Lee County
Southwest Florida
BOARD OF COUNTY COMMISSIONERS

October 27, 2016

Ms. Renée J. Kwiat, CHMM
Environmental Consultant
Florida Department of Environmental Protection, South District
P.O. Box 2549
Fort Myers, FL 33902-2549

Re: Lee County Resource Recovery Facility, PA90-30H
Construction & Demolition Debris Recycling Facility
WACS ID No. 93715
Second Semi-Annual 2016 Water Quality Monitoring Report

Dear Ms. Kwiat:

Enclosed please find the Second Semi-Annual 2016 Water Quality Monitoring (WQM) Report for the Lee County Resource Recovery Facility (RRF) and the Construction & Demolition Debris Recycling Facility (CDDRF). Flowers Chemical Laboratories, Inc. (FCL) sampled the RRF's six (6) shallow monitoring wells, or WTE-1S, WTE-2S, WTE-3SR, WTE-4S, WTE-5S and WTE-6S, which include the CDDRF's three (3) monitoring wells or WTE-2S, WTE-3SR and WTE-4S, on August 8, 2016. Sampling was performed in accordance with the Facility's Ground Water Monitoring Plan (GWMP) dated August 2010 and approved by the Department on October 19, 2010. The laboratory analytical results from this WQM event were compared to the Department's water quality standards or maximum contaminant levels (MCL) established in Chapter 62-550, F.A.C., and are summarized below.

Ground Water Monitoring Data Discussion

Ground water from all (6) shallow monitoring wells sampled exceeded the secondary drinking water standard for Iron which is 0.3 milligrams per liter (mg/L) as established by Rule 62-550, F.A.C. Ground water from four (4) of the six (6) shallow wells sampled, i.e., WTE-2S, WTE-3SR, WTE-4S and WTE-5S, exceeded the secondary drinking water standard for Total Dissolved Solids (TDS) which is 500 mg/L as established by Rule 62-550, F.A.C. The concentrations of Iron and TDS in the wells that exceeded the standards as noted above are reported in Table 1. Note that the Iron and TDS concentrations reported are consistent with background and historical monitoring results and the ground water quality in this region.

In addition, ground water from WTE-4S exceeded the Ground Water Clean-Up Target Level (GCTL) for Ammonia which is 2.8 mg/L as established in Chapter 62-777, F.A.C. The Ammonia concentration of WTE-4S was reported to be 4.4 mg/L which is consistent with the March 2016 resample of 4.0 mg/L. Both of these results are significantly lower than the 19 mg/L reported in February 2016. With the Ammonia concentration steady and just over the GCTL and given Department Memorandum SWM-13.10, Monitoring and Evaluation Ammonia in Ground Water at Solid Waste Management Facilities, dated December 3, 2012, no further confirmation sampling will be performed. However, Ammonia will continue to be monitored in accordance with the approved ground water monitoring plan.

Table 1 –Results which Exceeded Standards in Chapter 62-550, F.A.C.

Parameter (units)	WTE-1S	WTE-2S	WTE-3SR	WTE-4S	WTE-5S	WTE-6S
Iron (mg/L)	4.27	4.26	2.53	3.61	1.62	8.13
TDS (mg/L)	BS	778	612	550	502	BS

Water Quality Standards: Iron- 0.3 mg/L; TDS- 500 mg/L; BS-Below Standard

Electronic Data Files

As required, this WQM Report includes the field and laboratory ADaPT files which are provided as separate electronic files prepared in the Department specified format.

Ground Water Elevations

The ground water elevations at the six (6) shallow (water table aquifer) and six (6) deep (sandstone aquifer) monitoring wells are provided in Table 2 below. The elevations were determined in accordance with the DEP-SOP-001/01, and specifically, FS2200, Ground Water Sampling. The data used to determine the ground water elevations is provided in the Attachments to this WQM Report.

Table 2 – Ground Water Elevations (ft., NGVD) Measured August 8, 2016

WELL ID	Elevation (ft., NGVD)	WELL ID	Elevation (ft., NGVD)
WTE-1S	21.68	WTE-1D	14.35
WTE-2S	21.14	WTE-2D	19.87
WTE-3SR	20.17	WTE-3DR	18.99
WTE-4S	18.47	WTE-4D	17.54
WTE-5S	20.73	WTE-5D	19.43
WTE-6S	17.87	WTE-6D	16.32

Note: WTE-2S, WTE-3SR and WTE-4S comprise the monitoring well network for the CDDRF

Field Documentation and Report Certification

The attachments to this WQM Report include DEP Form #62-701.900(31), F.A.C., Water Quality Monitoring Certification, DEP Form FD 9000-24, Ground Water Sampling Log for each well sampled, field data sheets and sample chain of custody.

Recommendations/Conclusions

The monitoring results reported herein are consistent with prior monitoring results and background data for the RRF and the CDDRF and are typical for ground water in this geographical region with the exception of the ammonia concentration reported in WTE-4S. Given the substantial decrease in ammonia indicated by the resample results along with the Department Memorandum SWM-13.10, no additional ammonia monitoring is recommended at this time. The RRF and CDDRF will continue to implement the approved ground water monitoring plan and will report the results to the Department as required.

Please call me at (239) 533-8930 if you have any questions pertaining to this Water Quality Monitoring Report.

