



Atkins North America, Inc.
482 South Keller Road
Orlando, Florida 32810-6101
Telephone: +1.407.647.7275
www.atkinsglobal.com/northamerica

February 3, 2017

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

Re: **Review of Semi-Annual Sampling Results**
Second Half 2016 Sampling Event
Hardee County Landfill
WACS Facility ID No. SWD/25/40612
Permit No. 38414-016-SO/01

Dear Mr. Tafuni:

On behalf of the Hardee County Solid Waste Department, Atkins presents this review of the results of the second half of 2016 sampling event for the facility referenced above. This document is designed to comply with the requirements of Appendix 3-Water Quality Monitoring Plan, included with the facility's operation permit, and was compiled in general accordance with the guidelines promulgated in Chapter 62-701.510(9)(a) of the Florida Administrative Code (FAC).

BACKGROUND

The Hardee County Solid Waste Disposal Facility is an active Class I landfill, which encompasses approximately 100 acres of land at 685 Airport Road in Hardee County, Florida. In November 2013, the County received a construction permit (38414-015-SC/01) for Phase II Section II Construction. Phase II Section II is located along the west side of the current waste placement area. Also in November 2013, the County received an operation permit associated with the Phase II Sections I & II operation. In 2014, the County completed construction of the waste cell for Phase II Section II. This required abandonment of two existing monitoring wells, abandonment of multiple piezometers, and installation of two new monitoring wells. According to the facility's operating permit (38414-016-SO/01), the water quality monitoring network is designed to monitor the groundwater in the surficial aquifer and the surface water.

The groundwater monitoring network includes eight monitoring wells, which are designated MW-1, MW-2, MW-4, MW-10R, MW-11, MW-12R, MW-13, and MW-14. The facility's permit designates MW-1 and MW-4 as background wells and the other wells as detection wells. Item 3 of Appendix 3-Water Quality Monitoring Plan lists the monitoring wells and piezometers applicable to the facility's current operation permit.

There are two other monitoring wells, MW-6 and MW-7, which are designated by the permit as piezometers, along with 12 other piezometers. Please note that the following former piezometers have been abandoned and are no longer included in the operating permit: PZ-1, PZ-2, PZ-3, PZ-4, PZ-5, PZ-6, PZ-9, PZ-10, PZ-15, and PZ-16. The layout of the site is presented in **Figure 1**.

Item 4 of Appendix 3-Water Quality Monitoring Plan of the facility's operation permit specifies that groundwater samples shall be collected from the monitoring wells on a semi-annual basis. The groundwater samples are analyzed for the analytes listed on the 40 Code of Federal Regulations (CFR) Part 258, Appendix I, as well as for total ammonia, iron, chlorides, mercury, nitrate, sodium, and total dissolved solids (TDS). These analytes are also listed in Item 4 of Appendix 3 of the facility's operation permit.

Item 8 of Appendix 3-Water Quality Monitoring Plan of the facility's operation permit calls for the collection of a surface water sample from one location, which is designated SW-2. The surface water samples are normally collected during both semi-annual sampling events during the year if sufficient water is present.

The groundwater and surface water sampling points are illustrated in **Figure 1**.

SECOND HALF 2016 SAMPLING EVENT

The second half of 2016 sampling event was conducted on January 4 and 5, 2017. Groundwater samples and one surface water sample were collected during this event. The groundwater and surface water samples were collected in general accordance with the Florida Department of Environmental Protection (FDEP) Standard Operating Procedure for Field Activities (SOP 001/01). Sample collection was performed by Atkins personnel, and analysis was performed by Flowers Chemical Laboratories, Inc. (FCL). FCL is a NELAC-certified laboratory. A FDEP Water Quality Monitoring Certification form for the sampling event is provided in **Attachment A**.

Sample Collection Methodology

Prior to sampling the monitoring wells, each well was purged with a peristaltic pump using the "low-flow" method. A minimum equivalent of one to three well volumes was purged from each well prior to sample collection. Temperature, pH, conductivity, dissolved oxygen (DO), and turbidity measurements were monitored and recorded throughout the purging process to ensure that representative water samples were collected. The groundwater samples were given identifiers which corresponded to the well of origin. Depth-to-groundwater measurements were made from the top-of-casing (TOC) at each monitoring well prior to initiating the purging process. Water level readings were also made at the piezometers listed in the permit. The water level measurements were subtracted from the TOC elevations to determine the elevation of the water table at each well and piezometer. The TOC elevations are referenced in feet above the National Geodetic Vertical Datum (NGVD). The groundwater sampling logs and field equipment calibration logs are provided in **Attachment B**.

