FLORIDA DEPARTMENT OF
Environmental Protection

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

Ron DeSantis
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Lt. Governor

Noah Valenstein
Secretary

Memorandum

TO: Brad Hartshorn, Environmental Administrator, DEP NW District Office
FROM: Jeff Newton, Professional Geologist II, Site Investigation Section
SUBJECT: April 16, 2019 Ground Water and Surface Water Sampling Event, Rolling Hills C&D Facility
DATE: April 30, 2019

On April 16, 2019 the DEP Site Investigation Section (SIS) returned to the Rolling Hills C&D Facility to resample the seven monitor wells (MW) and one recovery well (RW) previously sampled on March 1, 2019. In addition, SIS collected three surface water samples from an adjacent unnamed creek located east of the facility. These three surface water sampling locations were designated Control, Surface Water Site and Down Gradient. SIS used both peristaltic pumps and submersible pumps to purge and sample the wells while a peristaltic pump was used to collect the surface water samples. Ground water purging and sample collection from the monitor wells was performed in accordance with standard operating procedures presented in DEP-SOP-001/01 FS 2200 and FQ1000. Measured ground water parameters including temperature, specific conductivity, pH, dissolved oxygen, oxidation-reduction potential and turbidity were collected using calibrated YSI water quality sensors with flow cells during this sampling event. Ground water samples were collected, recorded on a chain of custody and placed on ice. Both surface water and ground water samples were then

submitted to the DEP Central Laboratory for the analyses of mercury by EPA Method 1631E. This analysis provided for a lower detection limit than the EPA Method 7473 analyses used for the previous sampling event (0.1 ng/L versus 100 ng/L). **Table 1** provides the final ground water parameter readings recording from the ground water sampling logs for both sampling events while **Table 2** provides the April 16, 2019 analytical results compared to the appropriate Groundwater Cleanup Target Level (GCTL) or Freshwater Surface Water Cleanup Target Level (FWSWCTL) for mercury as provided in DEP Chapter 62-777.

A review of **Table 2** indicates that no exceedances of the Florida Primary Drinking Standard (FPDWS) for mercury of 2 µg/L (2,000 ng/L) were noted in any of the monitor or recovery wells. Mercury concentrations in the wells ranged from 0.51 to 16.2 ng/L. Additionally, none of the surface water samples exceeded the 12 ng/L FWSWCTL for mercury. Mercury concentrations in the surface water samples ranged from 0.88 to 2.2 ng/L. **Figure 1** provides the locations of all monitor and recovery wells along with the surface water sampling points.

Figure 1: Low Level Mercury Sampling Locations
Rolling Hills C&D Recycling Center
6990 Rolling Hills Road
Pensacola, Escambia County, Florida

N

250 Feet

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

Table 1: Summary of Ground Water Parameters and Ground Water Elevations
Former Rolling Hills Construction and Demolition Debris Facility
Escambia County, Florida

Well ID	Sample Date	Gallons Purged	Temperature (°C)	Specific Cond. (µmhos/cm)	Dissolved Oxygen (%/ mg/L)	pH (Standard Units)	Turbidity (NTUs)	ORP (millivolts)
MW-1R	3/1/2019	21.6	24.6	26.3	95.8/7.98	4.77	22.7	358
	4/16/2019	7	24.6	24.3	100/8.36	5.23	0.86	244
MW-2	3/1/2019	9	19.6	294	1.5/0.13	6.35	1.8	-109
	4/16/2019	3.15	20	329.5	0/0	6.37	2.5	-129
MW-4	3/1/2019	15	26.3	493	2.71/0.22	5.7	6.5	-32
	4/16/2019	5.21	26.6	679	5.7/0.45	6.41	10.7	-84
MW-5R	3/1/2019	9.56	26.2	1596	2.6/0.21	6.54	12.0	-104.7
	4/16/2019	19.2	23.7	1756	1.6/0.13	7.24	14.6	-109
MW-6	3/1/2019	6.16	25.4	1263	2.7/0.22	6.10	5.49	-69.9
	4/16/2019	8.2	25.5	790	3.1/0.25	7.47	0.35	-73.5
MW-7R	3/1/2019	12	18.5	355	0/0	4.90	3.93	153
	4/16/2019	15.5	18.8	277	3.0/0.28	5.04	2.97	99.4
MW-8	3/1/2019	16	21.7	181	5.7/0.50	4.99	5.04	189
	4/16/2019	16	21.7	165.9	0.4/0.03	4.89	2.24	184
RW-3	3/1/2019	22.8	21.7	1432	0/0	6.52	29.0	-111
	4/16/2019	23	23.3	1995	0/0	6.48	3.46	-98.3

Table 1: Summary of Ground Water Parameters and Ground Water Elevations
Former Rolling Hills Construction and Demolition Debris Facility
Escambia County, Florida