Sincerely,

Laura A. Gray, P.E. 10/27/16
Engineering Manager
Solid Waste Division

LAURA A. GRAY LICENSE No. 50138 STATE OF FLORIDA PROFESSIONAL ENGINEER

Attachments
Cc: Bureau of Solid and Hazardous Waste, FDEP
Siting Coordination Office, FDEP
Keith Howard, SWD
Mike Duff, Covanta
Tyler Huffman, Covanta
File II E107

LIST OF ATTACHMENTS

Attachment A - Ground Water Monitoring Report Certification,
DEP Form # 62-701.900(31)

Attachment B - Ground Water Contour Maps (Shallow and Sandstone Wells) and Supporting Data

Attachment C - Ground Water Monitoring Well Inspection and Water Level Measurement Form (Shallow and Sandstone Wells)

Attachment D – Sampling Documentation (Shallow Wells)

Ground Water Sampling Logs, FD 9000-24
Field Data and Calibration Sheets
Chain of Custody

Attachment A-Ground Water Monitoring Report Certification, DEP Form # 62-701.900(31)

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 Lee County Solid Waste Energy Recovery Facility

Address 10500 Buckingham Road

City Fort Myers Zip 33905 County Lee

Telephone Number (239) 533-8000

(2) WACS Facility ID 93715

(3) DEP Permit Number PA90-30H

(4) Authorized Representative's Name Keith Howard Title Director

Address 10500 Buckingham Road

City Fort Myers Zip 33907 County Lee

Telephone Number (239) 533-8000

Email address (if available) khoward@leegov.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.

10/25/16
(Date)

(Owner or Authorized Representative's Signature)

PART II QUALITY ASSURANCE REQUIREMENTS

Sampling Organization Flowers Chemical Laboratories, Inc.

Analytical Lab NELAC / HRS Certification # E83018

Lab Name Flowers Chemical Laboratories, Inc

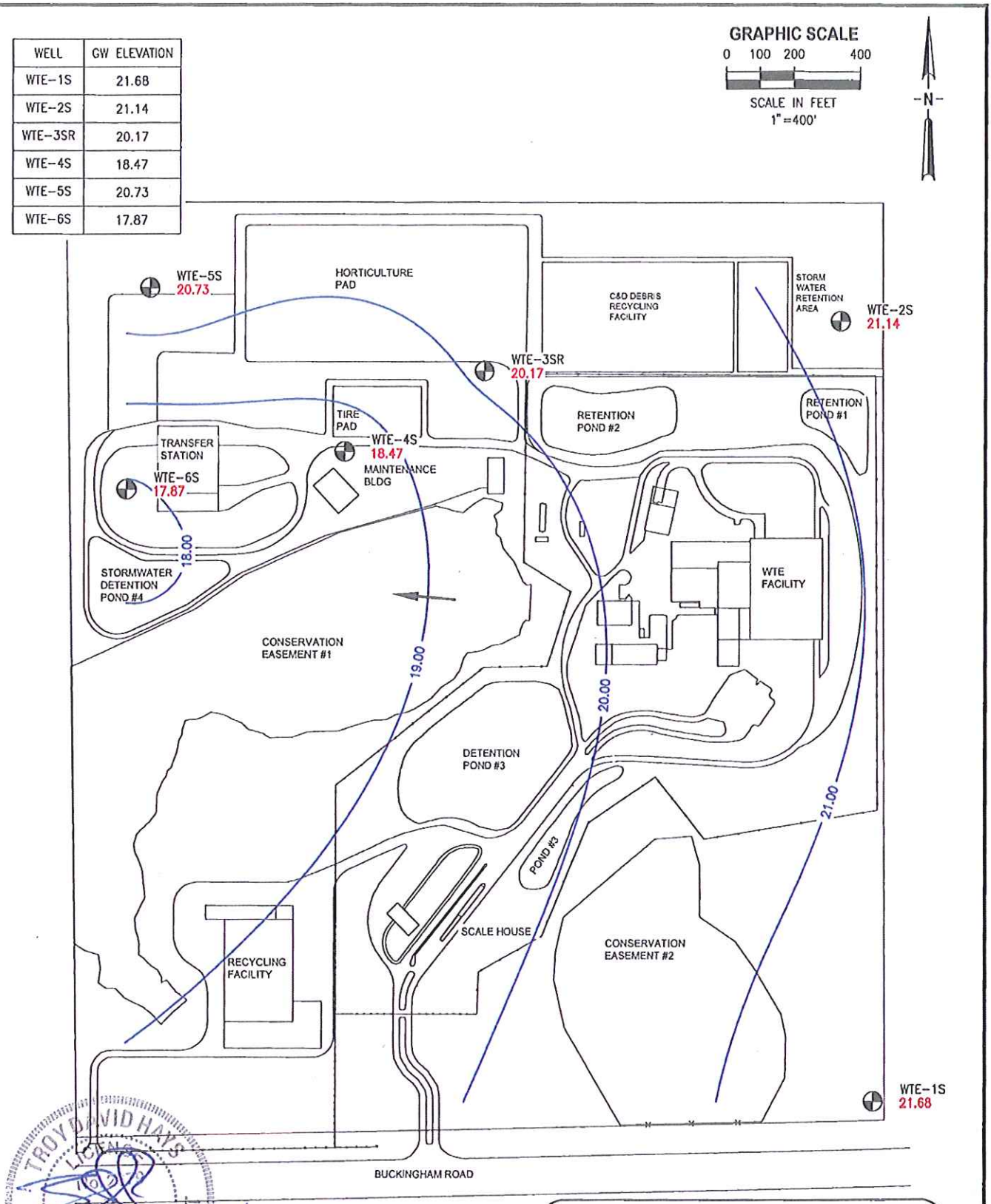
Address P.O. Box 150597, Altamonte Springs, FL 32715-0597