All of the samples were placed in laboratory-prepared containers, placed on ice, and transferred to FCL for analysis of the analytes listed in the applicable sections of the facility's operation permit.

SECOND HALF 2016 SAMPLING EVENT RESULTS

Groundwater Flow Pattern

Depth to groundwater measurements were collected at the eight monitoring wells and at 14 piezometers during this sampling event. The groundwater level elevation data from this event are presented in **Table 1**. The groundwater elevation data were plotted and contoured to generate the groundwater elevation contour map presented in **Figure 2**. Piezometer P-18 was dry, and it appeared to be blocked or clogged at the bottom. The data indicated that the groundwater in the surficial aquifer beneath the landfill was flowing in a southerly direction at the time of this sampling event. The groundwater also appeared to be flowing to the southeast, toward a wetland area east of the landfill. The water table gradient measured approximately 0.00075 feet per foot beneath the site (as measured between well MW-1 and well MW-10R). Water level elevation measurements were also performed at two staff gauges located in ponds on the site (SG-1 and SG-2).

Sampling Results

A description of the detections in the groundwater and surface water is presented below.

Groundwater Analytical Results

There were numerous inorganic analytes detected, but no organic analytes detected, in the groundwater samples collected and analyzed during this sampling event. The inorganic analyte detections included all of those which are typically part of the analytical program except antimony, beryllium, cadmium, cobalt, lead, mercury, selenium, silver, and thallium. At least one inorganic analyte was detected at every well in the monitoring network.

The concentrations of all of the analytes that were detected in the groundwater were compared to their respective Maximum Contaminant Level (MCL) or Secondary Drinking Water Standard (SDWS) in accordance with the Florida statutes. The MCLs and SDWSs for Drinking Water Standards, Monitoring, and Reporting are promulgated by Chapter 62-550 of the Florida Administrative Code (FAC). Not every parameter has an MCL or SDWS. There were four analytes detected at concentrations that did not comply with their standards – pH, iron, arsenic, and TDS. Iron, pH, and TDS have SDWS criteria, while the criteria for arsenic is provided as an MCL in Chapter 62-550 FAC. A description of the detection patterns with these four analytes is described below.

- pH - The standard for pH is any value within the range of 6.5 to 8.5 Standard Units (SU). The pH values at six of the eight wells were less than 6.5 SU, and the pH measured as low as 4.58 SU at well MW-1. The pH values at wells MW-2 and MW-12R were within the

standard range. The pH values at both of the background wells, MW-1 (with a pH of 4.58 SU) and MW-4 (with a pH of 6.34 SU), were lower than the standard range.

- Iron - The standard for iron is 0.3 milligrams per liter (mg/L). The iron concentrations in the samples collected at all wells except MW-12R exceeded the standard. The iron concentrations at both of the background wells (MW-1 and MW-4) were well above the standard. The highest iron concentration detected during January 2017 was 25.4 mg/L (at MW-10R).
- Arsenic – Monitoring at this site has been closely tracking arsenic concentrations in MW-4. The standard for arsenic is 0.01 mg/L. For the past multiple sampling events, the arsenic concentration in MW-4 has slightly exceeded that standard, and that trend continued during this sampling event. The arsenic concentration in MW-4 during January 2017 was 0.0142 mg/L, which compares closely with the May 2016 arsenic concentration (0.0128 mg/L) and with the December 2015 arsenic concentration (0.0134 mg/L). MW-4 is designated as a background well.
- TDS - The standard for TDS is 500 mg/L. The TDS concentration in two wells (MW-1 and MW-4) exceeded the standard, with the highest TDS concentration (of 1,010 mg/L) at MW-1. MW-1 and MW-4 are both background wells.

A summary of the groundwater analytical results is presented in **Table 2**, and the laboratory analytical reports are provided in **Attachment C**.

Surface Water Analytical Results

There were several inorganic analytes detected in the surface water sample (SW-2). The concentration of every analyte that was detected in the surface water sample was compared to the State surface water quality standards (if a standard existed for that analyte). The surface water standards are promulgated by Chapter 62-302, FAC. A summary of the surface water analytical results is presented in **Table 3**, and the laboratory analytical report is provided in **Attachment C**.