Well ID	Sample Date	TOC Elevation (NGVD)	Depth to Water	Ground Water Elevations
MW-1R	3/1/2019	110.12	35.00	75.12
	4/16/2019		35.94	74.18
MW-2	3/1/2019	69.33	5.98	63.35
	4/16/2019		8.95	60.38
MW-4	3/1/2019	104.71	35.25	69.46
	4/16/2019		35.37	69.34
MW-5R	3/1/2019	89.22	22.79	66.43
	4/16/2019		23.32	65.9
MW-6	3/1/2019	81.94	12.38	69.56
	4/16/2019		12.85	69.09
MW-7R	3/1/2019	71.83	10.28	61.55
	4/16/2019		11.44	60.39
MW-8	3/1/2019	72.34	17.42	54.92
	4/16/2019		18.15	54.19
RW-3	3/1/2019	NA	12.61	
	4/16/2019		13.05	

Table 2: Summary of Ground Water and Surface Water Results
Former Rolling Hills Construction and Demolition Debris Facility
Escambia County, Florida

Sample ID	Sample Date	Mercury GCTL 2,000 ng/L	Mercury FWSWCTL 12 ng/L
MW-1R	4/16/2019	0.51	
MW-2	4/16/2019	3.04	
MW-4	4/16/2019	7.31	
MW-5R	4/16/2019	13.2	
MW-6	4/16/2019	6.2	
MW-7R	4/16/2019	1.52	
MW-8	4/16/2019	16.2	
RW-3	4/16/2019	8.17	
RW-3 (Dup)	4/16/2019	8.16	
Control	4/16/2019		2.2
Surface Water Site	4/16/2019		1.37
Down Gradient	4/16/2019		0.88

Chemical Analysis Report

SIS-2019-04-17-01

Florida Department of Environmental Protection
Central Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

Event Description: **Rolling Hills C&D**
Request ID: **RQ-2019-04-15-52**
Customer: **SIS**
Project ID: **SIS-INVEST**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Road
Twin Towers Bldg. MS# 4515
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Attn: David Phillips

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Certified by: Colin Wright, Program Administrator

Date Certified: 25-APR-2019 14:25

Case Narrative

Unless otherwise noted, all samples included in this report were received in accordance with protocols referenced in Chapter 62-160, Florida Administrative Code (F.A.C.). Results published in this report pertain only to the samples as submitted to, and received by the laboratory. All times in this report are adjusted to the applicable Eastern Time Zone (EST or EDT).

Results for the following analytical group are included in this report: Metals.

Scientific notation may be used in reporting very large or small values. Values reported using scientific notation will take the form of the following example: 1.3E+03, which is equivalent to 1.3×10^3 or 1300.

Unless otherwise noted, analytical values for soil and sediment samples are reported on a dry weight basis, and analytical values for waste and tissue samples are reported on a wet weight basis.

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited by the Florida Department of Health Environmental Laboratory Certification Program or where accreditation for that field of testing is not applicable.

Any significant anomalies or deviations from established protocols are documented in Non-Conformance Reports, which, where appropriate, are included within this analytical report. Additional comments related to specific analytical tests may be included as remarks following the analytical results for each sample. Such comments and remarks are for informational purposes only and are not intended to convey judgement about the usability of the reported data.

A quality control report on the performance of the test method for the submitted samples is included. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published quality control acceptance limits for each analytical test. Matrix quality control results (matrix spike recoveries and matrix sample precision) pertain only to the matrix sample tested and do not necessarily reflect test method performance for other samples.

Typical matrix quality control (QC) measurements may include matrix spike recovery, matrix spike duplicate recovery, matrix spike precision and matrix sample precision. Not all matrix QC results may be available or reportable; where they are not an explanation is provided. Typical reasons for unavailable QC results include, but are not limited to, a) insufficient matrix sample to perform some or all QC measurements; b) analyte concentration in the sample replicated was too low for a meaningful measurement of precision and c) analyte concentration in the matrix sample spiked was too high (relative to the amount of analyte spiked) for a meaningful measurement of recovery. Where matrix QC results are unavailable, other method performance metrics (e.g., LCS recovery, LCS precision, surrogate recovery) may be used to assess performance of the method. Comments explaining any missing QC measurements are not intended to convey any adverse conclusions about the quality of the reported data.

Precision is reported as relative percent difference unless otherwise noted.

Quality Control codes as defined below may be used in this report to indicate results that are associated with one or more quality control elements which did not fall within established test method criteria. Such results may be qualified as estimates using a J qualifier as required by 62-160 F.A.C. Explanations are included in the report for any results that were reported as estimates for other reasons.

QC Codes used in this report may include:

LCS – Recovery for the batch Laboratory Control Sample (LCS) was outside existing control limits;
MS – Recovery for the batch matrix spike (MS) was outside existing control limits;
CCV – Recovery for a continuing calibration verification (CCV) standard was outside existing control limits;
SUR – Recovery of a surrogate (SUR) for associated analytes was outside existing control limits;
RPD – The precision, measured as relative percent difference (RPD), of batch replicate measurements was outside existing control limits;
RSD – The precision, measured as relative standard deviation (RSD), of batch replicate measurements was outside existing control limits;
SMP – Sample - used precision derived from replicate analyses of a sample;

The following data qualifiers are used, where applicable, in this report as specified in 62-160 F.A.C.