Phone Number (407) 339-5984

Email address (if available)

Attachment B –Ground Water Contour Maps (Shallow and Sandstone Wells) and Supporting Data

WELL	GW ELEVATION
WTE-1S	21.68
WTE-2S	21.14
WTE-3SR	20.17
WTE-4S	18.47
WTE-5S	20.73
WTE-6S	17.87



TROY DAVID HAYS
LICENSE
STATE OF FLORIDA
PROFESSIONAL GEOLOGIST
10/3/16

LEE COUNTY WTE LANDFILL
GROUNDWATER CONTOUR MAP
OF THE SHALLOW SURFICIAL ZONE
AUGUST 8, 2016

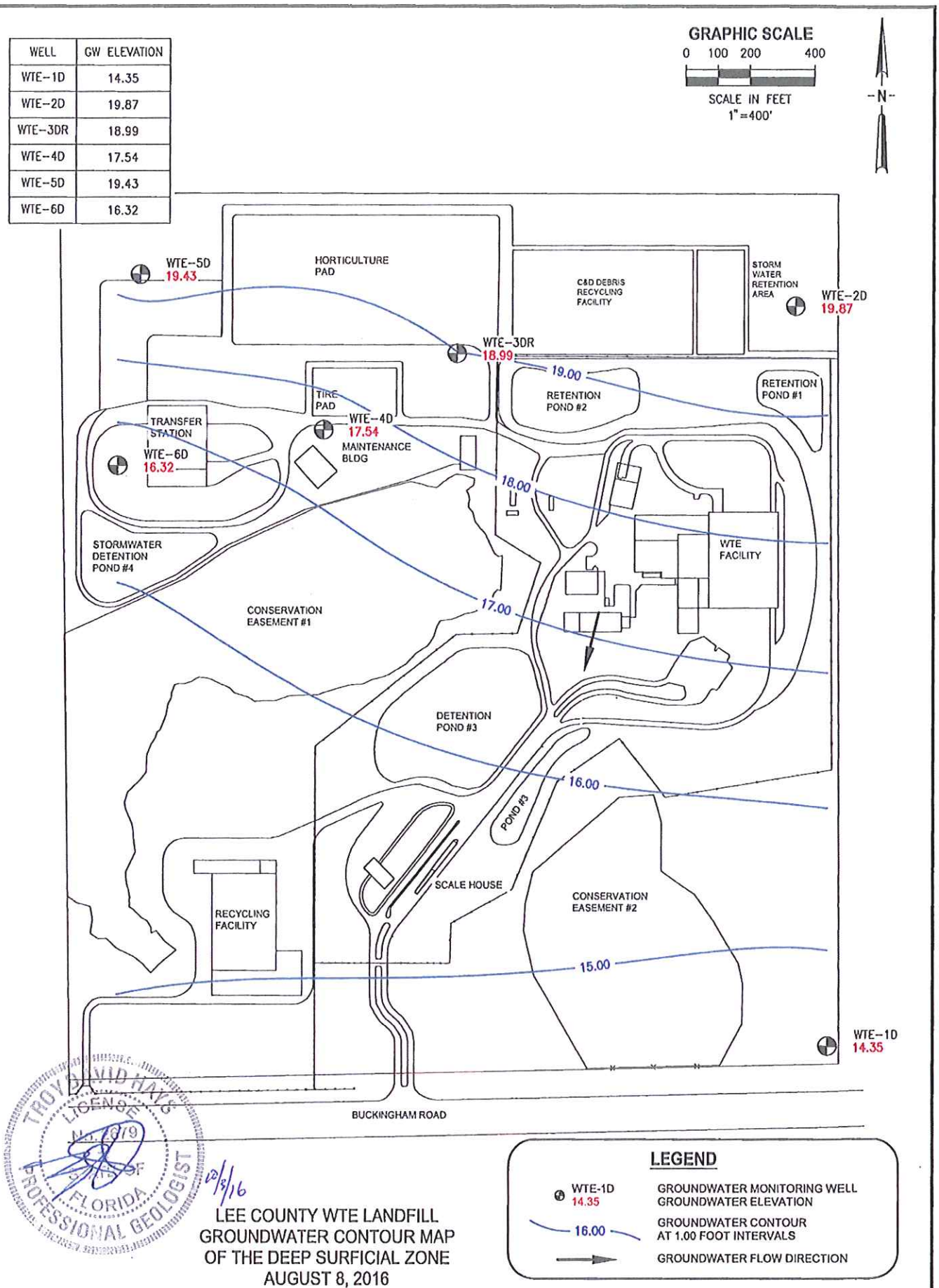
LEGEND

- WTE-1S 21.68 — GROUNDWATER MONITORING WELL GROUNDWATER ELEVATION
- 16.00 — GROUNDWATER CONTOUR AT 1.00 FOOT INTERVALS
- GROUNDWATER FLOW DIRECTION

JONES EDMUNDS

SAVED: 9/27/2016 4:13 PM BTHOMAS \\JEACAD\GWM\JONES EDMUNDS\LEE COUNTY\WTE PLANT\GWM 2016\16S2\LEE WTE_16S2_SHALLOW.DWG
PLOTTED: 9/27/2016 04:13 PM BRIAN THOMAS 12345-005-01

