings, Monthly Rainfall, Monthly Groundwater Gradient Report. On June 4, 2016, the County began placing waste into Stage II of the landfill. As indicated on the Monthly Leachate Meter Readings (page 4 of this PDF), a fourth flowmeter (Meter #4) was installed to measure the flow of leachate from Stage II. From June to August, this meter was being tested, adjusted, and calibrated by the County for use in measuring the flow of leachate from Stage II. Meter #4 came on-line in late August 2016. During September 2016, a total of 8,969,404 gallons of leachate were pumped from Stage II to the wastewater treatment plant. For the November monthly report submittal, Atkins will include Meter #4 with the other leachate meter data calculations in the Exhibit A and Exhibit B spreadsheets.

If you should have any questions concerning this report, please call me at 813/281-8377.

Sincerely,



Bradley Bayne, P.G.  
Senior Geologist  
Florida PG #1733

Attachments

cc: C. Mike Gore, Manatee County Utilities Department Director  
Bryan White, Manatee County Landfill Superintendent  
Anthony Detweiler, Manatee County Landfill Operations Supervisor  
File – 100047674-01.01

# EXHIBIT A

## MANATEE COUNTY SOLID WASTE MANAGEMENT FACILITY LENA ROAD LANDFILL MONTHLY WATER BALANCE REPORT September-16

A	B	C	D	E	F	G	H
DATE	LEACHATE STAGE I Lift Station 1 (gallons)	LEACHATE STAGE I Lift Station 2 (gallons)	LEACHATE STAGE I TOTAL (gallons)	LEACHATE STAGE III TOTAL (gallons)	TOTAL LEACHATE PUMPED (gallons)	RAINFALL (inches)	RAINFALL (gallons)
01-Sep-16	31,873	5,902	37,775	63,246	101,021	0.70	3,193,549
02-Sep-16	28,452	116	28,568	60,746	89,314	2.21	10,082,491
03-Sep-16	0	0	0	0	0	0.18	821,198
04-Sep-16	0	0	0	0	0	0.00	0
05-Sep-16	0	0	0	0	0	1.10	5,018,434
06-Sep-16	115,198	14,047	129,245	268,114	397,359	0.00	0
07-Sep-16	29,974	7,023	36,997	59,952	96,949	0.00	0
08-Sep-16	32,169	115	32,284	59,911	92,195	0.40	1,824,885
09-Sep-16	31,527	6,817	38,344	54,016	92,360	0.02	91,244
10-Sep-16	0	0	0	0	0	0.00	0
11-Sep-16	0	0	0	0	0	0.00	0
12-Sep-16	92,030	7,345	99,375	153,861	253,236	0.30	1,368,664
13-Sep-16	29,627	7,352	36,979	43,212	80,191	0.21	958,065
14-Sep-16	29,618	133	29,751	46,026	75,777	0.18	821,198
15-Sep-16	28,005	7,378	35,383	41,466	76,849	0.00	0
16-Sep-16	28,529	121	28,650	41,246	69,896	1.52	6,934,564
17-Sep-16	0	0	0	0	0	0.00	0
18-Sep-16	0	0	0	0	0	0.00	0
19-Sep-16	86,653	14,239	100,892	134,711	235,603	0.00	0
20-Sep-16	28,359	6,974	35,333	41,796	77,129	0.00	0
21-Sep-16	28,281	130	28,411	39,285	67,696	0.00	0
22-Sep-16	28,388	7,187	35,575	36,779	72,354	0.00	0
23-Sep-16	29,666	141	29,807	41,534	71,341	0.00	0
24-Sep-16	0	0	0	0	0	0.02	91,244
25-Sep-16	0	0	0	0	0	0.00	0
26-Sep-16	83,267	8,044	91,311	49,592	140,903	1.06	4,835,946
27-Sep-16	23,069	7,608	30,677	1,367	32,044	0.15	684,332
28-Sep-16	25,759	130	25,889	71,721	97,610	0.25	1,140,553
29-Sep-16	24,345	7,736	32,081	40,076	72,157	0.27	1,231,798
30-Sep-16	26,406	116	26,522	44,579	71,101	0.19	866,820
01-Oct-16	0	0	0	0	0	0.00	0
<b>TOTAL</b>	<b>861,195</b>	<b>108,654</b>	<b>969,849</b>	<b>1,393,236</b>	<b>2,363,085</b>	<b>8.76</b>	<b>39,964,986</b>
Leachate Pumped as Percentage of Rainfall			4.0%	8.9%			

**Column Notes:**

- A - Date of reading.
- B - Leachate pumped (gallons) from Stage I by lift station 1.
- C - Leachate pumped (gallons) from Stage I by lift station 2.
- D - Total Stage I leachate pumpage (B+C).
- E - Leachate pumped (gallons) from Stage III.
- F - Total leachate pumped to WWTP storage tank (D+E).
- G - Rainfall (inches) recorded on this date.
- H - Rainfall (gallons) calculated based on open area (G x Area x 27,156 gal/acre-in).