A - Value reported is the mean of two or more determinations.
B - Results based on colony counts outside the acceptable range.
I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
J - Estimated value and/or the analysis did not meet established quality control criteria.
K - Actual value is known to be less than value given.
L - Actual value is known to be greater than value given.
N - Presumptive evidence of presence of material.
O - Sampled, but analysis lost or not performed.
Q - Sample held beyond normal holding time.
T - Value reported is less than the criterion of detection.
U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
V - Analyte was detected in both sample and method blank.
X - Too few individuals to calculate SCI value.
Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
Z - Colonies were too numerous to count (TNTC).

Quality control information from overflow laboratories may not be included in this report. Please refer to the associated report from the overflow laboratory for additional information.

Sample Location: ROLLING HILLS C&D FACILITY **Collection Date/Time: 04/16/2019 12:10**

Field ID: MW-7R Matrix: W-GROUND

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2078868	EPA 1631E	Mercury	1.52		ng/L	P362610	

Ref. Method and Comment:
EPA 1631E: Batch matrix spike recoveries are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

Sample Location: ROLLING HILLS C&D FACILITY **Collection Date/Time: 04/16/2019 13:40**

Field ID: MW-8 Matrix: W-GROUND

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2078869	EPA 1631E	Mercury	16.2		ng/L	P362610	

Ref. Method and Comment:
EPA 1631E: Batch matrix spike recoveries are unavailable for one of two spiked samples because of high analyte concentration in the QC sample. The result was confirmed on 04/24/2019.

Sample Location: ROLLING HILLS C&D FACILITY **Collection Date/Time: 04/16/2019 14:20**

Field ID: MW-2 Matrix: W-GROUND

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2078870	EPA 1631E	Mercury	3.04		ng/L	P362610	

Ref. Method and Comment:
EPA 1631E: Batch matrix spike recoveries are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

Sample Location: ROLLING HILLS C&D FACILITY **Collection Date/Time: 04/16/2019 15:05**

Field ID: RW-3 Matrix: W-GROUND

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2078871	EPA 1631E	Mercury	8.17		ng/L	P362610	

Ref. Method and Comment:
EPA 1631E: Batch matrix spike recoveries are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

Sample Location: ROLLING HILLS C&D FACILITY **Collection Date/Time: 04/16/2019 15:05**

Field ID: RW-3 DUP Matrix: W-GROUND

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2078872	EPA 1631E	Mercury	8.16		ng/L	P362610	

Ref. Method and Comment:
EPA 1631E: Batch matrix spike recoveries are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

Sample Location: ROLLING HILLS C&D FACILITY **Collection Date/Time: 04/16/2019 12:50**

Field ID: CONTROL Matrix: W-GROUND

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2078873	EPA 1631E	Mercury	2.20		ng/L	P362610	

Ref. Method and Comment:
EPA 1631E: Batch matrix spike recoveries are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

Sample Location: ROLLING HILLS C&D FACILITY **Collection Date/Time: 04/16/2019 12:25**

Field ID: SURFACE WATER SITE Matrix: W-GROUND

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2078874	EPA 1631E	Mercury	1.37		ng/L	P362610	

Ref. Method and Comment:
EPA 1631E: Batch matrix spike recoveries are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

Sample Location: ROLLING HILLS C&D FACILITY **Collection Date/Time: 04/16/2019 11:55**

Field ID: DOWN GRADIENT Matrix: W-GROUND

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2078875	EPA 1631E	Mercury	0.88		ng/L	P362610	

Ref. Method and Comment:
EPA 1631E: Batch matrix spike recoveries are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

Sample Location: ROLLING HILLS C&D FACILITY **Collection Date/Time: 04/16/2019 12:14**

Field ID: MW-1R Matrix: W-GROUND

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2078876	EPA 1631E	Mercury	0.51		ng/L	P362610	

Ref. Method and Comment:
EPA 1631E: Batch matrix spike recoveries are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

Sample Location: ROLLING HILLS C&D FACILITY **Collection Date/Time: 04/16/2019 12:19**

Field ID: MW-4 Matrix: W-GROUND

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2078877	EPA 1631E	Mercury	7.31		ng/L	P362610	

Ref. Method and Comment:
EPA 1631E: Batch matrix spike recoveries are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

Sample Location: ROLLING HILLS C&D FACILITY **Collection Date/Time: 04/16/2019 14:24**

Field ID: MW-5R Matrix: W-GROUND

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2078878	EPA 1631E	Mercury	13.2		ng/L	P362610	

Ref. Method and Comment:
EPA 1631E: Batch matrix spike recoveries are unavailable for one of two spiked samples because of high analyte concentration in the QC sample. The result was confirmed on 04/24/2019.