WELL	GW ELEVATION
WTE-1D	14.35
WTE-2D	19.87
WTE-3DR	18.99
WTE-4D	17.54
WTE-5D	19.43
WTE-6D	16.32



TROY DAVID HAYS
LICENSE
No. 2879
STATE OF
FLORIDA
PROFESSIONAL GEOLOGIST

12/8/16

LEE COUNTY WTE LANDFILL
GROUNDWATER CONTOUR MAP
OF THE DEEP SURFICIAL ZONE
AUGUST 8, 2016

LEGEND

- WTE-1D 14.35 — GROUNDWATER MONITORING WELL GROUNDWATER ELEVATION
- 16.00 — GROUNDWATER CONTOUR AT 1.00 FOOT INTERVALS
- GROUNDWATER FLOW DIRECTION

JONES EDMUNDS

SAVED: 9/27/2016 4:07 PM BTHOMAS \\JEACAD\GWM\JONES EDMUNDS\LEE COUNTY\WTE PLANT\GWM 2016\16S2\LEE WTE_16S2_DEEP.DWG
PLOTTED: 9/27/2016 04:08 PM BRIAN THOMAS 12345-005-01

Attachment C – Ground Water Monitoring Well Inspection and Water Level Measurement Form (Shallow and Sandstone Wells)

Ground Water Monitoring Well Inspections & Water Level Measurements

Date: 8.8.16 Inspector Name: Dustin Rayburn

Site and/or Well Network Name: WTE Plant

Well ID	Well TOC, ft., NGVD	Time*	Distance to Water, ft.	Elevation, ft., NGVD	Well in Good Condition (Y/N)? **
WTE-1S	21.91	12:04	0.23		Y
WTE-1D	22.96	12:03	8.61		Y
WTE-2S	24.18	8:09	3.04		Y
WTE-2D	23.52	8:08	3.65		Y
WTE-3SR	23.98	8:49	3.81		Y
WTE-3DR	23.91	8:48	4.92		Y
WTE-4S	22.48	9:29	4.01		Y
WTE-4D	23.81	9:28	6.27		Y
WTE-5S	23.81	10:09	3.08		Y
WTE-5D	24.5	10:08	5.07		Y
WTE-6S	23.66	11:04	5.79		Y
WTE-6D	22.91	11:03	6.59		Y

*Enter date too if different than noted above

** If 'N' entered, explain below. Attach additional sheets if needed

Enter Comments Below As Needed. Ensure well ID is clearly noted for each comment.

Additional Pages Attached (Y/N)?

Inspector Signature: 8.8.16

Revised 3/19/15

S:\WTE\Groundwater Monitoring\Well Inspection FDT\WTE WELL INSPECTION FORM REV 3 13 15.xls (replace this pdf)

Lee County Resource Recovery Facility
Ground Water Elevations for Aug. 8, 2016

Well ID	GW Elevation (ft, NGVD)	Well ID	GW Elevation (ft, NGVD)
WTE-1S	21.68	WTE-1D	14.35
WTE-2S	21.14	WTE-2D	19.87
WTE-3SR	20.17	WTE-3DR	18.99
WTE-4S	18.47	WTE-4D	17.54
WTE-5S	20.73	WTE-5D	19.43
WTE-6S	17.87	WTE-6D	16.32

All deep wells are 4 inch diameter and all shallow well are 2 inches diameter

Well No.	Elev. TOC, NGVD	Depth to Water, ft.	Water Elevation, Ft., NGVD
WTE-1S	21.91	0.23	**21.68**
WTE-1D	22.96	8.61	**14.35**
WTE-2S	24.18	3.04	**21.14**
WTE-2D	23.52	3.65	19.87
WTE-3SR	23.98	3.81	**20.17**
WTE-3DR	23.91	4.92	**18.99**
WTE-4S	22.48	4.01	**18.47**
WTE-4D	23.81	6.27	**17.54**
WTE-5S	23.81	3.08	**20.73**
WTE-5D	24.5	5.07	**19.43**
WTE-6S	23.66	5.79	**17.87**
WTE-6D	22.91	6.59	**16.32**

Attachment D – Sampling Documentation (Shallow Wells)

- Ground Water (GW) Sampling Logs, FD 9000-24
- Field Data and Calibration Sheets
- Chain of Custody

Ground Water (GW) Sampling Logs, FD 9000-24

Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE	SITE
SITE: LEE COUNTY SOLID WASTE-WTE S/A WELLS	LOCATION: WTE

WELL NO: WTE-1S	SAMPLE ID: 306477GW6	DATE: 8/8/2016

PURGING DATA

WELL	TUBING	WELL SCREEN INTERVAL	STATIC	PURGE PUMP TYPE RFPP
		DEPTH: feet to feet	DEPTH(feet):	
DIAMETER (inches): 2.0	DIAMETER (inches): 0.25		TOC (feet): 21.91	OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (14.60 feet – 0.23 feet) X 0.16 gallons/foot = 2.30 gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING	FINAL PUMP OR TUBING	PURGING	PURGING	TOTAL VOLUME
DEPTH IN WELL (feet): 8.0	DEPTH IN WELL (feet): 8.0	INITIATED AT: 12:05	ENDED 12:33	PURGED (Gal): 4.00

