Hillsborough County
Florida

Office of the County Administrator
Michael S. Merrill

October 31, 2013

Mr. John Morris, P.G.
Florida Department of Environmental Protection
Waste Permitting Section
13051 Telecom Parkway
Temple Terrace, FL 33637

RE: **Southeast County Landfill**
Laboratory Analytical Results
Initial Assessment Monitoring Plan
Report No. 37 – September 2013

Dear Mr. Morris:

The Hillsborough County Public Utilities Department (County) is pleased to provide the analytical results from the September 2013 sampling event conducted as part of the Initial Assessment Monitoring Plan (IAMP). The IAMP was developed to address the potential impacts to groundwater from the sinkhole in Phase VI of the Southeast County Landfill (SCLF), which was discovered on December 14, 2010.

As agreed by the County and the Florida Department of Environmental Protection (FDEP) Southwest District Office, three (3) upper Floridan / Limestone aquifer monitoring wells, TH-72, TH-76 and TH-77 are sampled on a monthly schedule. Representative samples were collected on September 5, 2013 by the County's Field Sampling Team, and the five (5) field parameters were recorded during the sample collection process. The samples collected were analyzed by our contracted laboratory, Test America, Inc. for total dissolved solids (TDS), chloride, total ammonia, arsenic, iron, sodium.

The following paragraphs summarize the parameter specific results pertinent to the evaluation of potential water quality impacts from the former sinkhole at the SCLF.

Turbidity
During the September sampling event, turbidity values in Upper Floridan / Limestone aquifer monitoring wells TH-72, TH-76, and TH-77 were 1.17, 46 and 47.1 Nephelometric Turbidity Units (NTUs), respectively. The elevated turbidity observed in TH-76 and TH-77 is not unexpected for recently installed monitoring wells, and the County believes that turbidity values will gradually decrease over the next few sampling events. The County will also direct the Field Sampling Team to reduce the pumping rates to help achieve lower turbidity values.

Conductivity
The conductivity values observed in TH-72, TH-76, and TH-77 were 1,001, 278, and 269 micromhos per centimeter (umhos/cm), respectively. Monitoring well TH-72 is the closest well to the sinkhole and continues to exhibit groundwater impacts similar to those observed over the last year. The elevated conductivity observed is likely attributable to the waste in the throat of the sinkhole and the large amounts of grout materials injected into subsurface as part of the sinkhole remediation process. The conductivity values observed in TH-76 and TH-77 are consistent with the unaffected deep wells across the site.

Total Dissolved Solids (TDS)
The TDS in TH-72 was observed at 760 mg/l and continues to be above the Secondary Drinking Water Standard (SDWS) of 500 mg/l. The two down gradient monitoring wells, TH-76 and TH-77 exhibited TDS values of 240 mg/l and 230 mg/l, respectively, which is consistent with the unaffected deep wells across the site.

Chloride
The chloride in TH-72 was observed at 290 mg/l, which is above the Primary Drinking Water Standard (PDWS) of 250 mg/l. The two down gradient monitoring wells, TH-76 and TH-77 exhibited chloride values of 12 mg/l and 8.9 mg/l, respectively, which is consistent with the unaffected deep wells across the site.

Total Ammonia
The upper Floridan well TH-72 continues to exhibit ammonia above the former groundwater cleanup target level (GCTL) of 2.8 mg/l, at a concentration of 7.6 mg/l. The two down gradient monitoring wells, TH-76 and TH-77 were observed at 0.32 and 0.35 mg/l, respectively, which is consistent with the unaffected deep wells across the site.

Iron
Total iron concentrations in each of the three (3) upper Floridan/Limestone aquifer monitoring wells were observed above the SDWS of 0.3 mg/l. TH-72, TH-76 and TH-77 exhibited iron at 0.71, 1.5, and 0.96 mg/l, respectively. The elevated iron concentrations observed in these wells are consistent with historical data set, and are likely naturally occurring in the formation, and/or the result of past strip mining activities at the site.

Groundwater Elevations and Direction of Flow

On September 5, 2013, the County collected groundwater and surface water elevation data at sixty-five (65) points across the site, including twenty eight (28) surficial aquifer wells, seven (7) upper Floridan (limestone) aquifer wells, twenty three (23) piezometers, and seven (7) surface water sites.

No significant changes to the patterns of flow in the surficial aquifer were noted in the September data set and the diagram is consistent with the observations over the period of record. The general direction of flow within the surficial aquifer has historically been to the west northwest across the Southeast County Landfill site. The elevations observed within the wells closest to the sinkhole indicate that flow patterns may be somewhat affected in the area, which would not be unexpected. However, the overall direction of flow within the surficial aquifer remains toward the west/northwest across the site.