None of the laboratory parameters were out of compliance with their surface water criteria. However, the concentration of fecal coliform was noted with a “Z” qualifier, which indicates that the colonies were too numerous to count the colonies on the plate. Due to the circumstances of the surface water sampling location, the fecal coliform results were not surprising. The sample was collected from a pool of stagnant water at a location that normally has flowing water. The surface water was not flowing because of the very dry conditions in November and December of 2016.

The Dissolved Oxygen field measurement was not in compliance with the surface water criteria. Dissolved Oxygen was measured at a concentration of 1.43 mg/L, which is less than the criteria of greater than 5 mg/L.



SUMMARY AND CONCLUSIONS

The results of the second half of 2016 sampling event at the Hardee County Solid Waste Disposal Facility were consistent with those of the recent sampling events, with numerous inorganic analyte detections in the groundwater and surface water.

There were four analytes detected in the groundwater that did not comply with their regulatory standards: arsenic, pH, iron, and TDS were detected in the groundwater at concentrations in excess of their regulatory criteria. It should be noted that the primary parameters that were not in compliance with their standards in the groundwater (pH and iron) were also not in compliance with their standards in both of the background monitoring wells. The exceedances for TDS were only at the background monitoring wells. The arsenic exceedance occurred only in one of the background monitoring wells (MW-4).

Based on these findings, the facility does not appear to be having a significant effect on groundwater and surface water quality. Atkins recommends that the analytical results in future sampling events be evaluated closely for any developing trends. If you have any questions regarding the information presented in this report, please call me at (813) 281-8377.

Sincerely,

A handwritten signature in blue ink that reads "Bradley J. Bayne".

Bradley J. Bayne, PG
Senior Scientist
Florida PG No. 1733

CC: Ken Wheeler, Project Manager, Hardee County Solid Waste Management Department, 685 Airport Road, Wauchula, FL 33873 (1 copy)
Steve Strickland, Hardee County Solid Waste Management Department, 685 Airport Road, Wauchula, FL 33873 (1 copy)
File 100053538