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) ~~µmhos/cm~~ or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or ~~% saturation~~	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
12:23	2.50	2.50	0.15	0.28	6.92	25.2	625.0	0.44	3.07	NONE	NONE
12:28	0.75	3.25	0.15	0.28	6.92	25.2	625.0	0.44	2.92	NONE	NONE
12:33	0.75	4.00	0.15	0.28	6.92	25.2	625.0	0.43	2.75	NONE	NONE

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./FL): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING	SAMPLING
DUSTIN C RAYBURN/FCL		INITIATED AT: 12:34	ENDED AT: 12:38

PUMP OR TUBING	TUBING	FIELD-FILTERED: No	FILTER SIZE: mm
DEPTH IN WELL (feet): 8.0	MATERIAL CODE: P;E	Filtration Equipment Type:	

FIELD DECONTAMINATION: PUMP No	TUBING Replaced	DUPLICATE: No

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (Gal / Min)
						6.92	SEE COC	RFPP	0.15

REMARKS: SURROUNDED BY STANDING WATER

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

NOTES 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.

2. Stabilization Criteria for range of variation of last three consecutive readings (see FS 2212, section 3)
pH: ± 0.2 units Temperature: ± 0.2 °C Specific Conductance: ± 5% Dissolved Oxygen: all readings ≤ 20% saturation (see Table FS 2200-2); optionally, + 0.2 mg/L or + 10% (whichever is greater) Turbidity: all readings < 20 NTU; optionally + 5 NTU or + 10% (whichever is greater)

2, 2009

Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE		
SITE: LEE COUNTY SOLID WASTE-WTE S/A WELLS	LOCATION: WTE	
WELL NO: WTE-2S	SAMPLE ID: 306477GW1	DATE: 8/8/2016

PURGING DATA

WELL	TUBING	WELL SCREEN INTERVAL	STATIC	PURGE PUMP TYPE: RFPP
DIAMETER (inches): 2.0	DIAMETER (inches): 0.25	DEPTH: feet to feet	DEPTH(feet): TOC (feet): 3.04 / 24.18	OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (12.00 feet – 3.04 feet) X 0.16 gallons/foot = 1.43 gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING	FINAL PUMP OR TUBING	PURGING	PURGING	TOTAL VOLUME
DEPTH IN WELL (feet): 8.0	DEPTH IN WELL (feet): 8.0	INITIATED AT: 8:10	ENDED AT: 8:26	PURGED (gal): 2.40

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) ~~µmhos/cm~~ or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or ~~% saturation~~	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
8:20	1.50	1.50	0.15	3.08	6.98	26.2	807.0	0.82	6.71	NONE	NONE
8:23	0.45	1.95	0.15	3.08	6.98	26.2	807.0	0.81	6.59	NONE	NONE
8:26	0.45	2.40	0.15	3.08	6.98	26.2	807.0	0.81	6.44	NONE	NONE

WELL CAPACITY (Gallons Per Foot) 0.75" = 0.02, 1" = 0.04, 1.25" = 0.06, 2" = 0.16, 3" = 0.37, 4" = 0.65, 5" = 1.02, 6" = 1.47, 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.) 1/8" = 0.0006, 3/16" = 0.0014, 1/4" = 0.0026, 5/16" = 0.004, 3/8" = 0.006, 1/2" = 0.010, 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer, BP = Bladder Pump, ESP = Electric Submersible Pump, PP = Peristaltic Pump, O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING	SAMPLING
DUSTIN C RAYBURN/FCL		INITIATED AT: 8:27	ENDED AT: 8:31

PUMP OR TUBING	TUBING	FIELD-FILTERED: No	FILTER SIZE: mm
DEPTH IN WELL (feet): 8.0	MATERIAL CODE: P:E	Filtration Equipment Type:	

FIELD DECONTAMINATION: PUMP No TUBING Replaced DUPLICATE: No

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (Gal/Min)
						6.98	SEE COC	RFPP	0.15

REMARKS: SURROUNDED BY STANDING WATER

MATERIAL CODES: AG = Amber Glass, CG = Clear Glass, PE = Polyethylene, PP = Polypropylene, S = Silicone, T = Teflon, O = Other (Specify)
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump, B = Bailer, BP = Bladder Pump, ESP = Electric Submersible Pump, RFPP Reverse Flow Peristaltic Pump, SM = Straw Method (Tubing Gravity Drain), O = Other (Specify)

NOTES 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.

2. Stabilization Criteria for range of variation of last three consecutive readings (see FS 2212, section 3)
pH: ± 0.2 units Temperature: ± 0.2 °C Specific Conductance: ± 5% Dissolved Oxygen: all readings ≤ 20% saturation (see Table FS 2200-2); optionally, + 0.2 mg/L or + 10% (whichever is greater) Turbidity: all readings < 20 NTU; optionally + 5 NTU or + 10% (whichever is greater)

2, 2009

Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE	SITE
SITE: LEE COUNTY SOLID WASTE-WTE S/A WELLS	LOCATION: WTE
WELL NO: WTE-3SR	SAMPLE ID: 306477GW2	DATE: 8/8/2016

