

Mr. Steve Tafuni
Florida Department of Environmental Protection
Southwest District Office, Compliance Assurance Program
13051 North Telecom Parkway
Temple Terrace, FL 33637-0926

**Re: Second Half 2016 Water Quality Sampling Results
Lena Road Class I Landfill
Permit No.: 39884-021-SO-01 (Issued 3/24/2016)
WACS Facility ID No.: SWD-41-44795
3333 Lena Road, Bradenton,
Manatee County, FL 34211**

Dear Mr. Tafuni:

On behalf of the Manatee County Solid Waste Division, Atkins is providing the results of the Second Half 2016 water quality sampling events at the Lena Road Class I Landfill. There were two sampling events, which occurred as follows:

- On October 17 and 18, 2016, the previously-existing monitoring wells around Stages I and III (GW-3 through GW-17 and BGW-1) and the recently-installed (April 2016) monitoring wells around the perimeter of Stage II (GW-18 through GW-27R) were sampled. All of the monitoring wells were sampled for the standard semi-annual parameters listed in the permit.
- On October 24, 2016, the surface water samples (SW-1 and SW-2) were collected. They were collected after there was sufficient rainfall to ensure samples could be collected from both locations.

Since the groundwater sampling was performed over a period of two days, Atkins used the water level measuring data for the single-day October 2016 monthly water level monitoring event (data collected on October 19, 2016) as the representative water level information for this semi-annual sampling event. Three PDF files are being submitted with this cover letter. All necessary ADaPT files are also being submitted with this cover letter. The first PDF file contains the following:

- This cover letter
- Table 1: Summary of Exceedances, Conclusions, and Recommendations for previously-existing monitoring wells GW-3 through GW-17 and BGW-1

- Table 2: Summary of Exceedances, Conclusions, and Recommendations for the routine sampling event for the Stage II monitoring wells (GW-18 through GW-27R)
- Table 3: Summary of Exceedances, Conclusions, and Recommendations for the Surface Water samples
- Groundwater Elevation Contour Map signed and sealed by a Florida PG
- Tables 4.A and 4.B: Water Level Elevation Table (for October 19, 2016, taken from the Monthly report for October 2016)
- Water Quality Monitoring Certification form

The additional two attached PDF files are the Laboratory Data Reports for each sampling event, which include the following for each sampling event (groundwater and surface water):

- Laboratory analytical data, including Quality Control Data
- Chain of Custody form(s)
- Groundwater Sampling Logs

The remaining attached files are the Laboratory, Field, and Error Log ADaPT files (three each for groundwater and surface water, for a total of 6 ADaPT files).

All exceedances for groundwater were within background or they compared closely with historical water quality data for the existing monitoring wells surrounding Stages I and III (GW-3 through GW-17). No organics parameters were detected at concentrations that exceeded their FDEP criteria. The surface water results were consistent with previous sampling events. If you have any questions regarding the information presented in this report, please contact Atkins at (813) 477-7275 or bradley.bayne@atkinsglobal.com.

Bradley J. Bayne

Date: 12-16-16

Bradley J. Bayne

Professional Geologist

No. 1733

State of Florida

Table 1
Summary of Exceedances, Conclusions, and Recommendations
Second Half 2016
Lena Road Landfill

	Well:		GW-3	GW-4	GW-5	GW-6	GW-7	GW-8	GW-9	GW-10	GW-11	GW-12	GW-13	GW-14	GW-15	GW-16	GW-17	BGW-1
	Sample Identifier:		35270965001	35270965002	35270965003	35270965004	35270965005	35270965006	35270965007	35270965008	35270965009	35270965010	35270965011	35270965012	35271251002	35271251003	35271251004	35271251001
	Sample Collection Date:		10/17/16	10/17/16	10/17/16	10/17/16	10/17/16	10/17/16	10/17/16	10/17/16	10/17/16	10/17/16	10/17/16	10/17/16	10/18/16	10/18/16	10/18/16	10/18/16
	MCL/ CTL ¹	Units																
Field Measurements																		
pH	6.5-8.5	STD	6.44	6.43											6.35		5.44	6.07
Inorganics																		
Arsenic	0.01	mg/l								0.0128								
Iron	0.3	mg/l	0.782	0.515	1.74	0.392	0.538			7.6	0.799		2.19	11.0	22.5		6.80	2.35
Ammonia	2.8	mg/l											3.5					
Total Dissolved Solids (TDS)	500	mg/l				501							1400	544	540			

⁽¹⁾ Maximum Contaminant Levels (MCL) presented in Chapter 62-550, FAC in **bold font** and Cleanup Target Levels (CTL) presented in Chapter 62-777 FAC. Analyte concentrations shown with shading identify an exceedance of a MCL or CTL.