Sample Location: ROLLING HILLS C&D FACILITY **Collection Date/Time: 04/16/2019 15:00**

Field ID: SUB PUMP EB Matrix: W-EQPMT-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2078879	EPA 1631E	Mercury	0.10	U	ng/L	P362610	

Ref. Method and Comment:
EPA 1631E: Batch matrix spike recoveries are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

Sample Location: ROLLING HILLS C&D FACILITY **Collection Date/Time: 04/16/2019 15:35**

Field ID: MW-6 Matrix: W-GROUND

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2078880	EPA 1631E	Mercury	6.20		ng/L	P362610	

Ref. Method and Comment:
EPA 1631E: Batch matrix spike recoveries are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

Sample Location: ROLLING HILLS C&D FACILITY **Collection Date/Time: 04/16/2019 15:55**

Field ID: PP EB Matrix: W-EQPMT-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2078881	EPA 1631E	Mercury	0.10	U	ng/L	P362610	

Ref. Method and Comment:
EPA 1631E: Batch matrix spike recoveries are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 1631E
Batch ID: P362610

Component	Result	Code	Units
Mercury	0.10	U	ng/L

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 1631E
Batch ID: P362610

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Mercury	106		P	80 - 120

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 1631E
Batch ID: P362610

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2078875	Mercury	99.6	98.2	P/P	80 - 120

Quality Assurance Report
Precision

Reference Method: EPA 1631E
Batch ID: P362610

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2078875	Mercury	0.973	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report
Calibration Verification

Reference Method: EPA 1631E

Run ID: A90890

Included Lab Sample IDs: 2078868, 2078869, 2078870, 2078871, 2078872, 2078873, 2078874, 2078875, 2078876, 2078877, 2078878, 2078879, 2078880, 2078881

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Mercury	103	106	P/P	85 - 115
Mercury	104	105	P/P	85 - 115
Mercury	105	103	P/P	85 - 115

* Pass/Fail determinations are made for each bracketing calibration verification check.
Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.
Where they are different, both control limits are provided.

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
EPA 1631E	Mercury	106	99.6	98.2			0.973

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 1631E / E31780	Mercury in aqueous samples using cold vapor atomic fluorescence spectroscopy.	2078868, 2078869, 2078870, 2078871, 2078872, 2078873, 2078874, 2078875, 2078876, 2078877, 2078878, 2078879, 2078880, 2078881

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 1631E	04/17/2019	04/18/2019 15:26	Vijayalakshmi Reddy	04/22/2019 09:52	Vijayalakshmi Reddy	2078879
	04/17/2019	04/18/2019 15:26	Vijayalakshmi Reddy	04/22/2019 09:56	Vijayalakshmi Reddy	2078881
	04/17/2019	04/18/2019 15:26	Vijayalakshmi Reddy	04/22/2019 10:09	Vijayalakshmi Reddy	2078868
	04/17/2019	04/18/2019 15:26	Vijayalakshmi Reddy	04/22/2019 10:13	Vijayalakshmi Reddy	2078869
	04/17/2019	04/18/2019 15:26	Vijayalakshmi Reddy	04/22/2019 10:17	Vijayalakshmi Reddy	2078870
	04/17/2019	04/18/2019 15:26	Vijayalakshmi Reddy	04/22/2019 10:21	Vijayalakshmi Reddy	2078871
	04/17/2019	04/18/2019 15:26	Vijayalakshmi Reddy	04/22/2019 10:25	Vijayalakshmi Reddy	2078872
	04/17/2019	04/18/2019 15:26	Vijayalakshmi Reddy	04/22/2019 10:42	Vijayalakshmi Reddy	2078873
	04/17/2019	04/18/2019 15:26	Vijayalakshmi Reddy	04/22/2019 10:46	Vijayalakshmi Reddy	2078874
	04/17/2019	04/18/2019 15:26	Vijayalakshmi Reddy	04/22/2019 10:50	Vijayalakshmi Reddy	2078875
	04/17/2019	04/18/2019 15:26	Vijayalakshmi Reddy	04/22/2019 11:03	Vijayalakshmi Reddy	2078876
	04/17/2019	04/18/2019 15:26	Vijayalakshmi Reddy	04/22/2019 11:07	Vijayalakshmi Reddy	2078877
	04/17/2019	04/18/2019 15:26	Vijayalakshmi Reddy	04/22/2019 11:11	Vijayalakshmi Reddy	2078878
	04/17/2019	04/18/2019 15:26	Vijayalakshmi Reddy	04/22/2019 11:35	Vijayalakshmi Reddy	2078880

DEP-SOP-001/01
FS 2200 Groundwater Sampling
Form FD 9000-24 (modified)

GROUNDWATER SAMPLING LOG

SITE NAME:	Rolling Hills C&D Facility	SITE LOCATION:	Pensacola
WELL NO:	MW-1R	SAMPLE ID:	MW-1R
DATE:	04 / 16 / 2019		

PURGING DATA

WELL DIAMETER (inches):	2"	TUBING DIAMETER (inches):	1/2	WELL SCREEN INTERVAL DEPTH:	43.9 feet to 58.9	STATIC DEPTH TO WATER (feet):	35.94	PURGE PUMP TYPE OR BAILER:	ESP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
only fill out if applicable) = (58.9 feet – 35.94 feet) X 0.16 gallons/foot = 3.68 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 DEPTH IN WELL (feet):	38'	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	38'	PURGING INITIATED AT:	1158	PURGING ENDED AT:	1212	TOTAL VOLUME PURGED (gallons):	7.0