A contour diagram of the upper Floridan / Limestone aquifer has been prepared for the general area around the sinkhole and is included with this submittal. For the upper Floridan wells, the diagram was generated utilizing just the three data points closest to the sinkhole. For the month of September, the elevation change between TH-72 and TH-76 is only 0.05 ft., and the change between TH-72 and TH-77 is only 0.17 ft. These relative changes were almost exactly the same as the August values, but the elevations are approximately 3.5 ft. higher. The diagram indicates that flow continues to be in a north/northwest direction, but at what appears to be a very slow rate. We will continue to evaluate the direction of flow within the upper Floridan / Limestone aquifer in the vicinity of the sinkhole, and a more comprehensive understanding of this system will be developed over time. However, based on the consistency of the direction of flow over the last few months, even with a significant change in elevation as observed, it appears that an additional upper Floridan aquifer monitoring well may be warranted.

Conclusions

The upper Floridan / Limestone aquifer monitoring well, TH-72, which is located closest to the sinkhole, continues to exhibit impacts that are likely attributable to the waste within the sinkhole and/or the fluids introduced during the extensive grouting activities conducted as part of the remedial actions. The impacts continue to exhibit elevated concentrations of TDS, chloride, ammonia, iron and sodium, along with elevated conductivity. The impacts, which were not unexpected, have only been documented in the immediate vicinity of the sinkhole within both the surficial and upper Floridan aquifers over the period of record.

The two new upper Floridan / Limestone aquifer monitoring wells TH-76 and TH-77 exhibit good water quality with no evidence of impact from the sinkhole, which is consistent with the other unaffected deep wells across the site. Conductivity values, TDS, chloride and ammonia are all very low and consistent with the historical data set for the unaffected deep monitoring wells at the SCLF.

Recommendations

The County recommends continued implementation of the optimized IAMP, which includes the monthly sampling of the three upper Floridan / Limestone aquifer monitoring wells, TH-72, TH-76, and TH-77, and the quarterly sampling of the three surficial aquifer monitoring wells, TH-73, TH-74, and TH-75. The County will continue to evaluate any water quality changes in both the surficial and upper Floridan aquifer monitoring wells, and present the findings within the monthly IAMP reports.

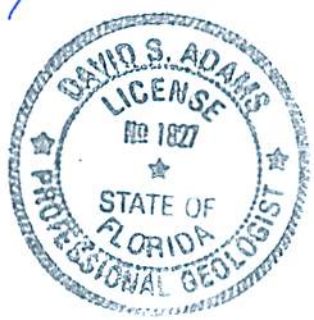
Enclosed for your review please find a site location map depicting the network of IAMP monitoring wells the water quality data summary table for the September 2013 sampling event, a groundwater elevation data table, groundwater contour and flow diagrams for the surficial and upper Floridan / Limestone aquifers, the historical data tables for each well sampled this month, and the complete analytical data report from our contracted laboratory, Test America, Inc.

Should you have any questions or require any additional information please feel free to call me at (813) 663-3221.

Respectfully submitted,

David A. Adams 10/31/2013

David S. Adams, P.G
Environmental Manager
Public Utilities Department



xc: John Lyons, Director, Public Utilities Department
Patricia Berry, Public Utilities Department
Andy Berry, Public Utilities Department
Larry Ruiz, Public Utilities Department
Michelle Van Dyk, Public Utilities Department
Richard Tedder, FDEP Tallahassee
Clark Moore, FDEP Tallahassee
Jeff Greenwell, FDEP Southwest District
Susan Pelz, FDEP Southwest District
Steve Morgan, FDEP, Southwest District
Andy Schipfer, EPC
Ernest Ely, WMI
Brian Miller, DOH
Rich Siemering, HDR
Joe O'Neill, CDS