PURGING DATA

WELL	TUBING	WELL SCREEN INTERVAL DEPTH:	STATIC DEPTH(fe TOC	3.81	PURGE PUMP TYPE: RFPP
DIAMETER (inches): 2.0	DIAMETER (inches): 0.25	feet to feet		23.98	OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (14:00 feet – 3.81 feet) X 0.16 gallons/foot = 1.63 gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING	FINAL PUMP OR TUBING	PURGING	PURGING	TOTAL VOLUME
DEPTH IN WELL (feet): 8.0	DEPTH IN WELL (feet): 8.0	INITIATED 8:50	ENDED 9:08	PURGED (gal): 2.65

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
9:02	1.75	1.75	0.15	3.83	7.09	29.4	659.0	0.67	5.42	NONE	NONE
9:05	0.45	2.20	0.15	3.83	7.09	29.4	659.0	0.67	5.29	NONE	NONE
9:08	0.45	2.65	0.15	3.83	7.09	29.4	659.0	0.66	5.19	NONE	NONE

WELL CAPACITY (Gallons Per Foot) 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.) 1/8" = 0.0006; 3/16" = 0.0014, 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010, 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING	SAMPLING
DUSTIN C RAYBURN/FCL		INITIATED AT: 9:09	ENDED AT: 9:13
PUMP OR TUBING DEPTH IN WELL (feet): 8.0	TUBING MATERIAL CODE: P:E	FIELD-FILTERED: No	FILTER SIZE: mm
		Filtration Equipment Type:	
FIELD DECONTAMINATION: PUMP No	TUBING Replaced	DUPLICATE: No	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION					
SAMPLE ID CODE	#CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (Gal / Min)
						7.09	SEE	RFPP	0.15

REMARKS: HEAVY TRAFFIC AREA

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon, O = Other (Specify)
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer, BP = Bladder Pump; ESP = Electric Submersible Pump;
RFPP Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain), O = Other (Specify)

NOTES 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.

2. Stabilization Criteria for range of variation of last three consecutive readings (see FS 2212, section 3)
pH: ± 0.2 units Temperature: ± 0.2 °C Specific Conductance: ± 5% Dissolved Oxygen:all readings≤ 20% saturation (see Table FS 2200-2); **optionally, + 0.2 mg/L or + 10% (whichever is greater) Turbidity: all readings < 20 NTU; optionally + 5 NTU or + 10% (whichever is greater)**

2, 2009

Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE	SITE
SITE: LEE COUNTY SOLID WASTE-WTE S/A WELLS	LOCATION: WTE
WELL NO: WTE-4S	SAMPLE ID: 306477GW3	DATE: 8/8/2016

PURGING DATA

WELL	TUBING	WELL SCREEN INTERVAL	STATIC	4.01	PURGE PUMP TYPE RFPP
		DEPTH: feet to feet	DEPTH(feet):		
DIAMETER (inches): 2.0	DIAMETER (inches): 0.25		TOC (feet):	22.48	OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)

= (13.40 feet – 4.01 feet) X 0.16 gallons/foot = 1.50 gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)

= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING	FINAL PUMP OR TUBING	PURGING	PURGING	TOTAL VOLUME
DEPTH IN WELL (feet): 8.0	DEPTH IN WELL (feet): 8.0	INITIATED AT: 9:30	ENDED 9:46	PURGED (gal): 2.40

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) ~~µmhos/cm~~ or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or ~~% saturation~~	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
9:40	1.50	1.50	0.15	4.03	7.02	30.0	650.0	0.60	2.84	NONE	NONE
9:43	0.45	1.95	0.15	4.03	7.02	30.0	650.0	0.60	2.68	NONE	NONE
9:46	0.45	2.40	0.15	4.03	7.02	30.0	650.0	0.59	2.57	NONE	NONE

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02, 1" = 0.04, 1.25" = 0.06, 2" = 0.16, 3" = 0.37, 4" = 0.65, 5" = 1.02, 6" = 1.47, 12" = 5.63
TUBING INSIDE DIA. CAPACITY (Gal./Ft.) 1/8" = 0.0005, 3/16" = 0.0014, 1/4" = 0.0026, 5/16" = 0.004, 3/8" = 0.006, 1/2" = 0.010, 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer, BP = Bladder Pump, ESP = Electric Submersible Pump, PP = Peristaltic Pump, O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING	SAMPLING
DUSTIN C RAYBURN/FCL		INITIATED AT: 9:47	ENDED AT: 9:51
PUMP OR TUBING	TUBING	FIELD-FILTERED: No	FILTER SIZE: mm
DEPTH IN WELL (feet): 8.0	MATERIAL CODE: P:E	Filtration Equipment Type:	
FIELD DECONTAMINATION: PUMP No	TUBING Replaced	DUPLICATE: No	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (Gal / Min)
						7.02	SEE COC	RFPP	0.15

REMARKS: HEAVY TRAFFIC AREA

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump, B = Bailer, BP = Bladder Pump, ESP = Electric Submersible Pump, RFPP Reverse Flow Peristaltic Pump, SM = Straw Method (Tubing Gravity Drain), O = Other (Specify)

NOTES 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.

