

July 25, 2019

Renée J. Kwiat, CHMM, Environmental Consultant, Air and Waste Florida Department of Environmental Protection - South District PO Box 2549
2295 Victoria Ave.
Fort Myers, Florida 33902-2549

RE: Lee County Resource Recovery Facility, PA90-30H

Construction & Demolition Debris Recycling Facility First Semiannual 2019 Water Quality Monitoring Report

FDEP Permit No. 0130719-018-SO-01

WACS Facility ID: 93715

Jones Edmunds Project No. 12345-014-01

## Dear Ms. Kwiat:

During the First Semiannual 2019 sampling event at the Lee County Resource Recovery Facility (RRF) and the Construction & Demolition Debris Recycling Facility (CDDRF), Sulfate in MW-2S was reported at 256 mg/L; above the SDWS of 250 mg/L. MW-2S was resampled for Sulfate on May 29, 2019. The table below provides the result of the resample event compared to the original result.

Sample	Parameter	First Semiannual 2019 Result	May 29, 2019 Resample Result
MW-2S	Sulfate	256 mg/L	191 mg/L

**Bold** = Concentrations above groundwater standard.

The Sulfate concentration reported in MW-2S for the resample event is less than that reported during the First Semiannual 2019 sampling event and is below the SDWS of 250 mg/L. Trend analysis indicates that Sulfate has been generally increasing in MW-2S.

A table of groundwater results for the First Semiannual 2019 sampling event and the resampling event compared to groundwater standards is provided in Attachment 1. Parameter Monitoring Report forms (PMRs) are provided in Attachment 2. Laboratory data and Chain of Custody forms are presented in Attachment 3. Field Data forms are included in Attachment 4 and a trend graph of historical Sulfate concentrations in MW-2S is included in Attachment 5.

Ms. Renée J. Kwiat July 25, 2019 Page 2

If you have any questions regarding this report, please contact me at (352) 377-5821 or <a href="mailto:ekennelley@jonesedmunds.com">ekennelley@jonesedmunds.com</a>.

Sincerely,

Elizabeth D Kennelley Project Manager / Project Scientist 730 NE Waldo Road

Elisath Henrelley

Gainesville, FL 32641

M:\EnvDocs\Lee County\\_Resource Recovery Facility\2019\19M5 Resample\19M5\_Lee RRF\_Letter.docx

xc: Rebecca Rodriguez, Lee County

Linda Monroy, Lee County Laura Gray, Lee County

Attachments

# ATTACHMENT 1 ANALYSIS RESULTS COMPARED TO GROUNDWATER STANDARDS

# PARAMETERS AT OR ABOVE THE LABORATORY DETECTION LIMIT LEE COUNTY RESOURCE RECOVERY FACILITY FEBRUARY 2019 THROUGH MAY 2019

PARAMETER	8	CONDUC- TIVITY (FIELD)	DEPTH TO WATER FROM MEASURE PT	DISSOLVED OXYGEN (FIELD)	GROUND- WATER ELEVATION	pH (FIELD)	TEMPER- ATURE (FIELD)	TURBIDITY (FIELD)	SULFATE
STANDARD UNITS		(1) uS/cm	(1) ft	(1) ppm	(1) ft, NGVD	6.5-8.5 S.U.** S.U.	(1) deg C	(1) NTU	250 mg/L** mg/L
DETECTIO	ON								
MW-2S	02/25/2019	860	5.81	2.57	18.37	6.89	22.0	4.40	256
MW-2S	05/29/2019	968	7.16	0.71	17.02	6.80	23.8	0.37	191

### LEGEND

*	=Primary	Drinking	Water	Standard
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<sup>\*\* =</sup>Secondary Drinking Water Standard

<sup>\*\* =</sup>Chapter 62-777 - Groundwater Cleanup Target Level (GCTL)

<sup>(1) =</sup>No Standard

 <sup>=</sup>Not Analyzed

I = Value is between the Method Detection Level (MDL) and the Reporting Detection Level (RDL)

J = Estimated value

V = Analyte found in associated method blank

Q = Estimated value; analyte analyzed after acceptable holding time

# ATTACHMENT 2 PARAMETER MONITORING REPORT FORMS

# **Lee County Resource Recovery Facility Parameter Monitoring Report**

Sampling Date/Time: 5/29/2019 4:40:00 PM **PART III Analytical Results Report Period: MAY 2019 Facility WACS #: 00093715** Well Purged: Y Test Site ID #: 23404 Well Type: [ ] Background Intermediate [] Well Name: MW-2S Compliance Water Supply [ ] **Classification of Ground Water:** G II Detection Piezometer Leachate Assessment [] **Ground Water Elevation (NGVD): 17.02** [] Other [ ] Surface Water

STORET CODE	PARAMETER MONITORED	SAMPLING METHOD	FIELD FILTERED	ANALYSIS METHOD	ANALYSIS DATE/TIME	ANALYSIS RESULT *	UNITS	DETECTION LIMIT/UNITS
082545	GROUNDWATER ELEVATION	PP	No	DEP-SOP	5/29/2019 4:40:00 PM	17.02	ft, NGVD	-10 ft, NGVD
000094	CONDUCTIVITY (FIELD)	PP	No	EPA 120.1	5/29/2019 4:40:00 PM	968	umhos/cm	umhos/cm
000406	pH (FIELD)	PP	No	EPA 150.1	5/29/2019 4:40:00 PM	6.80	Std. Units	Std. Units
000010	TEMPERATURE (FIELD)	PP	No	EPA 170.1	5/29/2019 4:40:00 PM	23.8	deg C	deg C
082078	TURBIDITY (FIELD)	PP	No	EPA 180.1	5/29/2019 4:40:00 PM	0.37	NTU	NTU
000945	SULFATE	PP	No	EPA 300.0	6/14/2019 2:52:00 AM	191	mg/L	5.0 mg/L
000299	DISSOLVED OXYGEN (FIELD)	PP	No	EPA 360.1	5/29/2019 4:40:00 PM	0.71	mg/L	mg/L
082546	DEPTH TO WATER FROM MEASURE PT	PP	No	FT1000	5/29/2019 4:40:00 PM	7.16	ft	-10 ft
046480	REDOX POTENTIAL (FIELD)	PP	No	SM2580B	5/29/2019 4:40:00 PM	-54.8	mV	mV