FIGURES

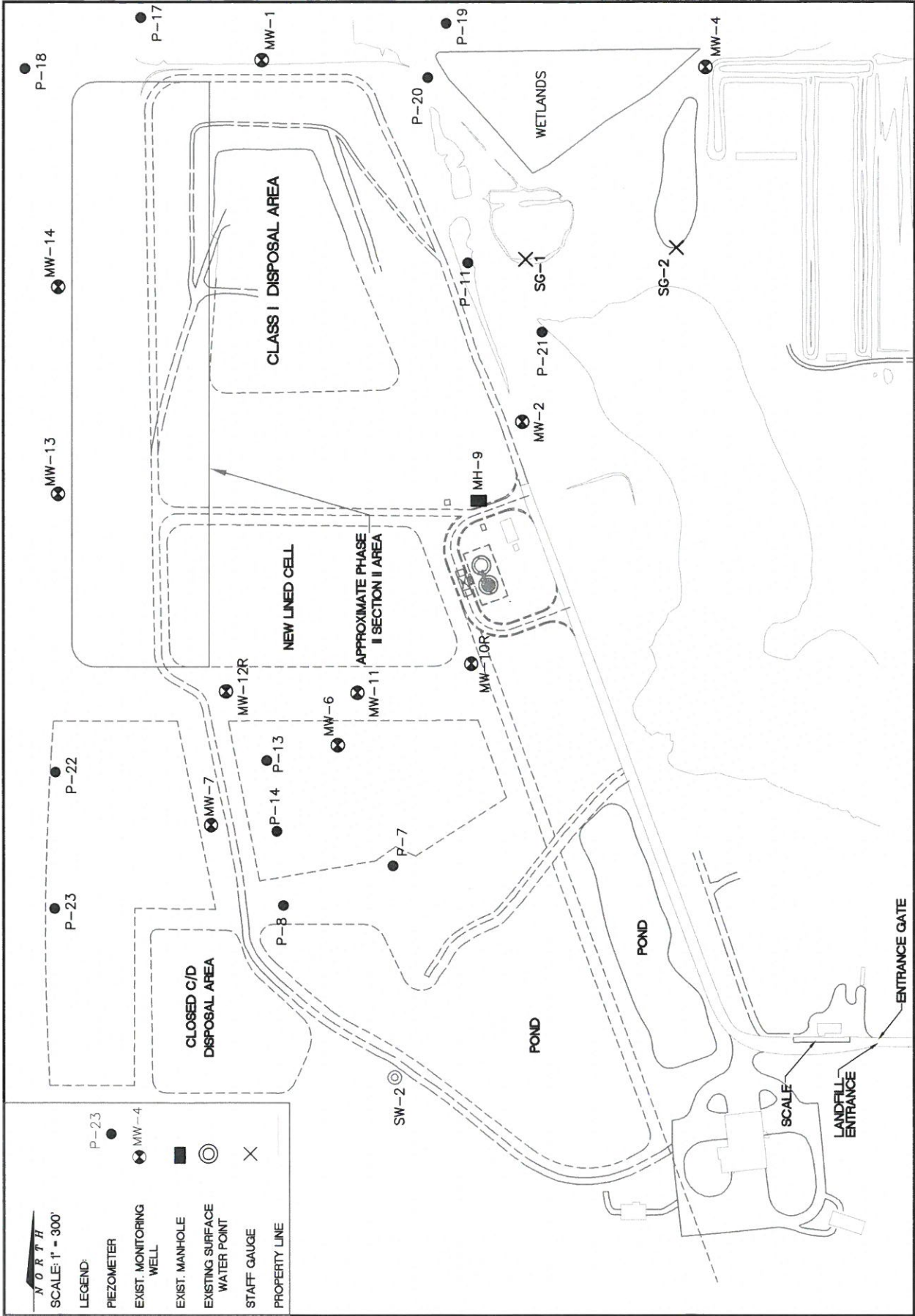


FIGURE 1

MONITORING POINTS

HARDEE COUNTY
LANDFILL

ATKINS

TABLES

Table 1
Groundwater Elevation Data
Hardee County Landfill
Second Half 2016

Well Identifier	Top-of-Casing Elevation (Ft-NGVD)	Ground Surface Elevation (Ft-NGVD)	Total Depth (Ft-TOC)	Well Diameter (Inches)	Depth to Groundwater (Ft below TOC)	Groundwater Elevation (Ft-NGVD)
Monitoring Wells						
MW-1	87.97	86.24	11.00	4	7.65	80.32
MW-2	85.86	83.75	10.50	4	8.11	77.75
MW-4	87.16	84.09	18.90	2	7.87	79.29
MW-10R	88.56	85.49	15.12	2	9.25	79.31
MW-11	88.11	85.17	13.90	2	9.30	78.81
MW-12R	89.00	85.71	23.25	2	9.77	79.23
MW-13	88.88	NM	23.00	2	9.15	79.73
MW-14	88.16	NM	23.00	2	8.25	79.91
Piezometers						
MW-6	88.25	85.06	NA	2	9.45	78.80
MW-7	87.88	84.98	NA	2	9.18	78.70
P-7	84.47	82.41	NA	2	6.68*	77.79
P-8	85.32	83.25	NA	2	7.81	77.51
P-11	88.69	86.16	NA	2	9.75	78.94
P-13	87.96	87.98	NA	2	8.89	79.07
P-14	87.31	84.05	NA	2	8.61	78.70
P-17	88.82	85.88	NA	2	7.93	80.89
P-18	88.74	84.37	NA	2	DRY**	ND
P-19	86.73	84.14	NA	2	7.04	79.69
P-20	87.6	84.68	NA	2	7.87	79.73
P-21	86.63	83.57	NA	2	8.26	78.37
P-22	87.04	84.09	NA	2	7.97	79.07
P-23	86.45	83.71	NA	2	8.49	77.96
Staff Gauges						
SG-1	80.51#	NA	NA	NA	+0.10***	80.61
SG-2	78.57#	NA	NA	NA	+2.50	81.07

* = casing cut off # = lag bolt/zero elevation ** = dry, no data (ND)