Conclusions

Low pH and elevated iron concentrations are background conditions, as noted in the background monitoring well - BGW-1

The arsenic concentration was elevated in GW-10, but was within its historic range

TDS concentrations were elevated at GW-6, GW-13, GW-14, and GW-15, but were within or near their historic ranges

The ammonia concentration was elevated in GW-13, but was within or near its historic range. Also, per a December 2012 FDEP Solid Waste Memorandum, ammonia concentrations are being tracked at landfills but ammonia is not a contaminant of concern

Recommendations

Recommendation is to continue semi-annual monitoring as required in the permit

Table 2
Summary of Exceedances, Conclusions, and Recommendations
Second Half 2016 - Routine Sampling Event for Stage II Monitoring Wells
Lena Road Landfill

	Well:		GW-18	GW-19	GW-20	GW-21	GW-22	GW-23	GW-24	GW-25	GW-26	GW-27R
	Sample Identifier:		35271251005	35271251006	35271251007	35271251008	35271251009	35271251010	35271251011	35271251012	35271251013	35271251014
	Sample Collection Date:		10/18/16	10/18/16	10/18/16	10/18/16	10/18/16	10/18/16	10/18/16	10/18/16	10/18/16	10/18/16
	MCL/ CTL ¹	Units										
<i>Field Measurements</i>												
pH	6.5-8.5	STD	6.37	5.59	6.34	6.03	5.82		6.30	6.28	6.12	
<i>Inorganics</i>												
Arsenic	0.01	mg/l	0.0132									
Iron	0.3	mg/l	12.7	2.14	0.612	1.96	6.59	1.50	3.48	1.15	2.46	2.35
Ammonia	2.8	mg/l					4.1				2.8	
Total Dissolved Solids (TDS)	500	mg/l										

⁽¹⁾ Maximum Contaminant Levels (MCL) presented in Chapter 62-550, FAC in **bold font** and Cleanup Target Levels (CTL) presented in Chapter 62-777 FAC. Analyte concentrations shown with shading identify an exceedance of a MCL or CTL.

Conclusions

Low pH and elevated iron concentrations are background conditions, as noted in the background monitoring well - BGW-1

The arsenic concentration was elevated in GW-18, but was similar to GW-10, and it was also slightly elevated at GW-18 in the previous sampling event

There were no exceedances for TDS; there had been some in the previous sampling event

The ammonia concentrations were elevated in GW-22 and GW-26 (as they were in the previous sampling event), which were similar to Stage I well GW-13

Also, per a December 2012 FDEP Solid Waste Memorandum, ammonia concentrations are being tracked at landfills but ammonia is not a contaminant of concern

Recommendations

Recommendation is to continue semi-annual monitoring as required in the permit

Table 3
Summary of Exceedances, Conclusions, and Recommendations
Lena Road Surface Water Analytical Summary
Second Half 2016

Analyte	Location:		SW-1	SW-2
	Sample Identifier:		35272241001	35272241002
	Date of Test:		10/24/16	10/24/16
	Criteria/ CTL ¹	Units		
Field Measurements				
Dissolved Oxygen (DO)	≥5	mg/l		1.80
Inorganics				
Arsenic	0.05	mg/l		0.0663
Iron	1.0	mg/l	1.17	10.2
Fecal coliforms	800	cfu/100 ml	no exceedance*	no exceedance

Abbreviations: mg/l = milligrams per liter; cfu/100 ml = colony forming units per 100 milliliters

Notes:

(1) Surface water quality criteria presented in Chapter 62-302, FAC in **bold font** and Cleanup Target levels (CTL) presented in Chapter 62-777 FAC. Analyte concentrations shown with shading identify exceedance of a criteria or CTL.