1

# **Lee County Resource Recovery Facility Parameter Monitoring Report**

PART III Analytical Results		Sampling Date/T	Sampling Date/Time: 5/29/2019 2:13:00 PM					
Facility WACS #: 00093715	Report Period:	Report Period: MAY 2019						
Test Site ID #:		Well Purged:						
Well Name: EOUBLK	(19M5LCRFF-E2B1)	Well Type: [ ]	Background	[ ] Intermediate				
	(======================================	[ ]	Compliance	[ ] Water Supply				
Classification of Ground Water:		[]	Detection	[ ] Piezometer				
C IVI ( TI ( (VCVT))		[]	Assessment	[ ] Leachate				
Ground Water Elevation (NGVD):		[X]	Other	[ ] Surface Water				
STORET PARAMETER MONITORED CODE		ALYSIS ANALYSIS THOD DATE/TIME	ANALYSIS RESULT *	UNITS DETECTION LIMIT/UNITS				
000945 SULFATE	PP No EPA	300.0 6/14/2019 3:15:00	AM < 2.5	mg/L 2.5 mg/L				

## **ATTACHMENT 3**

# ORIGINAL LABORATORY DATA INCLUDING CHAIN-OF-CUSTODY FORMS





June 14, 2019

Lab Data Jones Edmunds & Associates 730 NE Waldo Road Gainesville, FL 32641

RE: Project: 0520219-EDK4 May 2019 resample

Pace Project No.: 35471878

## Dear Lab Data:

Enclosed are the analytical results for sample(s) received by the laboratory on May 31, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jeff Baylor

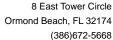
jeff.baylor@pacelabs.com

Jeff Baylor

(386)672-5668 Project Manager

Enclosures







## **CERTIFICATIONS**

Project: 0520219-EDK4 May 2019 resample

Pace Project No.: 35471878

**Ormond Beach Certification IDs** 

8 East Tower Circle, Ormond Beach, FL 32174

Alaska DEC- CS/UST/LUST Alabama Certification #: 41320 Arizona Certification# AZ0819

Colorado Certification: FL NELAC Reciprocity

Connecticut Certification #: PH-0216

Delaware Certification: FL NELAC Reciprocity

Florida Certification #: E83079 Georgia Certification #: 955

Guam Certification: FL NELAC Reciprocity Hawaii Certification: FL NELAC Reciprocity

Illinois Certification #: 200068

Indiana Certification: FL NELAC Reciprocity

Kansas Certification #: E-10383 Kentucky Certification #: 90050

Louisiana Certification #: FL NELAC Reciprocity Louisiana Environmental Certificate #: 05007

Louisiana Environmentai Certificate #

Maryland Certification: #346 Michigan Certification #: 9911

Mississippi Certification: FL NELAC Reciprocity

Missouri Certification #: 236

Montana Certification #: Cert 0074 Nebraska Certification: NE-OS-28-14 New Hampshire Certification #: 2958 New Jersey Certification #: FL022

New York Certification #: 11608

North Carolina Environmental Certificate #: 667

North Carolina Certification #: 12710 North Dakota Certification #: R-216 Oklahoma Certification #: D9947 Pennsylvania Certification #: 68-00547 Puerto Rico Certification #: FL01264 South Carolina Certification: #96042001 Tennessee Certification #: TN02974 Texas Certification: FL NELAC Reciprocity

US Virgin Islands Certification: FL NELAC Reciprocity

Virginia Environmental Certification #: 460165

West Virginia Certification #: 9962C Wisconsin Certification #: 399079670

Wyoming (EPA Region 8): FL NELAC Reciprocity



## **SAMPLE SUMMARY**

Project: 0520219-EDK4 May 2019 resample

Pace Project No.: 35471878

Lab ID	Sample ID	Matrix	Date Collected	Date Received
35471878001	MW-2S	Water	05/29/19 16:40	05/31/19 11:25
35471878002	EQ BLANK #1	Water	05/29/19 14:13	05/31/19 11:25



## **SAMPLE ANALYTE COUNT**

Project: 0520219-EDK4 May 2019 resample

Pace Project No.: 35471878

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
35471878001	MW-2S	EPA 300.0	JDM	1	PASI-O
35471878002	EQ BLANK #1	EPA 300.0	JDM	1	PASI-O



## **ANALYTICAL RESULTS**

Project: 0520219-EDK4 May 2019 resample

Pace Project No.: 35471878

Date: 06/14/2019 04:36 PM

Sample: MW-2S	Lab ID:	35471878001	Collected	d: 05/29/19	9 16:40	Received: 05	/31/19 11:25 Ma	trix: Water	
Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytica	l Method:							
Field pH	6.80	Std. Units			1		05/29/19 16:40		
Field Temperature	23.8	deg C			1		05/29/19 16:40		
Field Specific Conductance	968	umhos/cm			1		05/29/19 16:40		
REDOX	-54.8	mV			1		05/29/19 16:40		
Turbidity	0.37	NTU			1		05/29/19 16:40		
300.0 IC Anions 28 Days	Analytica	Method: EPA 3	0.00						
Sulfate	191	mg/L	10.0	5.0	2		06/14/19 02:52	14808-79-8	

06/14/19 03:15 14808-79-8



## **ANALYTICAL RESULTS**

Project: 0520219-EDK4 May 2019 resample

Pace Project No.: 35471878

300.0 IC Anions 28 Days

Date: 06/14/2019 04:36 PM

Sulfate

Sample: EQ BLANK #1	Lab ID:	35471878002	Collecte	ed: 05/29/1	9 14:13	Received: 05	5/31/19 11:25 N	Matrix: Water	
Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual