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	TEMP. (°C)	COND. (µmhos/cm or µS/cm)	DISSOLVED OXYGEN (circle mg/L or %saturation)	pH (standard units)	ORP	TURBIDITY (NTUs)	ODOR
1158	0	0		39.05							
1206	4	4	0.5	39.04	24.6	23.8	102% / 8.50	5.21	242.6	12.9	NONE
1209	1.5	5.5	0.5	39.04	29.5	24.1	101% / 8.42	5.20	247.4	18.6	NONE
1212	1.5	7.0	0.5	39.04	24.6	24.3	100% / 8.36	5.23	244.2	0.80	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

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	FDEP/SIS	SAMPLER(S) SIGNATURES:		SAMPLING INITIATED AT:	1214	SAMPLING ENDED AT:	1215
PUMP OR TUBING DEPTH IN WELL (feet):	38'	SAMPLE PUMP FLOW RATE (mL per minute):		TUBING MATERIAL CODE:	HDPE		
FIELD DECONTAMINATION:	Y (N)	FIELD-FILTERED: Y (N) Filtration Equipment Type:	FILTER SIZE: ____ µm	DUPLICATE:	Y (N)		

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
MW-1R	1	PL	250 mL	ZnAc-NaOH			OV-SULFD-W	ESP
MW-1R	1	PL	1 L	Ice			W-CL-IC, W-SO4-IC, W-TDS	ESP
MW-1R	1	PL	500 mL	HNO3			W-HG-TDA-R, W-ICPMS-R, W-ICP-R	ESP
MW-1R	1	PL	125 mL	H2SO4			W-NH3, W-NO2NO3	ESP

REMARKS:
used 10% mix on DO%
Sample time: 1214

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING/PURGING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); VT = Vacuum Trap; 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)

DEP-SOP-001/01
FS 2200 Groundwater Sampling
Form FD 9000-24 (modified)

GROUNDWATER SAMPLING LOG

SITE NAME:	Rolling Hills C&D Facility	SITE LOCATION:	Pensacola
WELL NO:	MW-2	SAMPLE ID:	MW-2 0410-T6
DATE:	04 / 16 / 2019		

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH:	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:
2		4.3 feet to 19.3	8.95	Peristaltic

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH − STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable) = (19.3 feet − 8.95 feet) X 0.16 gallons/foot = 1.65 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 DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
12		1353		

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	TEMP. (°C)	COND. (µmhos/cm or µS/cm)	DISSOLVED OXYGEN (circle mg/L or % saturation)	pH (standard units)	ORP	TURBIDITY (NTUs)	ODOR
1353	-	-	.15	8.95	21.0	330.6	7.5/0.65	6.30	-52.9	-	
1406	1.8	1.8	"	"	20.3	342.8	0.6/0.05 mg/L	6.35	-97.4	7.42	
1409	.45	2.25	"	"	20.1	341.0	0.3/0.03	6.36	-115.0	5.88	
1412	.45	2.70	"	"	20.0	336.4	0.1/0.01	6.37	-121.8	4.43	
1415	.45	3.15	"	"	20.0	329.5	-0.1/-0.01	6.37	-119.8	2.51	

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

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURES:	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
FDEP/SIS	DJ, DM, JN	1420	1420

PUMP OR TUBING DEPTH IN WELL (feet):	SAMPLE PUMP FLOW RATE (mL per minute):	TUBING MATERIAL CODE: HDPE

FIELD DECONTAMINATION: Y N
FIELD-FILTERED: Y N FILTER SIZE: ____ µm
Filtration Equipment Type: _____
DUPLICATE: Y (N)

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
~~MW-2/PZ-2~~	1	PL	250 mL	ZnAc-NaOH			OV-SULFD-W	
~~MW-2/PZ-2~~	1	PL	1 L	Ice			W-CL-IC, W-SO4-IC, W-TDS	
MW-2/PZ-2	1	PL	500 mL	HNO3			W-HG-TDA-R, W-ICPMS-R, W-ICP-R	
~~MW-2/PZ-2~~	1	PL	125 mL	H2SO4			~~W-NH3, W-NO2NO3~~	

REMARKS:
ultra trace mercury - 0410-T6

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING/PURGING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); VT = Vacuum Trap; 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)

DEP-SOP-001/01
FS 2200 Groundwater Sampling
Form FD 9000-24 (modified)

GROUNDWATER SAMPLING LOG

SITE NAME:	Rolling Hills C&D Facility	SITE LOCATION:	Pensacola
WELL NO:	RW-3	SAMPLE ID:	RW-3
DATE:	04/ 16 / 2019		

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH:	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:
4		24.8 feet to 34.8	13.05	