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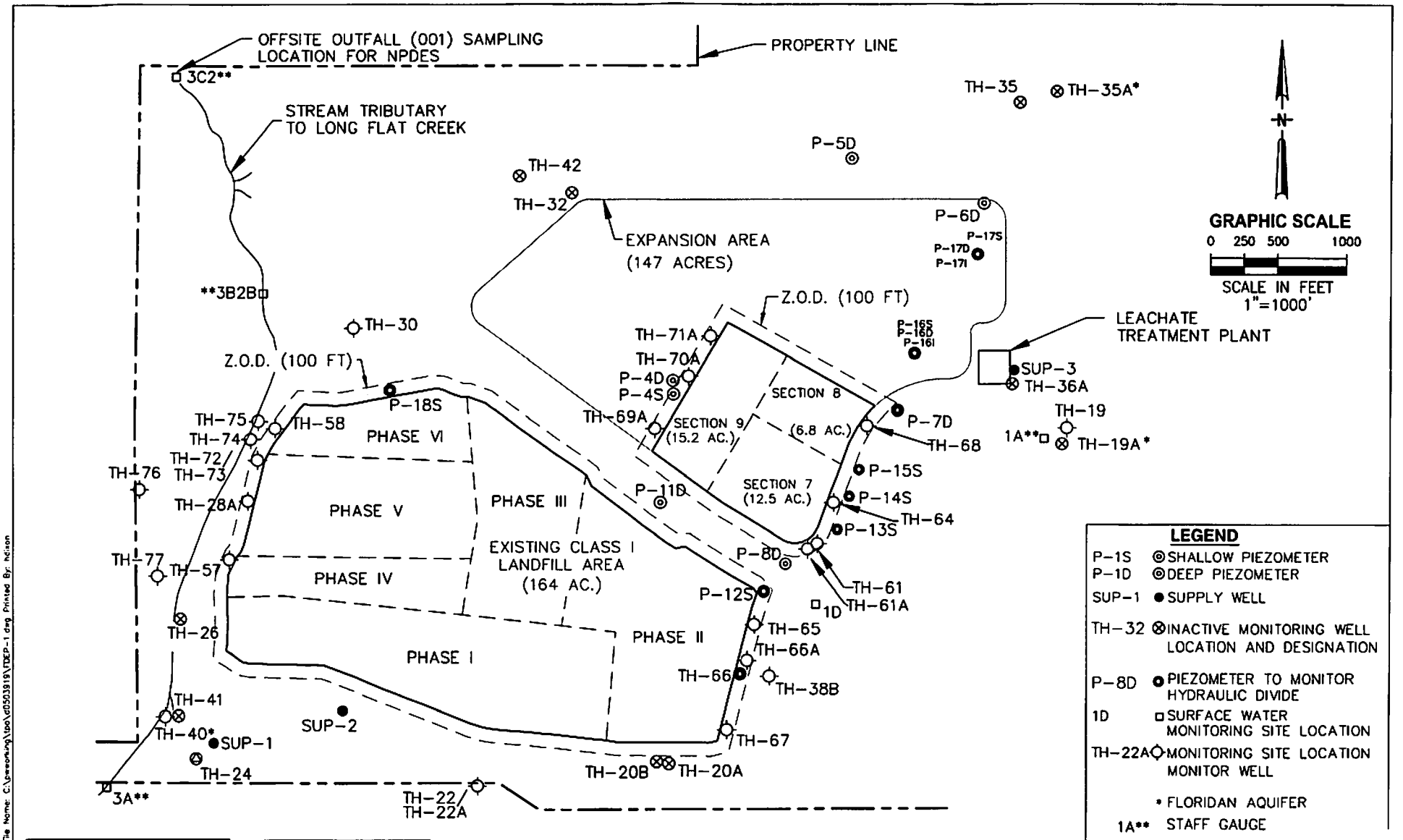
Final copy scanned to LFS/Southeast/Sinkhole/SCLF – IAMP Report No 37.pdf



Hillsborough County Florida

HDR

LOCATION OF MONITORING WELLS, PIEZOMETERS, AND SURFACE WATER SAMPLING PLAN SOUTHEAST COUNTY LANDFILL HILLSBOROUGH COUNTY, FLORIDA

DATE
OCT 2013

FIGURE
FDEP-1

Southeast County Landfill
Laboratory Analytical Data
Upper Floridan Groundwater Monitoring Wells
September 5, 2013

GENERAL PARAMETERS	Upper Floridan Wells			(MCL) STANDARD
	TH-72	TH-76	TH-77	
conductivity (umhos/cm) (field)	1001	278	269	NS
dissolved oxygen (mg/l) (field)	0.61	0.21	0.83	NS
pH (field)	6.98	7.74	7.61	(6.5 - 8.5)**
temperature (°C) (field)	23.45	22.97	23.68	NS
turbidity (NTU) (field)	1.17	46	47.1	NS
total dissolved solids (mg/l)	**760**	240	230	500**
chloride (mg/l)	**290**	12	8.9	250**
ammonia nitrogen (mg/l as N)	**7.6**	0.32	0.35	2.8***
Metals: (mg/l)	TH-72	TH-76	TH-77	(MCL) STANDARD
arsenic	0.004 *u*	0.004 *u*	0.004 *u*	0.01*
iron	**0.71**	**1.5**	**0.96**	0.3**
sodium	110	20	16	160*