5.0

2.5

Analytical Method: EPA 300.0

mg/L

2.5 U



### **QUALITY CONTROL DATA**

Project: 0520219-EDK4 May 2019 resample

Pace Project No.: 35471878

Date: 06/14/2019 04:36 PM

QC Batch: 545917 Analysis Method: EPA 300.0

QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions

Associated Lab Samples: 35471878001, 35471878002

METHOD BLANK: 2957876 Matrix: Water

Associated Lab Samples: 35471878001, 35471878002

Blank Reporting
Parameter Units Result Limit MDL Analyzed Qualifiers

Sulfate mg/L 2.5 U 5.0 2.5 06/13/19 17:09

LABORATORY CONTROL SAMPLE: 2957877

Spike LCS LCS % Rec Parameter Units Conc. Result % Rec Limits Qualifiers Sulfate mg/L 50 50.4 101 90-110

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2960966 2960967

MS MSD 35470274002 Spike Spike MS MSD MS MSD % Rec Max Parameter Units Result Conc. Conc. Result Result % Rec % Rec Limits **RPD** RPD Qual Sulfate 5.7 102 2 20 50 50 56.7 55.7 100 90-110 mg/L

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2960968 2960969

MS MSD 20105701001 MS MSD MS MSD Spike Spike % Rec Max Conc. **RPD** RPD Parameter Units Result Conc. Result Result % Rec % Rec Limits Qual Sulfate 7.7 50 50 57.9 58.7 100 102 90-110 20 mg/L

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.



### **QUALIFIERS**

Project: 0520219-EDK4 May 2019 resample

Pace Project No.: 35471878

### **DEFINITIONS**

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

**DUP - Sample Duplicate** 

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

## **LABORATORIES**

PASI-O Pace Analytical Services - Ormond Beach

## **ANALYTE QUALIFIERS**

Date: 06/14/2019 04:36 PM

U Compound was analyzed for but not detected.



## **QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: 0520219-EDK4 May 2019 resample

Pace Project No.: 35471878

Date: 06/14/2019 04:36 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
35471878001	MW-2S				
35471878001	MW-2S	EPA 300.0	545917		
35471878002	EQ BLANK #1	EPA 300.0	545917		

WO#: 35471878 Section Required Comparts Address Gaines Email: 

CHAIN-OF-CUSTODY / Analytical Request Document
The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

17-3 AC P Propertium: Control of the Proposition of	Proposition Contest and American Contest and American Characters and American	Size a Locality and the second of the second	Project Name: Occupied Name: Occupie	Requested Analysis Filtered (Y/N)	Regulatory Agency
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Her hardred Tolbert 5/20/9 1500 Lase Maris and 1100 meters of 1100	How they reflication Date time accepted by lafellation Date time sample conditions they have the sample conditions of the	Howthey Tether Sample Time Accepted by Affice Washington Date Time Sample Conditions  Howthey Tether 5/30/19 1500 Washingtone 3/28/19 1100  A Sampler name and signature Grand Washingtone Grand British Name of Sampler: Grand Washingtone Grampler: Grand Washingtone Gran			
Her Hartney 1016 4 5/20/19 1500 Stown Maniet 5/28/19 1100	Hartney Telbert 5/23/19 1600 Stone Mannick 5/28/19 1100 + Stone Massack 5/30/19 1500 (Lusa Musicues) MES-2019 1125 5.2 4 4	# State Means & 5/30/19 1500 Luca Maniet 5/28/19 1100  # State Means & 5/30/19 1500 Luca Mula Juez MEC 2019 1125 5.2 4 4  ## SAMPLER NAME AND SIGNATURE    PRINT Name of SAMPLER:	RELINQUÍSHED BY AFFILIATION DATE TIME	DATE	SAMPLE CONDITIONS
of Stairs Massack 5/30/19 1500 choon Rubigues (MES-30:19 1125 D.2 )	# Stoir Massick 5/30/19 1500 cluser Audrines MC5:30:19 1125 5.2 y y	# SAMPLER NAME AND SIGNATURE  SAMPLER NAME OF SAMPLER:	ty hartney telbert Sizilly (600 da	ck 5/28/19 110	
	A SAMPLER NAME AND SIGNATURE	SAMPLER NAME AND SIGNATURE PRINT Name of SAMPLER:	to freigh String Massack 5/30/19 1500 ch	PMES-30-19 1125	7
	SAMPLER NAME AND SIGNATURE	SAMPLER NAME AND SIGNATURE PRINT Name of SAMPLER: C. On C. On C. O.	in ples	- 0 0	-



Project Manager Review:

## Document Name: Sample Condition Upon Receipt Form Document No.: F-FL-C-007 rev. 13

Document Revised: May 30, 2018 Issuing Authority: Pace Florida Quality Office

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Date:

10# 25/171 O TO Receipt Form (SCUR)