2. Stabilization Criteria for range of variation of last three consecutive readings (see FS 2212, section 3)
pH: ± 0.2 units Temperature: ± 0.2 °C Specific Conductance: ± 5% Dissolved Oxygen:all readings ≤ 20% saturation (see Table FS 2200-2); optionally, + 0.2 mg/L or + 10% (whichever is greater) Turbidity: all readings < 20 NTU; optionally + 5 NTU or + 10% (whichever is greater)

2, 2009

Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE	SITE
SITE: LEE COUNTY SOLID WASTE-WTE S/A WELLS	LOCATION: WTE
WELL NO: WTE-5S	SAMPLE ID: 306477GW4
	DATE: 8/8/2016

PURGING DATA

WELL	TUBING	WELL SCREEN INTERVAL	STATIC	PURGE PUMP TYPE RFPP
DIAMETER (inches): 2.0	DIAMETER (inches): 0.25	DEPTH: feet to feet	DEPTH(feet): 3.08 TOC (feet): 23.81	OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (17.41 feet – 3.08 feet) X 0.16 gallons/foot = 2.29 gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING	FINAL PUMP OR TUBING	PURGING	PURGING	TOTAL VOLUME
DEPTH IN WELL (feet): 8.0	DEPTH IN WELL (feet): 8.0	INITIATED AT: 10:10	ENDED 10:37	PURGED (gal): 4.00

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) ~~µmhos/cm~~ or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or ~~% saturation~~	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
10:27	2.50	2.50	0.15	3.15	6.83	28.8	719.0	0.55	4.89	NONE	NONE
10:32	0.75	3.25	0.15	3.15	6.83	28.8	719.0	0.55	4.71	NONE	NONE
10:37	0.75	4.00	0.15	3.15	6.83	28.8	719.0	0.54	4.54	NONE	NONE

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02, 1" = 0.04, 1.25" = 0.06, 2" = 0.16, 3" = 0.37, 4" = 0.65, 5" = 1.02, 6" = 1.47, 12" = 5.83
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006, 3/16" = 0.0014, 1/4" = 0.0026, 5/16" = 0.004, 3/8" = 0.006, 1/2" = 0.010, 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer, BP = Bladder Pump, ESP = Electric Submersible Pump, PP = Peristaltic Pump, O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING	SAMPLING
DUSTIN C RAYBURN/FCL		INITIATED AT: 10:38	ENDED AT: 10:42
PUMP OR TUBING	TUBING	FIELD-FILTERED: No	FILTER SIZE: mm
DEPTH IN WELL (feet): 8.0	MATERIAL CODE: P:E	Filtration Equipment Type:	
FIELD DECONTAMINATION: PUMP No	TUBING Replaced	DUPLICATE: No	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (Gal / Min)
						6.83	SEE COC	RFPP	0.15

REMARKS:

MATERIAL CODES: AG = Amber Glass, CG = Clear Glass, PE = Polyethylene, PP = Polypropylene, S = Silicone, T = Teflon, O = Other (Specify)
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump, B = Bailer, BP = Bladder Pump, ESP = Electric Submersible Pump, RFPP Reverse Flow Peristaltic Pump, SM = Straw Method (Tubing Gravity Drain), O = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.

2. Stabilization Criteria for range of variation of last three consecutive readings (see FS 2212, section 3)
pH: ± 0.2 units Temperature: ± 0.2 °C Specific Conductance: ± 5% Dissolved Oxygen: all readings ≤ 20% saturation (see Table FS 2200-2); optionally, + 0.2 mg/L or + 10% (whichever is greater) Turbidity: all readings < 20 NTU; optionally + 5 NTU or + 10% (whichever is greater)

2, 2009

Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE	SITE	
SITE: LEE COUNTY SOLID WASTE-WTE S/A WELLS	LOCATION: WTE	
WELL NO: WTE-6S	SAMPLE ID: 306477GW5	DATE: 8/8/2016

PURGING DATA

WELL	TUBING	WELL SCREEN INTERVAL	STATIC	PURGE PUMP TYPE: RFPP
DIAMETER (inches): 2.0	DIAMETER (inches): 0.25	DEPTH: feet to feet	DEPTH(feet TOC (feet): 5.79 / 23.66	OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (19.98 feet – 5.79 feet) X 0.16 gallons/foot = 2.27 gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING	FINAL PUMP OR TUBING	PURGING	PURGING	TOTAL VOLUME
DEPTH IN WELL (feet): 8.0	DEPTH IN WELL (feet): 8.0	INITIATED AT: 11:05	ENDED 11:33	PURGED (Gal): 4.00

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) ~~µmhos/cm~~ or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or ~~% saturation~~	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
11:23	2.50	2.50	0.15	5.82	7.21	28.6	516.0	0.46	1.94	NONE	NONE
11:28	0.75	3.25	0.15	5.82	7.21	28.6	516.0	0.46	1.80	NONE	NONE
11:33	0.75	4.00	0.15	5.82	7.21	28.6	516.0	0.45	1.62	NONE	NONE

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02, 1" = 0.04, 1.25" = 0.06, 2" = 0.16, 3" = 0.37, 4" = 0.65, 5" = 1.02, 6" = 1.47, 12" = 5.83
TUBING INSIDE DIA. CAPACITY (Gal./FL): 1/8" = 0.0006, 3/16" = 0.0014, 1/4" = 0.0026, 5/16" = 0.004, 3/8" = 0.006, 1/2" = 0.010, 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING	SAMPLING
DUSTIN C RAYBURN/FCL		INITIATED AT: 11:34	ENDED AT: 11:38
PUMP OR TUBING	TUBING	FIELD-FILTERED: No	FILTER SIZE: mm
DEPTH IN WELL (feet): 8.0	MATERIAL CODE: P:E	Filtration Equipment Type:	
FIELD DECONTAMINATION: PUMP No	TUBING Replaced	DUPLICATE: No	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (Gal / Min)
						7.21	SEE COC	RFPP	0.15

REMARKS:

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

NOTES 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.