Note: Ref. Groundwater Guidance Concentrations, FDEP 2012
MCL=MAXIMUM CONTAMINANT LEVEL
BDL=BELOW DETECTION LIMIT
NTU=NEPHELOMETRIC TURBIDITY UNITS
u = parameter was analyzed but not detected.
*=DENOTES PRIMARY DRINKING WATER STANDARD
**=DENOTES SECONDARY DRINKING WATER STANDARD
***=DENOTES GROUNDWATER CLEANUP TARGET LEVELS

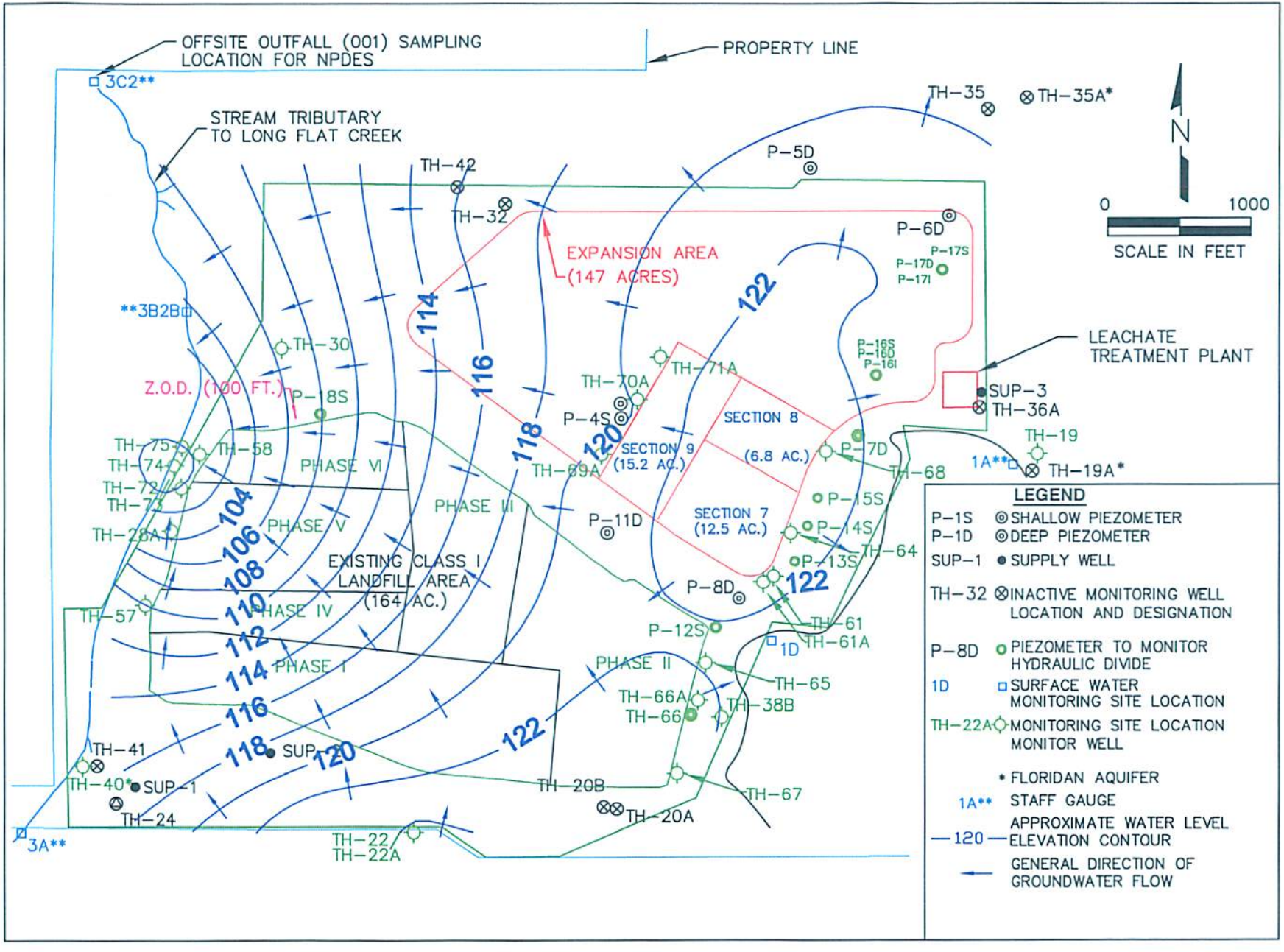
760

ug/l=MICROGRAMS PER LITER
mg/l=MILLIGRAMS PER LITER
NS=NO STANDARD

Southeast County Landfill
Groundwater and Surface Water Elevations
September 4, 2013