WO#: 3547187	8
Project # PM: JSB Due Date:	Date and Initials of person:  Examining contents: 1.A.1
Project Manager: CLIENT: JONEDM	Label:
Client:	Deliver:
-12-0 6/	pH:
Thermometer Used: 1653 Date: 0/31	119 Time: 152 Initials: 12A
State of Origin; For WV	projects, all containers verified to ≤6 °C
Cooler #1 Temp. °C (Visual) (Correction Factor)	(Actual) Samples on ice, cooling process has begun
Cooler #2 Temp. °C(Visual)(Correction Factor)	(Actual) Samples on ice, cooling process has begun
Cooler #3 Temp.°C(Visual)(Correction Factor)	(Actual) Samples on ice, cooling process has begun
Cooler #4 Temp.°C(Visual)(Correction Factor)	(Actual) Samples on ice, cooling process has begun
Cooler #5 Temp.°C(Visual)(Correction Factor)	(Actual) Samples on ice, cooling process has begun
Cooler #6 Temp.°C(Visual)(Correction Factor)	(Actual) Samples on ice, cooling process has begun
Courier: Fed Ex UPS USPS Client C	ommorcial Dago Other
Courier: Fed Ex UPS USPS Client C Shipping Method: First Overnight Priority Overnight Standard	
☐ Other	d Overlight - Glound - Gilliternational Priority
Billing: ☐ Recipient ☐ Sender ☐ Third Party	☐ Credit Card ☐ Unknown
Tracking # 8137 8977 399	48
Custody Seal on Cooler/Box Present: Yes No Seals i	ntact: Yes No Ice: Wet Blue Dry None
	Other
Samples shorted to lab (If Yes, complete)  Shorted Date:	1/15/10
The state of the s	(Be
	Comments:
Chain of Custody Filled Out	
Samples Arrived within Hold Time	
Rush TAT requested on COC   Yes   You DIVA	
Sufficient Volume , In Indian	
Correct Containers Used	
Containers Intact	
Sample Labels match COC (sample IDs & date/time of	
collection)  All containers needing acid/base preservation have been	Preservation Information:
checked.  All Containers needing preservation are found to be in	Preservative:
compliance with EPA recommendation:	Lot #/Trace #: Time:
Exceptions: VOA, Coliform, TOC, O&G, Carbamates	Initials:
Headspace in VOA Vials? (>6mm): □Yes □ No ☑N/A	
Trip Blank Present: □Yes □ No →M/A	
Client Notification/ Resolution:  Person Contacted:	Date/Time:
Comments/ Resolution (use back for additional comments):	

# ATTACHMENT 4 FIELD DATA FORMS

## GROUNDWATER SAMPLING LOG

					***************************************											
SITE NAME Le	e County Res	ource Recove	ery Facilit	ty					SITE LOCATIO	N: Felda. I	Florida					
	: EQUBLK-1	<u> </u>		VELL WACS	NO:			SA	MPLE ID:	19M5LC-E	QB1	d. (2	DAT	E: 4,	1/29/1	9
L					<del></del>	PL	JRGIN	G	DATA	-197	754	6-KKD-EQ	67		754	
WELL	PANS	TUBING	1.1			CREEN LE			STATIC D				URGE		TYPE: mp (PP)	\$.
WELL VC	R (in): 2.**	DIAMETEI E: 1 WELL	VOLUME	E = (TOTAL	From WELL [	ft to DEPTH - 3	ft * STATIC D		TO WATE AW OT HT		WELI		CIISIAI	illo Fu	PURGE M	I ETHOD:
1 WELL	VOLUME =	( fe	eet –	feet)	X 0.16	gallons/foo	ot =	ga	allons	Water Le	vel Me	asured with: MPN	л-GNV-	01	2.3 2.4 FS2222	2.5 Private
EQUIPME	ENT VOLUME	PURGE: 11	EQUIPME	ENT VOL. =	PUMP \	/OLUME + (	TUBING (	CAP	ACITY	X TU	BING	LENGTH) + FLOV	V CELL	VOLU	ME	dolar management and a second
(Offig IIII O	ut ii applicable	:)		=		gallons + (	•	ç	gallons/foot	Χ		feet) +		gall	ons =	gallons
	UMP OR TUE			FINAL PUMP					JRGING ITIATED A	τ,		URGING INDED AT:			L VOLUME GED (gallons	
DEPIHIN	NWELL (feet):	CUMUL.		DEPTH IN W		pH				DISSOL			T		JED (gallons	
TIME	VOLUME PURGED (gallons)	VOLUME PURGED (gallons)	PUR RAT (gpr	TE WAT	ER	(standard units)	TEMP (°C)	·	COND. (μS/cm)	OXYG (mg/	EN	TURBIDITY (NTUs)		LOR cribe)	ODOR	ORP (mVolts)
83dowy.								_								
			The second second second			<del>- 27</del>	sick	/}			neine ja kana anda kana kana kana kana kana kan					
					Sent Company of the C		Part -	5					<u> </u>			
								$\dashv$			200					
								+						The Control of the Co		
		<u></u>			L	*****						L	L	************	1	
						SA	MPLIN	IG	DATA	i principalita de la compositiva de la					<del></del>	
	DBY (Print) / / ssick / Jones,			es Inc.		SAMPLER	1.	- Carr		. /	Z	SAMPLING II AT:			SAMPLING AT:	
		, 1	Α	Т		L 15.7	Tive!		L.	<del>4</del> 4	rubin		<u> 13 </u>	SAI	MPLING EQ	
	R TUBING I WELL (feet):	N/t		FLOW R	ATE O	VOC San ther Sample	npling Rate s Rate (m	e <4 L / n	100 ml/min min)://	[50 1	MATER	RIAL CODE: PE &	S	co	DE: APP	
FIELD DE	CONTAMINA	TION: Y	(N)	FIELD-FI		D: Y Nent Type:	) F	ILTE	ER ŚIZE: _	<u> </u>				DU	PLICATE:	$\sim$
		PLE CONTAI PECIFICATIO					PLE PRES	ER\	VATION		ekakakakakakakakakakakakakakakakakakaka		gy after the first to the second about the second			250000000000000000000000000000000000000
SAMPLE			ERIAL ODE	VOL		PRES. USED	TOTAL VOL ADDED IN FIELD	(mL)	FINAL	PH*		INTE	NDED	ANALY	/SIS	
19M5L	CARF 1		PE	250 mL		None	None		X	25		inn i mellekinen dirak ini siya melari ini dapa mellekin dari siya dari melari dalah dalah dalah dalah dalah d	Sulf	ate		aka karangi dindung di sisunda adalam dajid di dana karanjin di sisunda
							<del></del>									
nero mante e e e e e e e e e e e e e e e e e e											***************************************	ngini pengili pelangan dan semakan dan semana kedini pendikan dan dan dan dalah dalah dalah dalah dalah dalah				
reconnection and a service delates																
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REMARK						F-25										
<ul><li>Ver</li><li>** Screen</li><li>Sky Condi</li></ul>	ified Sample pened intervalitions:	H as <2 or > referenced is	12 (as ap depth be Ambier	oplicable) at_ elow Top of 0 nt Air Temper	Casing ature:	34°C	77-3									
					and the same of th	coache.										
Grundfos Bladder P Total Tubi	Settings: ump: CPM _ ng Length:	HZ Refill CO feet	Discharg	staltic Setting ge/_ ibing)	sec Pr	essure	PSI									
(	Commer	its:					· · · · · · · · · · · · · · · · · · ·						······································		<del>/////////////////////////////////////</del>	
									<del></del>		<del></del>	2 m. 1 m. 21		- Are		