*** = bottom of gauge in mud, elevation estimated

Table 2
Groundwater Analytical Summary
Hardee County Landfill
Second Half 2016

Analyte	Monitoring Well:		MW-1	MW-2	MW-4	MW-10R	MW-11	MW-12R	MW-13	MW-14
	Sample Date:		1/4/2017	1/4/2017	1/4/2017	1/4/2017	1/5/2017	1/5/2017	1/4/2017	1/4/2017
	Standard ⁽¹⁾	Units								
Field Measurements										
Groundwater Elevation		ft	80.32	77.75	79.29	79.31	78.81	79.23	79.73	79.91
Temperature		deg. C	22.64	22.37	21.61	25.01	22.07	22.15	23.32	22.56
pH	6.5-8.5	STD	4.58	7.00	6.34	5.56	5.15	6.73	5.20	6.12
Conductivity		uS/cm	139	568	430	349	90	524	125	525
Dissolved Oxygen (DO)		mg/l	2.18	1.71	0.82	0.59	1.11	1.81	0.85	1.69
Turbidity		NTU	18.10	5.54	3.73	2.27	16.8	1.72	3.64	1.06
Inorganics (Appendix 1 parameters only)										
Nitrate (as N)	10	mg/l	0.0242	0.0134 I	0.0100 U	0.0100 U	0.0100 U	0.189	0.0100 U	0.237
TDS	500	mg/l	1010	346	850	224	134	340	90.0	350
Chloride	250	mg/l	19.0	22.2	21.1	27.1	6.44 I	14.4	6.23 I	12.3
Antimony	0.006	mg/l	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U
Arsenic	0.01	mg/l	0.0053	0.00100 U	0.0142	0.0047	0.00100 U	0.0043	0.00100 U	0.0032
Barium	2	mg/l	0.0061	0.0136	0.0101	0.014	0.0107	0.00200 U	0.00200 U	0.00200 U
Beryllium	0.004	mg/l	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U
Cadmium	0.005	mg/l	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U
Chromium	0.1	mg/l	0.0143	0.00100 U	0.00570	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Cobalt		mg/l	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Copper	1	mg/l	0.0037	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00170 I	0.00100 U	0.00100 U
Lead	0.015	mg/l	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Mercury	0.002	mg/l	0.0000200 U	0.0000200 U	0.0000200 U	0.0000200 U	0.0000200 U	0.0000200 U	0.0000200 U	0.0000200 U
Nickel	0.1	mg/l	0.0057	0.002	0.00160 I	0.00100 U	0.00100 U	0.00120 I	0.00100 U	0.00100 U
Selenium	0.05	mg/l	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U
Silver	0.1	mg/l	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U
Thallium	0.002	mg/l	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Vanadium		mg/l	0.0261	0.0022	0.0196	0.004	0.0064	0.0161	0.002	0.00380
Zinc	5	mg/l	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0128 I	0.0122 I	0.0100 U	0.0100 U
Ammonia (as N)	2.8	mg/l	0.249	0.102	0.545	0.944	0.147	0.101	0.137	0.861
Iron	0.3	mg/l	5.57	0.628	9.43	25.4	0.895	0.0100 U	0.967	0.398
Sodium	160	mg/l	10.3	13.5	8.96	17.1	5.61	8.18	3.95	8.5
Organics										
1,1,1,2-Tetrachloroethane		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
1,1,1-Trichloroethane	200	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
1,1,2,2-Tetrachloroethane		ug/l	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U
1,1,2-Trichloroethane	5	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
1,1-Dichloroethane		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
1,1-Dichloroethene	7	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
1,2-Dichloroethane	3	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
1,2-Dichloropropane	5	ug/l	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
2-Butanone (MEK)		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
2-Hexanone		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Acetone	6300	ug/l	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Acrylonitrile		ug/l	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U
Benzene	1	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Bromochloromethane		ug/l	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U
Bromodichloromethane		ug/l	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U
Bromoform		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Bromomethane		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Carbon Disulfide		ug/l	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Carbon Tetrachloride	3	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Chlorobenzene		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Chloroethane		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Chloroform		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Chloromethane		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Dibromochloromethane		ug/l	0.400 U	0.400 U	0.400 U	0.400 U	0.400 U	0.400 U	0.400 U	0.400 U
Dibromomethane		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Ethylbenzene	700	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Methyl Iodide		ug/l	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Methyl isobutyl ketone		ug/l	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Methylene chloride		ug/l	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Para-dichlorobenzene	75	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Styrene	100	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Tetrachloroethene	3	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Toluene	1000	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Trichloroethene	3	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Trichlorofluoromethane		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Vinyl Acetate		ug/l	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Vinyl chloride	1	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Xylenes	10000	ug/l	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
cis-1,2-Dichloroethene	70	ug/l	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
cis-1,3-Dichloropropene		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
o-Dichlorobenzene	600	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
trans-1,2-Dichloroethene	100	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
trans-1,3-Dichloropropene		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
trans-1,4-Dichloro-2-butene		ug/l	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,2,3 - Trichloropropane		ug/l	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U
1,2 - Dibromomethane (EDB)		ug/l	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
1,2 - dibromo-3-chloropropane		ug/l	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U