	Stage I (acres)	Stage III (acres)	TOTAL (acres)
Initial Cover	--	66.0	66.0
Intermediate Cover	102.0	--	102.0
Closed	30.0	--	30.0
<b>TOTAL</b>	<b>132.0</b>	<b>66.0</b>	<b>198.0</b>
<b>Open Area</b>	<b>102.0</b>	<b>66.0</b>	<b>168.0</b>

**Comments**

"0" = no data recorded

## EXHIBIT B

### MANATEE COUNTY SOLID WASTE MANAGEMENT FACILITY LENA ROAD LANDFILL MONTHLY LEACHATE TRACKING SUMMARY -- 2016

	B	C	D	E	F	G	H
MONTH	STAGE I	STAGE III	TOTAL			STAGE I	STAGE III
	LEACHATE	LEACHATE	LEACHATE	RAINFALL	RAINFALL	LEACHATE/ RAINFALL	LEACHATE /RAINFALL
	(gallons)	(gallons)	(gallons)	(inches)	(gallons)	(%)	(%)
JANUARY	785,550	0	785,550	5.67	25,867,748	5.0%	0.0%
FEBRUARY	961,680	0	961,680	1.67	7,618,986	20.8%	0.0%
MARCH	581,148	168,250	749,398	1.58	7,208,297	13.3%	5.9%
APRIL	576,293	509,075	1,085,368	2.56	11,679,265	8.1%	11.1%
MAY	718,675	798,107	1,516,782	8.81	40,193,097	2.9%	5.1%
JUNE	747,181	1,003,510	1,750,691	12.15	55,430,888	2.2%	4.6%
JULY	669,228	769,741	1,438,969	8.66	39,508,765	2.8%	5.0%
AUGUST	982,090	1,399,591	2,381,681	18.22	83,123,522	1.9%	4.3%
SEPTEMBER	969,849	1,393,236	2,363,236	8.76	39,964,986	4.0%	8.9%
OCTOBER							
NOVEMBER							
DECEMBER							
<b>TOTAL</b>	<b>6,991,694</b>	<b>6,041,510</b>	<b>13,033,355</b>	<b>68.08</b>	<b>310,595,554</b>	<b>3.7%</b>	<b>5.0%</b>

Notes:

1. (B) Total leachate pumped from Stage I.
2. (C) Total leachate pumped from Stage III.
3. (D) Total leachate (Column B+C) pumped to the WWTP storage tank.
4. (E) Total rainfall in inches.
5. (F) Total rainfall in gallons (Stage I and III Open Area of 168-acres x Rainfall)
6. (G) Stage I leachate pumped as a percentage of rainfall.
7. (H) Stage III leachate pumped as a percentage of rainfall.

**Landfill Stage Land Areas**

	Stage I	Stage III	TOTAL
	(acres)	(acres)	(acres)
Initial Cover	--	66.0	66.0
Intermediate Cov.	102.0	--	102.0
Closed	30.0	--	30.0
<b>TOTAL</b>	<b>132.0</b>	<b>66.0</b>	<b>198.0</b>
<b>Open Area</b>	<b>102.0</b>	<b>66.0</b>	<b>168.0</b>

## LEACHATE METER READINGS

DATE	LEACHATE METERS				STORMWATER S.G.		COMMENTS	NAME (Initials)
	#1	#2	#3	#4	#1	#2		
	9/1/16	3453352	458464	4711520	70762880	35.35		
9/2/16	3462004	458560	4772260	71067308	34.90	32.76	OK	R.B.
9/3/16								
9/4/16								
9/5/16								
9/6/16	3597202	472627	5040340	72544672	33.95	32.44	OK	R.B.
9/7/16	3627176	479680	5100332	72914512	34.02	32.40	OK	R.B.
9/8/16	3659345	479765	5160243	73299360	34.07	32.36	OK	R.B.
9/9/16	3690672	486562	5214259	73631504	34.11	32.38	OK	R.B.
9/10/16								
9/11/16								
9/12/16	3782902	493927	5368120	7465860	34.02	32.32	OK	R.B.
9/13/16	3812529	501279	5411332	74955640	34.04	32.30	OK	R.B.
9/14/16	3842147	501412	5457358	75268222	34.04	32.30	OK	R.B.
9/15/16	3870152	508790	5498824	75564708	34.03	32.30	OK	R.B.
9/16/16	3898681	508911	5540070	75878444	34.03	32.28	OK	R.B.
9/17/16								
9/18/16								
9/19/16	3985334	523150	5674072	76765960	34.19	32.36	OK	R.B.
9/20/16	4013683	530124	5716577	77066014	34.16	32.34	OK	R.B.
9/21/16	4041974	530254	5755886	77349632	34.12	32.32	OK	R.B.
9/22/16	4070362	537441	5792611	77631576	34.08	32.31	OK	R.B.
9/23/16	4100028	537582	5834715	77935208	34.05	32.30	OK	R.B.
9/24/16								
9/25/16								
9/26/16	4163295	545626	5883767	78771920	33.97	32.28	OK	R.B.
9/27/16	4200364	553234	5885134	78998232	34.07	32.34	OK	R.B.
9/28/16	4232123	553364	5956885	79233504	34.05	32.32	OK	R.B.
9/29/16	4256468	561100	5996931	79475504	34.02	32.32	OK	R.B.
9/30/16	4282874	561216	6041610	79732284	34.08	32.36	OK	R.B.