New 14" tubing flush with Zeph. Dist. Water Lot#02/119042WF233 #245: Licene head tubing Lot # HO33J4T000/14" tubing Lot# BUIK2139 Tubing then used to purge and sample well WTE-25

## **GROUNDWATER SAMPLING LOG**

SITE	ee County R	esource Recov	ery Facility				SITE	N: Felda, Florida	mummaa milijandoone sad mil meemid aerennike an doo kaar oo sidaan			
	O: MW-25 (F	Resample)	i i	ELL WACS NO:		s		19M%LCRRF-2S		DATE:	5/20/	/Cz
L	WTE-	25-			PU	RGING	DATA				<del>- 1 / 2 1 / 1</del>	7
	PVC ER (in): 2" OLUME PUR	DIAMETE		Unkr	L SCREEN LEN nown ft **	IGTH:	STATIC D	EPTH R (feet): >.	16 F		IMP TYPE: Pump (PP) PURGE M	ETHOD:
									Measured with: MI LENGTH) + FLOV			2.5 Private
	out if applicat	le)	I/A	=	gallons + (		gallons/foot		feet) +		gallons =	gallons
1	PUMP OR TU N WELL (fee	and the same of		NAL PUMP OR EPTH IN WELL	and the second	P	URGING NITIATED AT		URGING INDED AT:/63		OTAL VOLUME URGED (gallons	
TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME	PURGI RATE (gpm)	WATER	pH (standard units)	TEMP.	COND. (µS/cm)	DISSOLVED OXYGEN (mg/L)	TURBIDITY (NTUs)	COLO (describ	RODOR	ORP (mVolts)
1631	0.8	0.8	0.10		6.82	23.9	970	0-93	0.46	Clean	e Nana	-43.5
1635	0.4	1.2	200	7.16	6.80	23.8	969	0.74	0.33	1	1	-45.5
1639	0.4	1.6	Y	7.16	6.80	23.8	968	0.71	0.37	业	业	-54.8
	-											
					CAI	MOLINIC	· DATA			Models 4444-0004-0004-00-00-004		
SAMPLE	D BY (Print)	AFFILIATION				(S) SIGNAT	DATA URES:		SAMPLING II	NITIATED	SAMPLING	ENDED
Steve Me	ssick / Jones	, Edmunds & A	ssociates	Inc.	_3	tire	-2Me	wit	AT: 16	40	AT: 169	2/
	R TUBING N WELL (feet	): 8		SAMPLE PUN	MP VOC Sam Other Samples	pling Rate <	400 ml/min min):	TUBIN	G RIAL CODE: <b>PE8</b>	s	SAMPLING EQ CODE: <b>APP</b>	UIPMENT
FIELD DI	ECONTAMIN		(N)	FIELD-FILTER	RED: Y N	) FILT	TER SIZE:	μ <b>m</b>			DUPLICATE:	$\bigcirc$
		MPLE CONTAI SPECIFICATIO				LE PRESEF	RVATION					
SAMPL			ERIAL ODE	VOL	PRES. USED ^	TOTAL VOL DDED IN FIELD (mL	nL) FINAL PH* INTENDED ANALYSIS					
19M5L0		1   1	PE	250 mL	None	None	N/A	\		Sulfate	)	
												rakka karakan manan maninishi mahandayida yang ujuga da a
REMARK	S: /	/		1 1100-	- from the		<u> </u>	1/4				
	rified Sample	nH 20 02 05 27	12 (as annli	rahla) at $U$	TE-25	~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	37 +	acility	1			
** Scr Sky Cond Approx. V	eened interval itions: <u>Sco</u> Vind Speed a	al referenced is	depth belo	ow Top of Casin Air Temperature		,						
Grundfos Bladder P	Settings: ump: CPM _	HZ.	Perista Discharge	altic Setting:sec	Fressure							
L	Comme	nts:										
	2 %	\$		_ /	C 0 =	15	L				***************************************	
	This is a resample for sulfate only I measured total well depth after collecting the											
2	- me	asura	d t	als l	well .	dept	il of	ter c=	Medi	73	F42	200

Jones Edmunds -- Revision Dec 2012

## DEP-SOP-001/01

Page	1	of	1

FT 1500 Field Measurement of Dissolved Oxygen (D.O.)