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
only fill out if applicable) = (34.8 feet – 13.05 feet) X ~~0.16~~ 0.65 gallons/foot = 14.13 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 DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
15	15	1437	1500	23

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	TEMP. (°C)	COND. (µmhos/cm or µS/cm)	DISSOLVED OXYGEN (circle mg/L or % saturation)	pH (standard units)	ORP	TURBIDITY (NTUs)	ODOR
1437	–	–	1.0	13.05	23.4	2072	4.0 / 0.33	6.48	-105.7	–	sulfur
1452	15	15	1.0	"	23.3	1982	~~0.1 / 0.01~~	6.48	-105.4	5.74	"
1456	4	19	1.0	"	23.3	1988	0 / 0	6.48	-100.4	3.50	"
1500	4	23	1.0	"	23.3	1995	0 / 0	6.48	-98.3	3.46	"

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

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURES:	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
FDEP/SIS	PJ, DM, JN	1505	1505

PUMP OR TUBING DEPTH IN WELL (feet):	SAMPLE PUMP FLOW RATE (mL per minute):	TUBING MATERIAL CODE:
15	.1 gpm	HDPE

FIELD DECONTAMINATION: Y (N) FIELD-FILTERED: Y (N) FILTER SIZE: ____ µm DUPLICATE: (Y) N
Filtration Equipment Type: _____

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
MW-3R	1	PL	250 mL	ZnAc-NaOH			~~OV-SULFD-W~~	
MW-3R	1	PL	1 L	Ice			W-CL-IC, W-SO4-IC, W-TDS	
MW-3R	1	PL	500 mL	HNO3			(W-HG-TDA-R, W-ICPMS-R, W-ICP-R	
MW-3R	1	PL	125 mL	H2SO4			~~W-NH3, W-NO2NO3~~	

REMARKS:
Ultrafrac 0410-T4 DUP 0410-T7

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING/PURGING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); VT = Vacuum Trap; 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)

DEP-SOP-001/01
FS 2200 Groundwater Sampling
Form FD 9000-24 (modified)

GROUNDWATER SAMPLING LOG

SITE NAME:	Rolling Hills C&D Facility	SITE LOCATION:	Pensacola
WELL NO:	MW-4	SAMPLE ID:	MW-4
DATE:	04 / 16 / 2019		

PURGING DATA

WELL DIAMETER (inches):	2	TUBING DIAMETER (inches):	3/8	WELL SCREEN INTERVAL DEPTH:	39.6 feet to 54.6	STATIC DEPTH TO WATER (feet):	35.37	PURGE PUMP TYPE OR BAILER:	ESP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable) = (54.6 feet – 35.37 feet) X 0.16 gallons/foot = 3.10 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 DEPTH IN WELL (feet):	37'	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	37'	PURGING INITIATED AT:	1250	PURGING ENDED AT:	1317	TOTAL VOLUME PURGED (gallons):	5.21

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	TEMP. (°C)	COND. (µmhos/cm or µS/cm)	DISSOLVED OXYGEN (circle mg/L or % saturation)	pH (standard units)	ORP	TURBIDITY (NTUs)	ODOR
1250	0	0		38.24							
1308	3.5	3.5	0.19	38.91	26.5	669	8.4% / 0.64	6.41	-72.8	25.3	NONE
1311	0.57	4.07	0.19	38.91	26.4	671	4.0% / 0.32	6.38	-79.4	13.9	NONE
1314	0.57	4.64	0.19	37.95	26.4	672	5.7% / 0.51	6.39	-82.2	7.95	NONE
1317	0.57	5.21	0.19	38.42	26.6	679	5.7% / 0.45	6.41	-84.0	10.7	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

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	FDEP/SIS	SAMPLER(S) SIGNATURES:		SAMPLING INITIATED AT:	1319	SAMPLING ENDED AT:	1321
PUMP OR TUBING DEPTH IN WELL (feet):	37'	SAMPLE PUMP FLOW RATE (mL per minute):		TUBING MATERIAL CODE:	HDPE		
FIELD DECONTAMINATION:	Y (N)	FIELD-FILTERED: Y (N) Filtration Equipment Type:	FILTER SIZE: ____ µm	DUPLICATE:	Y (N)		

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
MW-4	1	PL	250 mL	ZnAc-NaOH			OV-SULFD-W	ESP
MW-4	1	PL	1 L	Ice			W-CL-IC, W-SO4-IC, W-TDS	↓
MW-4	1	PL	500 mL	HNO3			W-HG-TDA-R, W-ICPMS-R, W-ICP-R	
MW-4	1	PL	125 mL	H2SO4			W-NH3, W-NO2NO3	↓

REMARKS:
* Sample time: 1319

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING/PURGING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); VT = Vacuum Trap; 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)

DEP-SOP-001/01
FS 2200 Groundwater Sampling
Form FD 9000-24 (modified)

GROUNDWATER SAMPLING LOG

SITE NAME:	Rolling Hills C&D Facility	SITE LOCATION:	Pensacola
WELL NO:	MW-5R	SAMPLE ID:	MW-5R
DATE:	04 / 16/ 2019		