Landfill

LANDFILL SHEET			LAKE LEVEL DATA IN FEET NGVD	
2016 Sept	RAIN FALL	LEACHATE MGD	SOUTH (86 ACRE)	EAST (63 ACRE)
1	0.70	0.098	45.80	35.60
2	2.21	0.104	46.00	35.80
3	0.18	0.107	46.20	35.70
4	0.00	0.109	47.10	35.70
5	1.10	0.106	47.10	35.80
6	0.00	0.107	47.30	36.10
7	0.00	0.244	47.00	36.20
8	0.40	0.104	47.00	35.80
9	0.02	0.100	46.90	36.60
10	0.00	0.099	47.30	37.00
11	0.00	0.097	47.30	37.00
12	0.30	0.096	47.10	37.40
13	0.21	0.090	47.40	37.40
14	0.18	0.089	47.40	37.40
15	0.00	0.085	47.80	37.70
16	1.52	0.090	48.10	37.70
17	0.00	0.085	48.30	37.70
18	0.00	0.089	48.30	38.10
19	0.00	0.087	48.30	38.30
20	0.00	0.087	48.40	38.30
21	0.00	0.085	48.50	38.20
22	0.00	0.081	48.60	38.20
23	0.00	0.079	48.60	38.10
24	0.02	0.076	48.80	38.10
25	0.00	0.068	49.00	38.00
26	1.06	0.068	49.00	38.00
27	0.15	0.081	49.40	38.00
28	0.25	0.074	49.40	38.50
29	0.27	0.073	49.40	38.50
30	0.19	0.073	49.40	38.50
31				
TOTAL	8.76	2.831		
AVG		0.094		
MIN				
MAX	2.21	0.244		

Fax # 9-708-5668

FIGURE L-7

Manatee County Lena Road Landfill

**Monthly Groundwater Gradient Report**

Month and Year: **SEPTEMBER 2016**

Piezometers Inside Slurry Wall				Groundwater Monitoring Wells Outside Slurry Wall		
Piezometer	Riser Elevation	Leachate Elevation	Gradient Flow	Monitoring Well	Riser Elevation	Groundwater Elevation
P-1	42.68	NA	NA	GW-1	38.68	NA
P-2	42.32	NA	NA	GW-2	40.92	NA
P-3	40.36	25.94	<i>inward</i>	GW-3	39.40	34.05
P-4	40.78	24.27	<i>inward</i>	GW-4	40.53	33.13
P-5	40.73	24.27	<i>inward</i>	GW-5	39.90	32.58
P-6	40.74	24.23	<i>inward</i>	GW-6	38.95	31.98
P-7	40.60	24.23	<i>inward</i>	GW-7	39.49	31.14
P-8	40.21	24.17	<i>inward</i>	GW-8	39.75	30.03
P-9	39.97	24.25	<i>inward</i>	GW-9	39.65	29.80
P-10	39.86	23.23	<i>inward</i>	GW-10	38.34	29.38
P-11	40.52	24.33	<i>inward</i>	GW-11	38.26	31.75
P-12	43.28	30.03	<i>inward</i>	GW-12	42.09	32.35
P-13	44.78	30.57	<i>inward</i>	GW-13	44.79	34.05
P-14	45.09	30.31	<i>inward</i>	GW-14	39.63	34.25
P-15	45.57	30.96	<i>inward</i>	GW-15	42.33	35.06
P-16	44.67	31.06	<i>inward</i>	GW-16	44.41	35.41
P-17	44.28	30.12	<i>inward</i>	GW-17	42.19	34.11
P-18	43.16	24.39	<i>inward</i>	GW-18	41.76	33.04
P-19	42.91	23.15	<i>inward</i>	GW-19	41.20	32.37
P-20	42.54	26.16	<i>inward</i>	GW-20	41.00	32.13
P-21	42.23	25.22	<i>inward</i>	GW-21	40.94	29.63
P-22	42.06	24.07	<i>inward</i>	GW-22	41.53	29.01
P-23	42.08	22.50	<i>inward</i>	GW-23	40.91	32.69
P-24	42.03	20.17	<i>inward</i>	GW-24	41.37	32.63
P-25	42.16	18.80	<i>inward</i>	GW-25	41.11	33.07
P-26	42.50	19.09	<i>inward</i>	GW-26	41.44	33.27
P-27R	42.73	19.59	<i>inward</i>	GW-27R	40.90	33.47

Comments:

NA = Not Applicable - wells and piezometers abandoned in March 2016

Wells (GW-18 through GW-27R) and piezometers (P-18 through P-27R) installed in April 2016

Date Data Collected: **SEPTEMBER 26, 2016**

Form Revised December 6, 2004