SITE NAME <u>Lee/He</u> INSTRUMENT (MAKE/	MODEL#) <u>YSI 556</u>		DATE <u>5/29/19</u> INSTRUMENT # <u>YSI - GNV - 03</u>				
PARAMETER: [check	only one]						
☐ TEMPERATURE	CONDUCTIVITY	SALINITY	□pH □ ORP				
TURBIDITY	RESIDUAL CI	X DO	OTHER				
STANDARDS: [Specify to values, and the date the stan	he type(s) of standards use dards were prepared or pu	ed for calibration, the orchased]	origin of the standards, the standard				
Standard A <u>Mois</u>	t Air Chamber						
Zero D.O. Calibration	n Check Date <u>04/03</u>	<u>8/19</u> Referen	ice Meter Book Steve- 01	******			
(Zero D. O. checked	quarterly) Zero Ovusa	on Caladian Otali					

	ı	OTE	quarterry	) Zero Ox	ygen Solution		# UV1 Exp. [	<u> Date: 06,</u>	<u>/2019</u>
DATE (yy/mm/dd)	TIME (hr:min)	(A, B,	STD VALUE (mg/L)	Temper- ature (Deg C)	INSTRUMENT RESPONSE (mg/L)	(+/- 0.3 mg/L) <b>DEV</b>	CALIBRATED (YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS
17/05/29	0835	- A	7.94	27.2 26.4	7.70/7.94	0,00	Yes	Init.	Sm
4	1656		7.48	30.6	7.60	0.12	Yes	Cont.	Sm
19/05/30	0805	1 .	8.54	23.2	8.43/8.54	Ø	Yes	Init.	Serre
<u> </u>	1055	I A	7.85	27.8	7.88	0.3	Yes	Cont.	Sm
	***************************************								
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		94-9 WWW.				~			
	***************************************								
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## DEP-SOP-001/01

Page \_\_\_\_ of \_\_\_\_

FT 1100 Field Measurement of Hydrogen Ion Activity (pH)

SITE NA	AME L	reflend	ey RSL	いを		DATE	5/29/19	Delayelishir delimbassa suusuy				
				YSI 556 MPS	<u>s</u> in	STRUMENT	# <u>YSI-G</u>	NV - 03				
Instrum	ent Gai	n <u>-5.2-7</u>	Date De	etermined <u>5/2</u>	9/19 (Ac	ceptable Gair	n = Accepta	ble Slope)				
				e) (Check Ir								
PARAM	ETER:	[check on	ly one]									
ПТЕ	☐ TEMPERATURE ☐ CONDUCTIVITY ☐ SALINITY X pH ☐ ORP											
☐ TU	☐ TURBIDITY ☐ RESIDUAL CI ☐ DO ☐ OTHER											
STANDA values, an	STANDARDS: [Specify the type(s) of standards used for calibration, the origin of the standards, the standard alues, and the date the standards were prepared or purchased]											
Stan	dard A _	7.00 SL	Lot#	CC559745 E	xpiration [	Date 05/14	/20					
Stand	dard B _	4.01 SU	Lot#	WW! E	xpiration [	Date つり/2	020					
				CC552792 E	xpiration [	Date 04/05	/20					
Stand	dard D _	6.86 SU	<del></del>		xpiration [	Date 10/25	019					
DATE (yy/mm/dd)	TIME (hr:min)	STD (A, B, C)	STD VALUE (SU)	INSTRUMENT RESPONSE (SU)	(+/- 0.2 SU) DEV	CALIBRATED (YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS				
9/05/29	0844	A	7.00	6.99/7.00	Ø	Y05	Init.	fsm				
	0846	B	4.01	4.01	Ø	Yes	エハナ.	Sm				
	0847	C	10.00	10.06/10.01	Ø	Yes	Init.	Sm				
	0850	<u>D</u>	6.86	6.83	0.03	Yes	Init.	Spm				
	1658	<u> </u>	7.00	6.78	0.02	Yes	Cont.	Sm				
	1621	B	4.01	4.00	0.01	Ye5	Cont.	\$mm				
<u> </u>	1701	<u> </u>	10.00	/0.03	0.03	Yes	Cont.	Sm				
9(05/30	0807	<u> </u>	7.00	7.04	0.04	Yes	Int.	8m				
	8086	β	4.01	4.07	0.06	Ye5	Int.	Som				
	0809	<u> </u>	10.00	10.01	0.01	Yes	Int.	fm				
	1057	A	7.00	7.05	0.05	Y25	Cont.	from				
	1058	ß	4.01	4.05	0.04	Ye5	Cont.	Sim				
7	1100		10-00	7.78	0.02	Y05	Cont.	Sm				
			***************************************									
			delibertalese essentiales es constitución de la con									
1		1	1	1	l l	1						

## DEP-SOP-001/01 FT 2100 Oxidation – Reduction Potential (ORP)

Page		of	_/_
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	1 2-			1 1				
SITE NAME Lee/He	indry RSWF	DA	ATE <u>5</u>	129/19				
INSTRUMENT (MAKE/	MODEL#) <u>YSI 556 MP</u> :							
PARAMETER: [check of	only one]							
☐ TEMPERATURE	CONDUCTIVITY	☐ SALINITY	□pH	<b>X</b> ORP				
TURBIDITY	RESIDUAL CI	□ DO	OTHER					
<b>STANDARDS:</b> [Specify the values, and the date the standard the standa	STANDARDS: [Specify the type(s) of standards used for calibration, the origin of the standards, the standard values, and the date the standards were prepared or purchased]							
Standard A Zobel	I's Solution Mixed Sta	andard Expiration	on Date	07/05/19				
Stock	Solution Lot # 18L10	00623 Expiration	n Date 12					

DATE (yy/mm/dd)	TIME (hr:min)	STD (A, B, C)	STD VALUE (mV)	Temper- ature (Deg C)	INSTRUMENT RESPONSE (mV)	(+/- 10 mV) DEV	CALIBRATED (YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS
19/05/29	0852	2 A	226.4	26.2	225.6/226.4	8	Y25	Init.	/m
<u> </u>	1703	A	224.9	27.4	224.3	0.6	Yes	Cont.	Som
19/05/30	0810	A	224.1	28.0	222.6/224.1	1	Yes	Init.	Sm
*	1102	A	224.4	27.8	223.9	0.5	Yes	Cont.	Sm
		· · · · · · · · · · · · · · · · · · ·						***************************************	
							n the control of the substitutes are supposed and proportional of the first and what will be desired as executing a		
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## DEP-SOP-001/01 FT 1200 Field Measurement of Specific Conductance