SW-2 represents the upstream location and SW-1 represents the downstream location

Conclusions

The exceedances for iron were noted at both the upstream and downstream locations (and higher upstream), which suggests they are background conditions

*=The result for fecal coliforms was 790 cfu/100 ml with a B qualifier (results based upon colony counts outside ideal range)

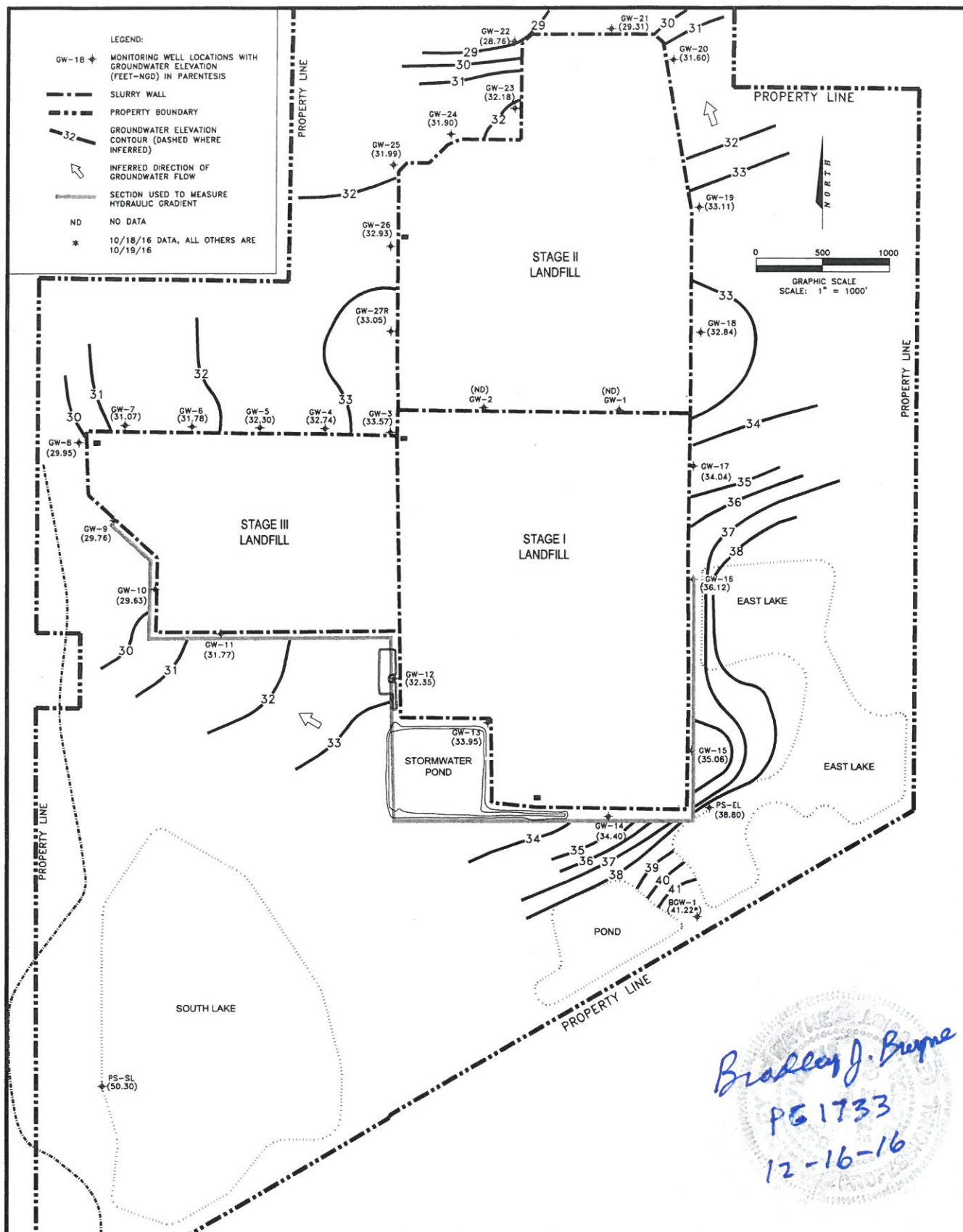
Fecal coliforms had been elevated at both locations in previous sampling events