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pH: ± 0.2 units Temperature: ± 0.2 °C Specific Conductance: ± 5% Dissolved Oxygen:all readings ≤ 20% saturation (see Table FS 2200-2); optionally, + 0.2 mg/L or + 10% (whichever is greater) Turbidity: all readings < 20 NTU; optionally + 5 NTU or + 10% (whichever is greater)

2, 2009

Field Data Sheets

FCL Field

Calibration Sheet

Sampler: DUSTIN C RAYBURN

Project: LEE COUNTY SOLID WASTE-WTE S/A WELLS

Date: 8/8/2016

Equipment Used: RFPP

Weather conditions: CLOUDY/HOT

Starting Calibration Values: 7:00

	Unit	Standard	Reading	Standard	Reading	Standard	Reading
pH	pH	4.00	4.00	7.00	7.00	10.00	10.00
Conductivity	us	1413	1413	25000			
Turbidity	NTU	1.00		10.00	10.02		
DO	%	xxxxxx	xxxxxx	xxxxx	xxxxxx	xxxxxx	100.00%

Ending Calibration Values: 18:40

	Unit	Standard	Reading
pH	pH	7.00	7.00
Conductivity	us	1413	1410
Turbidity	NTU	10.00	10.04
DO	%	xxxxxx	99.60%

Field SOP2.08
Determination of Field

INST. Field

Analyst:	DCR	Date:	08-08-16
Employee#:		Time:	

Sample#			Field DO	Field Temp.	Field Condu	Field pH (	Field Turbi	Field Elevation	Field Water I	TOC	
			Field DO	Field Temp.	Field Condu	Field pH (	Field Turbi	Field Elevation	Field Water I	TOC	
Unit			mg/L	oC	umhos/cm	pH	NTU	ft	ft	ft	
306477GW1			0.81	26.2	807.0	6.98	6.44	21.14	3.04	24.18	WTE-2S
306477GW2			0.66	29.4	659.0	7.09	5.19	20.17	3.81	23.98	WTE-3SR
306477GW3			0.59	30.0	650.0	7.02	2.57	18.47	4.01	22.48	WTE-4S
306477GW4			0.54	28.8	719.0	6.83	4.54	20.73	3.08	23.81	WTE-5S
306477GW5			0.45	28.6	516.0	7.21	1.62	17.87	5.79	23.66	WTE-6S
306477GW6			0.43	25.2	625.0	6.92	2.75	21.68	0.23	21.91	WTE-1S

Chain of Custodies

Check Box That Applies To Your Location

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481 Newburyport Ave.
Altamonte Springs, FL 32701
Bus: 407-339-5984
Fax: 407-260-6110

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Fax: 772-343-8089

☐ **Flowers Chemical Labs North**
812 S.W. Harvey Greene Dr.
Madison, FL 32340
Bus: 850-973-6878
Fax: 850-973-6878

☐ **Flowers Chemical Labs Keys**
3380 Overseas Highway, Ste. 103
Marathon, FL 33050
Bus: 305-743-8598
Fax: 305-743-8598

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Client: Lee County Solid Waste
Address:
Phone:
Sampled By (PRINT): Dustin Rayburn
Sampler Signature: [signature]
Date Sampled: 8-8-16

Project Name: SWERF - WTE Wells S/A
Client Contact: Laura Gray
FCL Project Manager: Phil Loucks
Requested Due Date: 10 Day Standard OR
Pick-Up Fee: $
Vehicle Surcharge: $
Sampling Fee: $ ✓ 6

P.O. #: use Quicklist: "Lee Co - WTE New permit"
FAX:
E-MAIL:
Rush Charges May Apply

GW - ground water DW - drinking water WW - wastewater
SW - surface water SO - soil/solid SL - sludge HW - waste

ITEM NO.	SAMPLE ID	DATE	TIME	MATRIX	(LAB USE ONLY) LAB NO.	NONE	H_2SO_4	HNO_3	HCl	$Na_2S_2O_3$	NH3	TDS, Cl, SO4, NO3	As, Cd, Cr, Pb, Hg	Fe, Na, Al	EPA 8260 Lee Co	COMMENTS	Total # Containers
1	WTE-2S	8-8-16	8:27	GW	306477GW1	X	X	X	X		X	✓	X	X	X	Rec @ 2.8°	5
2	WTE-3SR	↓	9:09	↓	2	↓	↓	↓	↓		↓	↓	↓	↓	↓		↓
3	WTE-4S	↓	9:47	↓	3	↓	↓	↓	↓		↓	↓	↓	↓	↓		↓
4	WTE-5S	↓	10:38	↓	4	↓	↓	↓	↓		↓	↓	↓	↓	↓		↓
5	WTE-6S	↓	11:34	↓	5	↓	↓	↓	↓		↓	↓	↓	↓	↓		↓
6	WTE-1S	↓	12:34	↓	6	↓	↓	↓	↓		↓	↓	↓	↓	↓		↓
7	Trip Blank	↓			7										X		
8																	
9																	
10																	

Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
[signature]	8/8/16	1450	Km	8/8	1450	Km Via UPS	8/8	1530	[signature]	8/9/16	1031

FINANCE CHARGES APPLIED TO PAST DUE INVOICES

• WHITE - Lab Copy - To Be Scanned • YELLOW - Client Copy