Page \_\_\_\_ of \_\_\_\_

## Form FD 9000-8: FIELD INSTRUMENT CALIBRATION RECORDS

SITE NAME Lee/Hendry	RSWF	DATE 5/29/19							
INSTRUMENT (MAKE/MODEL		INSTRUMENT # YSI - GNV - 03							
PARAMETER: [check only one	]								
TEMPERATURE X COM	NDUCTIVITY SALIN	ITY ph Orp							
☐ TURBIDITY ☐ RES	IDUAL CI 🔲 DO	OTHER							
STANDARDS: [Specify the type(s) values, and the date the standards were	TANDARDS: [Specify the type(s) of standards used for calibration, the origin of the standards, the standard alues, and the date the standards were prepared or purchased]								
Standard A <u>1413 uS/cm</u>	Lot# 05/7803	Expiration Date 10/30/19							
Standard B 447 uS/cm	Lot# CC17346	Expiration Date 36/22/19							
Standard C 84 uS/cm	Lot# CC17607	Expiration Date 08/24/19							
Standard D 8974 uS/cm	Lot# VUI	Expiration Date 06/2019							

Otal	idaid D_	51/7 US	/cm Lot	# VUI	<u></u> <u> </u>	<u>iration Date</u>	06/2019	7
DATE (yy/mm/dd)	TIME (hr:min)	STD (A, B, C)	STD VALUE (uS/cm)	INSTRUMENT RESPONSE (uS/cm)	(+/- 5%) DEV	CALIBRATE D (YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS
19/05/29	0855	A	1413	1406/1413	Ø	Yes	Init.	Sm
	0857	B	447	438	< 1/2	Yes	Init.	Sm
	0859	<u>C</u>	84	84	Ø	Yes	Init.	Sm
	0900	<u>D</u>	8,974	8941	< 1	Yes	Init.	Sum
	0902	E	80,000	79900	< 1	Yes	Juit.	fm
	1705	C	84	85	<2	yes .	Cont.	Sm
	1706	B	447	439	<# 2	Ye5	Cont.	Smy
<u> </u>	1708	<u> </u>	1413	1411	< 1	Yes	cont.	Sim
19/05/30	0813	A	1413	1417	۲۱	Ye5	Init.	Sm
	0814	В	447	439	<2	Yes	Init.	Sm
	0815	<u> </u>	84	84	Ø	Yes	Init.	Sm
	0816	D	8974	8945	< 1	Yes	Init.	Sm
	0317	E	80,000	79668	</td <td>Yes</td> <td>Init.</td> <td>Sim</td>	Yes	Init.	Sim
	1103	<i>C</i>	84	84	0	Yes	Cont.	Sm
	1154	$\mathcal{B}$	447	439	<2	Y0.5	Cont.	Sm
	1105	_A	1413	1410	۲ ا	Yes	Cont.	Sm
	1107	D	8974	8940	< 1	Yes	Cont.	grm
<u>¥</u>	1109	E	80,000	79720	</td <td>Ya5</td> <td>Cont.</td> <td>Sm</td>	Ya5	Cont.	Sm
								TTT FOR CONTROL OF CON

Standard E 80,000 NS/cm Lot# VVI Exp. Date: 06/2019

## DEP-SOP-001/01 FT 1600 Field Measurement of Turbidity

Page		of		
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SITE NAME Lee/H	endry RS4	リギ		DATE	5/29/19
INSTRUMENT (MAKE	/MODEL#) <u> </u>	lach 210	00P INSTR		TB-GNV- 01
Instrument Calibratio	n Date: <u>04/03/</u>	19 <b>Re</b>	ference Meter B		
PARAMETER: [check	only one]				Andrews (1994)
☐ TEMPERATURE	☐ CONDUCT	IVITY	SALINITY	□рН	ORP
X TURBIDITY	RESIDUAL	CI	□ DO	OTHER	
STANDARDS: [Specify ralues, and the date the star	the type(s) of stan ndards were prepa	dards used red or purd	d for calibration, the c chased]		
Standard AGel :	Standard 3.6	1 NTU			
Standard B <u>Gel S</u>	Standard 41.8	5 NTU			
Standard CGel S	Standard 435	NTU			
Standard D BB					

Starr	Standard Dwieasurement Cell + Distilled Water <0.25NTU							
DATE (yy/mm/dd)	TIME (hr:min)	STD (A, B, C)	STD VALUE (NTU)	INSTRUMENT RESPONSE (NTU)	(+/- 6.5%) DEV	CALIBRATED (YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS
19/05/29	0905	A	3.61	3.65	<2	yes	Init.	Som
	0906	B	41.5	41.1	<	Yes	Init.	Am
	2006	<u> </u>	435	430	< 2	Yes	Init.	Sm
	0907	)	-0.25	0.19	***************************************	(Signification)	Init.	Sm
	1710	A	3.61	3.63	×1	Yes	Cont.	Sim
	1710	В	41.5	41.4	7/	Yes	Cont.	8mm
V .	17:1	D	50.25	0.20	Management.	4-manufacture and a second and a	Cont.	Sm
19/05/30		A	3.6(	3.59	<	Yes	Init.	Sim
	0819	B	41.5	41.1	<1	Yes	Init.	frm
	0820	a	≤0.25	0.19	w <sub>e</sub> gaganteen ten		Init.	Sm
	0820	<u> </u>	435	434	<1	Yes	Init.	fm
	1111	Ä	3.61	3,63	71	Yes	Cont.	Sm
	////	B	41.5	41.3	5)	yes	Cont.	Sm
	1112	С	435	432	7/	Yes	Cont.	Sm
	1112	D	50.25	0.22			Cont.	Sm
						anti-la maiora managaman ang ang ang ang ang ang ang ang ang a		
				***************************************				

## DEP-SOP-001/01 FT 1400 Field Measurement of Temperature

Page1_	of	1
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# Form FD 9000-8: FIELD INSTRUMENT CALIBRATION RECORDS