⁽¹⁾ - Maximum Contaminant Level (MCL) or Secondary Drinking Water Standard (SDWS), as established in Chapter 62-550. Analyte concentrations shown with shading represent an exceedance of the MCL or SDWS.

U = Compound was analyzed but not detected; I = Reported value is between the laboratory method detection limit and the laboratory practical quantitation limit

Table 3
Surface Water Analytical Summary
Hardee County Landfill
Second Half 2016

Analyte	Location:		SW-2
	Sample Identifier:		SW-2
	Date of Test:		1/5/2017
	Standard(1)	Units	
Field Measurements			
Temperature		deg. C	17.47
pH	6-8.5	STD	6.89
Conductivity	1275	uS/cm	580
Dissolved Oxygen (DO)	>5	mg/l	1.55
Turbidity	29+	NTU	2.62
Inorganics			
Nitrate (as N)		mg/L	0.0100 U
Nitrite (as N)		mg/L	0.0200 U
Total Dissolved Solids (TDS)		mg/L	416
Aluminum	1.5	mg/L	0.0124 I
Antimony	4.3	mg/L	0.00200 U
Arsenic	0.05	mg/L	0.0024
Barium		mg/L	0.0109
Beryllium	0.00013	mg/L	0.000500 U
Cadmium	Note 2	mg/L	0.000200 U
Chromium	Note 3	mg/L	0.00100 U
Cobalt		mg/L	0.00100 U
Copper	Note 4	mg/L	0.00100 U
Iron	1	mg/L	0.557
Lead	Note 5	mg/L	0.00100 U
Mercury	0.000012	mg/L	0.0000200 U
Nickel	Note 6	mg/L	0.00100 U
Selenium	5	mg/L	0.00200 U
Silver	0.00007	mg/L	0.000500 U
Thallium	0.0063	mg/L	0.00100 U
Vanadium	0.049	mg/L	0.00180 I
Zinc	Note 7	mg/L	0.0100 U
Fecal coliform	800	cfu/100mL	200 Z*
Total Hardness (as CaCO3)		mg/L	256
Total Organic Carbon (TOC)		mg/L	24.0
Total Nitrogen		mg/L	1.43
Total Phosphorus		mg/L	0.673
Total Suspended Solids (TSS)		mg/L	2.00
Un-ionized Ammonia	0.02	mg/L	0.000874
Biological Oxygen Demand (BOD)		mg/l	2.30
Chemical Oxygen Demand (COD)		mg/L	72.9
Chlorophyll A		mg/m3	0.150
Total Kheldahl Nitrogen (TKN) (as N)		mg/l	1.43
Organics			
1,1,1,2-Tetrachloroethane		ug/l	0.500 U
1,1,1-Trichloroethane	270	ug/l	0.500 U
1,1,2,2-Tetrachloroethane	10.8	ug/l	0.100 U
1,1,2-Trichloroethane	16	ug/l	0.500 U
1,1-Dichloroethane		ug/l	0.500 U
1,1-Dichloroethene	3.2	ug/l	0.500 U
1,2-Dichloroethane	37	ug/l	0.500 U
1,2-Dichloropropane	14	ug/l	0.200 U