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH:	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:
2	3/8	39.6 feet to 54.6	23.32	ESP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable) = (54.6 feet – 23.32 feet) X 0.16 gallons/foot = 5.00 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 DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
25'	25'	1350	1422	19.2

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	TEMP. (°C)	COND. (µmhos/cm or µS/cm)	DISSOLVED OXYGEN (circle mg/L or %saturation)	pH (standard units)	ORP	TURBIDITY (NTUs)	ODOR
1350	0	0	0.6	23.68							
1416	15.4	15.4	0.6	23.71	25.3	1750	1.7%/0.14	7.26	-108.4	18.3	NONE
1419	1.8	17.4	0.6	23.71	25.3	1752	1.7%/0.13	7.25	-105.8	14.8	NONE
1422	1.8	19.2	0.6	23.70	25.4	1756	1.6%/0.13	7.24	-109.0	14.6	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

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURES:	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
FDEP/SIS		1424	1426

PUMP OR TUBING DEPTH IN WELL (feet):	SAMPLE PUMP FLOW RATE (mL per minute):	TUBING MATERIAL CODE:
25'		HDPE

FIELD DECONTAMINATION: Y (N) FIELD-FILTERED: Y (N) FILTER SIZE: ____ µm DUPLICATE: Y (N)
Filtration Equipment Type: _____

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
MW-5R	1	PL	250 mL	ZnAc-NaOH			OV-SULFD-W	ESP
MW-5R	1	PL	1 L	Ice			W-CL-IC, W-SO4-IC, W-TDS	↓
MW-5R	1	PL	500 mL	HNO3			W-HG-TDA-R, W-ICPMS-R, W-ICP-R	
MW-5R	1	PL	125 mL	H2SO4			W-NH3, W-NO2NO3	

REMARKS:
* Sample time: 1424

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING/PURGING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); VT = Vacuum Trap; 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)

DEP-SOP-001/01
FS 2200 Groundwater Sampling
Form FD 9000-24 (modified)

GROUNDWATER SAMPLING LOG

SITE NAME:	Rolling Hills C&D Facility	SITE LOCATION:	Pensacola
WELL NO:	~~MW-~~ MW-6	SAMPLE ID:	MW-6
DATE:	04 / 16 / 2019		

PURGING DATA

22.6 to 37.6

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: ~~2~~ feet to ~~3~~6	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:
2			12.85	ESP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable) = (~~3~~37.6 feet – 12.85 feet) X 0.16 gallons/foot = 4.00 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 DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
14'	14'	1522	1534	8.2

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	TEMP. (°C)	COND. (µmhos/cm or µS/cm)	DISSOLVED OXYGEN (circle mg/L or % saturation)	pH (standard units)	ORP	TURBIDITY (NTUs)	ODOR
1522	0	0		13.25							
1528	4	4	0.7	13.25	25.6	784	5.1% / 0.41	7.57	-62.8	0.39	NONE
1531	2.1	6.1	0.7	13.25	25.5	795	3.7% / 0.30	7.50	-68.4	0.34	NONE
1534	2.1	8.2	0.7	13.25	25.5	790	3.1% / 0.25	7.47	-73.5	0.35	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

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	FDEP/SIS	SAMPLER(S) SIGNATURES:		SAMPLING INITIATED AT: 1535	SAMPLING ENDED AT: 1536
PUMP OR TUBING DEPTH IN WELL (feet):	14'	SAMPLE PUMP FLOW RATE (mL per minute):		TUBING MATERIAL CODE:	HDPE
FIELD DECONTAMINATION:	Y (N)	FIELD-FILTERED: Y (N) Filtration Equipment Type:	FILTER SIZE: ____ µm	DUPLICATE:	Y (N)

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
MW-4	1	PL	250 mL	ZnAc-NaOH			OV-SULFD-W	ESP
MW-4	1	PL	1 L	Ice			W-CL-IC, W-SO4-IC, W-TDS	↓
MW-4	1	PL	500 mL	HNO3			W-HG-TDA-R, W-ICPMS-R, W-ICP-R	
MW-4	1	PL	125 mL	H2SO4			W-NH3, W-NO2NO3	

REMARKS:

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING/PURGING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); VT = Vacuum Trap; 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)

DEP-SOP-001/01
FS 2200 Groundwater Sampling
Form FD 9000-24 (modified)

GROUNDWATER SAMPLING LOG

SITE NAME:	Rolling Hills C&D Facility	SITE LOCATION:	Pensacola
WELL NO: ~~MW-8~~ MW-7R	SAMPLE ID: ~~MW-8~~ MW-7R 0410-T3	DATE:	04 / 16 / 2019

PURGING DATA

WELL DIAMETER (inches): 2	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: 56.0 feet to 61.0	STATIC DEPTH TO WATER (feet): 11.44	PURGE PUMP TYPE OR BAILER: Peristaltic

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
only fill out if applicable) = (~~61.0~~ 32.1 feet – 11.44 feet) X 0.16 gallons/foot = ~~7.9~~ 3.3 gallons ~~8.0~~ 4.0