The exceedance for arsenic was at the upstream location

The non-compliance issue for Dissolved Oxygen was at the upstream location

Recommendations

Recommendation is to continue semi-annual monitoring as required in the permit



ATKINS

**LENA ROAD LANDFILL
MANATEE COUNTY, FLORIDA**

**GROUNDWATER ELEVATION
CONTOUR MAP
SECOND HALF 2016**

FIG. 1

Table 4.A

Manatee County Lena Road Landfill

Monthly Groundwater Gradient Report

Month and Year: OCTOBER 2016

Piezometers Inside Slurry Wall			Gradient Flow	Groundwater Monitoring Wells Outside Slurry Wall		
Piezometer	Riser Elevation	Leachate Elevation		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	25.93	inward	GW-3	39.40	33.57
P-4	40.78	23.75	inward	GW-4	40.53	32.74
P-5	40.73	23.80	inward	GW-5	39.90	32.30
P-6	40.74	23.67	inward	GW-6	38.95	31.78
P-7	40.60	23.68	inward	GW-7	39.49	31.07
P-8	40.21	23.61	inward	GW-8	39.75	29.95
P-9	39.97	23.78	inward	GW-9	39.65	29.76
P-10	39.86	22.69	inward	GW-10	38.34	29.63
P-11	40.52	24.04	inward	GW-11	38.26	31.77
P-12	43.28	30.01	inward	GW-12	42.09	32.35
P-13	44.78	30.60	inward	GW-13	44.79	33.95
P-14	45.09	30.17	inward	GW-14	39.63	34.40
P-15	45.57	30.96	inward	GW-15	42.33	35.06
P-16	44.67	31.05	inward	GW-16	44.41	36.12
P-17	44.28	30.10	inward	GW-17	42.19	34.04
P-18	43.16	24.42	inward	GW-18	41.76	32.84
P-19	42.91	23.13	inward	GW-19	41.20	33.11
P-20	42.54	26.08	inward	GW-20	41.00	31.60
P-21	42.23	25.20	inward	GW-21	40.94	29.31
P-22	42.06	24.04	inward	GW-22	41.53	28.76
P-23	42.08	22.50	inward	GW-23	40.91	32.18
P-24	42.03	20.15	inward	GW-24	41.37	31.90
P-25	42.16	18.80	inward	GW-25	41.11	31.99
P-26	42.50	19.11	inward	GW-26	41.44	32.93
P-27R	42.73	19.60	inward	GW-27R	40.90	33.05

Comments:

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

Note: Water table elevation was 41.22 ft NGVD at BGW-1 as measured during the sampling event on October 18, 2016

Date Data Collected: OCTOBER 19, 2016

Form Revised December 6, 2004

Table 4.B

Depth to Water (in feet)

P-1	NA	GW-1	NA
P-2	NA	GW-2	NA
P-3	14.43	GW-3	5.83
P-4	17.03	GW-4	7.79
P-5	16.93	GW-5	7.60
P-6	17.07	GW-6	7.17
P-7	16.92	GW-7	8.42
P-8	16.60	GW-8	9.80
P-9	16.19	GW-9	9.89
P-10	17.17	GW-10	8.71
P-11	16.48	GW-11	6.49
P-12	13.27	GW-12	9.74
P-13	14.18	GW-13	10.84
P-14	14.92	GW-14	5.23
P-15	14.61	GW-15	7.27
P-16	13.62	GW-16	8.29
P-17	14.18	GW-17	8.15
P-18	18.74	GW-18	8.92
P-19	19.78	GW-19	8.09
P-20	16.46	GW-20	9.40
P-21	17.03	GW-21	11.63
P-22	18.02	GW-22	12.77
P-23	19.58	GW-23	8.73
P-24	21.88	GW-24	9.47
P-25	23.36	GW-25	9.12
P-26	23.39	GW-26	8.51
P-27	23.13	GW-27R	7.85



Florida Department of Environmental Protection

Bob Martinez Center
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

DEP Form #: 62-701.900(31), F.A.C.

Form Title: Water Quality Monitoring Certification

Effective Date: January 6, 2010

Incorporated in Rule 62-701.510(9), F.A.C.

WATER QUALITY MONITORING CERTIFICATION

PART I GENERAL INFORMATION

- (1) Facility Name Lena Road Class I Landfill
Address 3333 Lena Road
City Bradenton, FL Zip 34211 County Manatee
Telephone Number (941) 748-5543
- (2) WACS Facility ID SWD-41-44795
- (3) DEP Permit Number 39884-021-SO-01
- (4) Authorized Representative's Name Bradley J. Bayne, PG Title Senior Geologist
Address Atkins North America, 4030 West Boy Scout Boulevard, Suite 700
City Tampa, FL Zip 33607 County Hillsborough
Telephone Number (813) 281-8377
Email address (if available) bradley.bayne@atkinsglobal.com

CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submission of false information including the possibility of fine and imprisonment.

December 16, 2016
(Date)

Bradley J. Bayne
(Owner or Authorized Representative's Signature)

PART II QUALITY ASSURANCE REQUIREMENTS

- Sampling Organization Pace Analytical - Tampa (Tampa NELAC # E84809)
- Analytical Lab NELAC / HRS Certification # NELAC # E83079 (Ormond Beach Laboratory)
- Lab Name Pace Analytical - Tampa
- Address 5460 Beaumont Center Boulevard, Suite 520, Tampa, FL 33634
- Phone Number (813) 881-9401
- Email address (if available) lori.palmer@pacelabs.com