SITE NAME In Hou	ise Comparison		<b>DATE</b> <u>04/03/19</u>		
INSTRUMENT (MAKE/N PARAMETER: [check o		SI - GNV - 03			
X TEMPERATURE  ☐ TURBIDITY	☐ CONDUCTIVITY ☐ RESIDUAL CI	☐ SALINITY	□ pH		
STANDARDS: [Specify the type(s) of standards used for calibration, the origin of the standards, the standard values, and the date the standards were prepared or purchased]					
Standard A NIST The	ermometer 10.0 °C	#94748 Cal	Date: 10/	22/18	
Standard B NIST The	rmometer 25.0 °C	#94748 Exp	o. Date: 10	)/22/19	

Standard C NIST Thermometer 40.0 °C

	T	TOT THEFT						
DATE (yy/mm/dd)	TIME (hr:min)	<b>STD</b> (A, B, C)	STD VALUE (°C)	INSTRUMENT RESPONSE (°C)	(+/- 0.5°C) DEV	CALIBRATED (YES, NO)	TYPE (INIT, CONT)	CALIBRATOR INITIALS
19/04/03	1510	А	10.0	9.95	<0.1	Yes	Init	SMM
19/04/03	1525	В	25.0	24.8	0.2	Yes	Init	SMM
19/04/03	1540	С	40.0	40.1	<0.1	Yes	Init	SMM
				Danakan Bergeran da da ing da kanakan da da kanakan da da kanakan da da kanakan da d				
		dedicine in the second						
					nderd annabasen nyaputarrasahii isanda mannabilisah da diseru sasa sasa			
- Commence of the Commence of								
		***************************************						

## REFERENCE FACTORS FOR FIELD SAMPLING DATA SHEETS

WELL CAPACITY (Gallons / 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 (Gallons / Foot): 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

MATERIAL CODES:

AG = Amber Glass; CG = Clear Glass; PE = Polyethylene;

PP = Polypropylene; S = Silicone; T = Teflon; O = Other

**PURGING EQUIPMENT CODES** 

B = Bailer

BP = Bladder Pump

**ESP** = Electric Submersible Pump

**PP** = Peristaltic Pump

**SAMPLING EQUIPMENT CODES:** APP = After Peristaltid Pump

**RFPP** = Reverse Flow

Peristaltic Pump O = Other (Specify)

SM = Straw Method (Tubing

Gravity Drain)

VT = Vacuum Trap

## STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

pH:  $\pm$  0.2 units

Temperature: ± 0.2 °C

Specific Conductance: ±5%

Dissolved Oxygen: all readings  $\leq 20\%$  saturation (see Table FS 2200-2)

optionally,  $\pm\,0.2$  mg/L or  $\pm\,10\,\%$  (whichever is greater)

Turbidity: all readings ≤ 20 NTU

optionally  $\pm$  5 NTU or  $\pm$  10% (whichever is greater)

gal/min	= ml/min	gal/min ==	ml/min	gal/min =	ml/min
0.026	100	0.211	800	0.396	1500
0.053	200	0.238	900	0.423	1600
0.079	300	0.264	1000	0.449	1700
0.106	400	0.291	1100	0.476	1800
0.132	500	0.317	1200	0.502	1900
0.159	600	0.343	1300	0.528	2000
0.185	700	0.370	1400	0.0220	2000

<sup>\\</sup>gnvmain\ENVSERV\EnvDocs\\_\_FIELD SAMPLING FORMS\Field Sampling Forms\References\09-2013\_Field Sampling Ref Factors.doc

## GENERAL SAMPLING NOTES AND CONVENTIONS

- 1. All sampling was performed according to the FDEP Standard Operating Procedures as listed in DEP-SOP-001/01 (Field Procedures) dated March 31, 2008 (Effective 12/3/08).
- $2.\,$  Field cleaning and decontamination has been done in accordance with DEP-SOP-001/01 (Field Procedures), FC-1000.
- 3. Tubing and filter cartridge lot numbers for all sampling points and wells are the same as those listed for that tubing type on the Equipment Blank data form(s) covering that equipment system.
- 4. Tubing suppliers/manufacturers are named in the following list:

•	HDPE disposable tubing	US Plastics
9	Tygon tubing	Cole Parmer
0	Norprene tubing	Cole Parmer
9	Silicon tubing	Cole Parmer

- 5. Field instrument calibrations were conducted in accordance with DEP-SOP-001/01 (Field Procedures), FT1000.
- 6. Calibration solution and gas suppliers are named in the following list:

9	pH calibration solutions	Cole Parmer/Oakton
0	Conductivity calibration solutions	Cole Parmer/Oakton
•	Dissolved Oxygen probe membranes	YSI
•	ORP calibration solutions	YSI
0	Turbidity calibration solutions/gel standards	Hach
9	TVA calibration gas cylinders	Airgas
8	Eagle RKI calibration gas cylinders	Airgas

- 7. All samples collected were grab samples.
- 8. All sample containers requiring added preservative were supplied pre-preserved from the laboratory. No additional preservative was added in the field.
- 9. A combination of a front-bumper-mounted gasoline generator and an electric air compressor or compressed nitrogen is used to power the Grundfos electric submersible pump and bladder pump systems, as appropriate.
- 10. Screened intervals are assumed to be at the bottom of all monitoring wells sampled unless otherwise noted.
- 11. Well purge method indications on the field data sheets correspond to DEP-SOP-001/01 (Field Procedures), FS2000 sections as indicated below:

Data Sheet Designation	SOP Designation
2.3	FS 2212.2.3
2.4	FS 2212.2.4
2.5	FS 2212.2.5
2222 or 3.7.1	FS 2222 or 2212.3.7.1
Private	FS 2215.1 & 2215.2 (Jones Edmunds SOP for private
	well sampling)
	1 0/

wen sampling)
Comments or Exceptions

# ATTACHMENT 5 SULFATE TREND GRAPH

# Lee County Resource Recovery Facility Historic Sulfate in MW-2S