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 DEPTH IN WELL (feet): 12-13'	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT: 1133	PURGING ENDED AT: ~~1155~~	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	TEMP. (°C)	COND. (µmhos/cm or µS/cm)	DISSOLVED OXYGEN (circle mg/L or % saturation)	pH (standard units)	ORP	TURBIDITY (NTUs)	ODOR
1133	–	–	0.5	11.44	18.6	310.2	0.70 / 7.3	4.82	152.0	10.9	
1150	8.0	8.0	0.5		18.7	271.2	0.49 mg/L / 5.1%	5.02	122.6	6.07	
11:55	2.5	10.5	0.5	12.45	18.8	274.8	0.40 / 4.3%	5.04	110.5	3.07	
12:00	2.5	13.0	0.5	12.45	18.8	275.0	0.33 / 3.5%	5.04	103.1	4.29	
12:05	2.5	15.5	0.5	12.45	18.8	277.0	0.28 / 3.0%	5.04	99.4	2.97	

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

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: FDEP/SIS	SAMPLER(S) SIGNATURES: Derrick Meyers / DJ	SAMPLING INITIATED AT: 1210	SAMPLING ENDED AT: 1211
PUMP OR TUBING DEPTH IN WELL (feet): 13	SAMPLE PUMP FLOW RATE (mL per minute): 0.5 gpm	TUBING MATERIAL CODE: HDPE	
FIELD DECONTAMINATION: Y N	FIELD-FILTERED: Y N FILTER SIZE: ____ µm Filtration Equipment Type:	DUPLICATE: Y (N)	

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
~~MW-8~~	1	PL	250 mL	ZnAc-NaOH			~~OV-SULFD-W~~	
~~MW-8~~ MW-7R	1	PL	1 L	Ice			~~W-CL-IC, W-SO4-IC, W-TDS~~	
~~MW-8~~ MW-7R	1	PL	500 mL	HNO3			W-HG-TDA-R, ~~W-ICPMS-R, W-ICP-R~~	
~~MW-8~~	1	PL	125 mL	H2SO4			~~W-NH3, W-NO2NO3~~	

REMARKS: ultra-trace Mercury 0410-T3

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING/PURGING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); VT = Vacuum Trap; 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)

DEP-SOP-001/01
FS 2200 Groundwater Sampling
Form FD 9000-24 (modified)

GROUNDWATER SAMPLING LOG

SITE NAME:	Rolling Hills C&D Facility	SITE LOCATION:	Pensacola
WELL NO:	MW-8	SAMPLE ID:	MW-8 0410-T9
DATE:	04 / 16 / 2019		

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH:	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:
2		56.0 feet to 61.0	18.15	

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable) = (61.0 feet – 18.15 feet) X 0.16 gallons/foot = 6.85 gallons 7.0

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 DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
20.0	20.0	1233		

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	TEMP. (°C)	COND. (µmhos/cm or µS/cm)	DISSOLVED OXYGEN (circle mg/L or % saturation)	pH (standard units)	ORP	TURBIDITY (NTUs)	ODOR
1233	~~4.0~~	~~4.0~~	0.25	18.15	20.0	416.6	22.2/1.98	6.04	92.4	19.4	–
~~1249~~	~~4.0~~	~~8.0~~	0.25	18.3	20.8	397.0	9.4/0.84	5.94	90.9	10.5	–
~~1253~~	~~2.0~~ 4.0	~~10.0~~ 8.0	0.25	"	21.4	261.1	5.2/0.46	5.43	130.9	8.39	–
~~1257~~	2.0	10.0	0.25	"	21.5	202.0	3.0/0.26	5.24	147.1	4.16	–
1321	2.0	12.0	0.25	"	21.6	168.3	1.3/0.11	5.00	166.4	2.98	–
1329	2.0	14.0	0.25	"	21.7	168.3	0.6/0.05 mg/L	5.95	176.2	2.81	
1337	2.0	16.0	0.25	"	21.7	165.9	0.4/0.03	4.89	184.2	2.24	

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
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SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURES:	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
FDEP/SIS	Paul Meyers Penni Jensen	1340	1340

PUMP OR TUBING DEPTH IN WELL (feet):	SAMPLE PUMP FLOW RATE (mL per minute):	TUBING MATERIAL CODE: HDPE

FIELD DECONTAMINATION: Y (N) FIELD-FILTERED: Y (N) FILTER SIZE: ____ µm DUPLICATE: Y (N)
Filtration Equipment Type: _____

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
MW-8	1	PL	250 mL	ZnAc-NaOH			~~OV-SULFD-W~~	
MW-8	1	PL	1 L	Ice			~~W-CL-IC, W-SO4-IC, W-TDS~~	
MW-8	1	PL	500 mL	HNO3			W-HG-TDA-R, W-ICPMS-R, W-ICP-R	
MW-8	1	PL	125 mL	H2SO4			~~W-NH3, W-NO2NO3~~	

REMARKS: 0410-T9 ultratrace mercury

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