Analyte	Location:		SW-2
	Sample Identifier:		SW-2
	Date of Test:		1/5/2017
	Standard(1)	Units	
1,2,3-Trichloropropane	0.2	ug/l	0.0199 U
1,2-Dibromoethane (EDB)	13	ug/l	0.00997 U
1,2-Dibromo-3-chloropropane		ug/l	0.0199 U
2-Butanone (MEK)	120000	ug/l	0.500 U
2-Hexanone		ug/l	0.500 U
Acetone	1700	ug/l	5.00 U
Acrylonitrile	0.2	ug/l	0.300 U
Benzene	71.28	ug/l	0.500 U
Bromochloromethane		ug/l	0.100 U
Bromodichloromethane	49.7	ug/l	0.100 U
Bromoform		ug/l	0.500 U
Bromomethane	35	ug/l	0.500 U
Carbon disulfide	110	ug/l	1.00 U
Carbon tetrachloride	4.42	ug/l	0.500 U
Chlorobenzene	17	ug/l	0.500 U
Chloroethane		ug/l	0.500 U
Chloroform		ug/l	0.500 U
Chloromethane	470.8	ug/l	0.500 U
Dibromochloromethane		ug/l	0.400 U
Dibromomethane	1580	ug/l	0.500 U
Ethylbenzene	610	ug/l	0.500 U
Methyl iodide		ug/l	1.00 U
Methyl isobutyl ketone		ug/l	1.00 U
Methylene chloride		ug/l	1.00 U
Para-dichlorobenzene		ug/l	0.500 U
Styrene	460	ug/l	0.500 U
Tetrachloroethene	8.85	ug/l	0.500 U
Toluene	480	ug/l	0.500 U
Trichloroethene	80.7	ug/l	0.500 U
Trichlorofluoromethane		ug/l	0.500 U
Vinyl Acetate	700	ug/l	10.0 U
Vinyl chloride	2.4	ug/l	0.500 U
Xylenes	370	ug/l	1.00 U
cis-1,2-Dichloroethene	3.2	ug/l	0.200 U
cis-1,3-Dichloropropene	12	ug/l	0.500 U
o-Dichlorobenzene		ug/l	0.500 U
trans-1,2-Dichloroethene	11000	ug/l	0.500 U
trans-1,3,-Dichloropropene	12	ug/l	0.500 U
trans-1,4-Dichloro-2-butene		ug/l	1.00 U

Abbreviations: mg/l = milligrams per liter; ug/l = micrograms per liter; NTU = nephelometric turbidity units; mg/m³ - milligrams per cubic meter. U = less than method detection limit (MDL) I = between MDL and practical quantitation limit * = Z qualifier indicates too numerous to count colonies on plate

(1) Surface water standards presented in Chapter 62-302, FAC. Analyte concentrations shown with shading represent an exceedance of the regulatory level. Value of hardness is used to determine calculated standards below.

- (2) Cd less than or equal to $e(0.7852(\text{InH})-3.49)$
- (3) Cr less than or equal to $e(0.819(\text{InH})+0.6848)$
- (4) Cu less than or equal to $e(0.845(\text{InH})-1.702)$
- (5) Pb less than or equal to $e(1.273(\text{InH})-4.705)$
- (6) Ni less than or equal to $e(0.846(\text{InH})+0.0584)$
- (7) Zn less than or equal to $e(0.8473(\text{InH})+0.884)$

ATTACHMENT A

Ground Water Monitoring Report Form



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 Hardee County Solid Waste Disposal Facility
Address 685 Airport Road
City Wauchula, FL Zip 33873 County Hardee
Telephone Number (863) 773-5089
- (2) WACS Facility ID SWD-25-40612
- (3) DEP Permit Number 38414-016-SO-01
- (4) Authorized Representative's Name Bradley J. Bayne, P.G. 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.

February 3, 2017

(Date)

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

PART II QUALITY ASSURANCE REQUIREMENTS

- Sampling Organization Atkins North America (see above information)
- Analytical Lab NELAC / HRS Certification # NELAC # E83018
- Lab Name Flowers Chemical Laboratories, Inc.
- Address 481 Newburyport Avenue, Altamonte Springs, FL 32715
- Phone Number (407) 339-5984
- Email address (if available) june@flowerslabs.com (June Flowers)

Northwest District
160 Government Center
Pensacola, FL 32501-5794
850-595-8360

Northeast District
7825 Baymeadows Way, Ste. 200 B
Jacksonville, FL 32256-7590
904-807-3300

Central District
3319 Maguire Blvd., Ste. 232
Orlando, FL 32803-3767
407-894-7555

Southwest District
13051 N. Telecom Pkwy.
Tempe Terrace, FL
813-632-7600

South District
2295 Victoria Ave., Ste. 364
Fort Myers, FL 33902-2549
239-332-6975

Southeast District
400 North Congress Ave.
West Palm Beach, FL 33401
561-681-6600