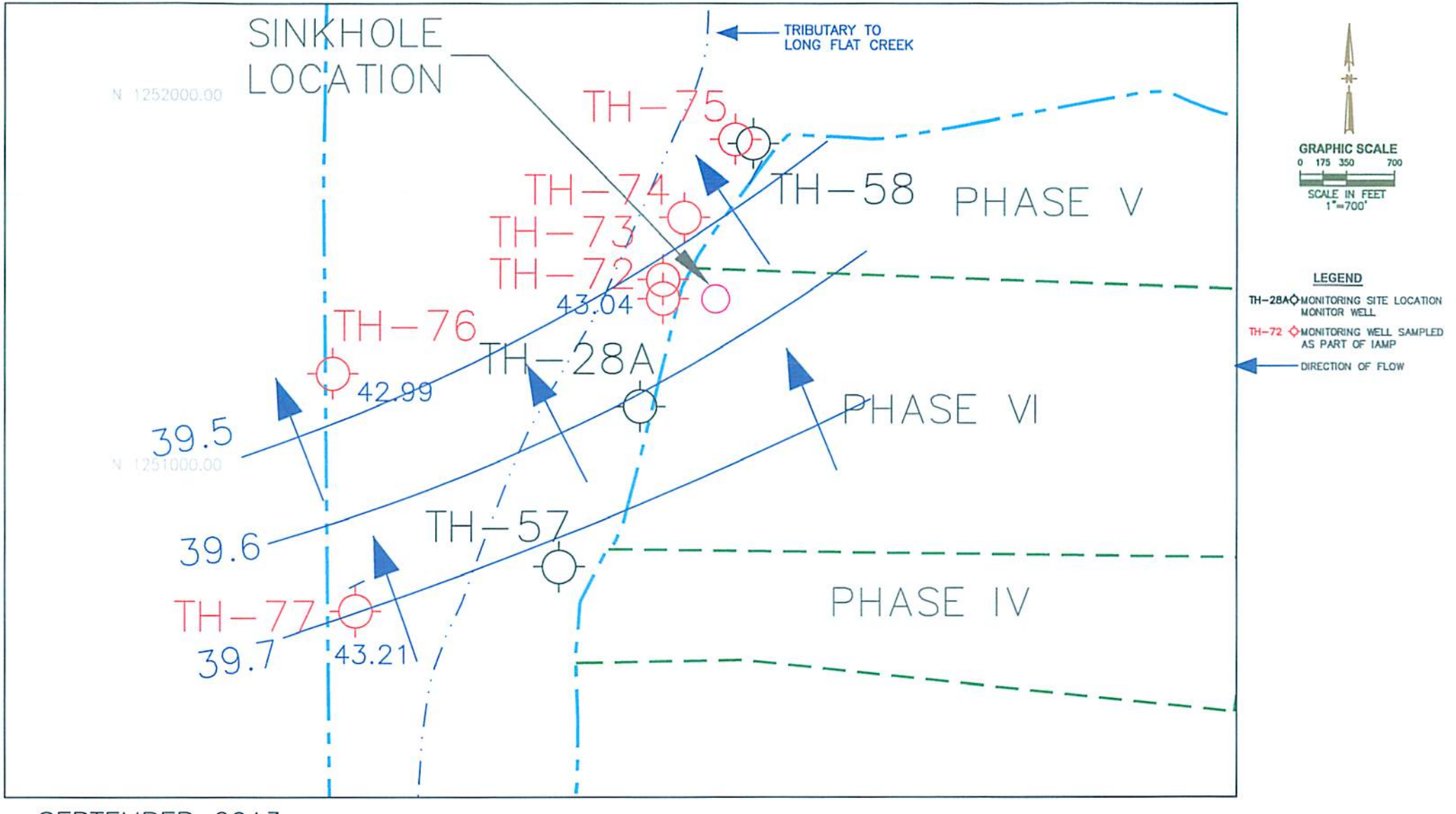
Measuring Point I.D.	T.O.C. Elevations (NGVD)	09/04/2013 W.L. B.T.O.C.	W.L. (NGVD)	Time
P-4D	140.78	21.30	119.48	10:40
P-4S	140.95	10.11	130.84	10:38
P-5D	151.94	ND	ND	11:29
P-6D-A	148.01	23.45	124.56	11:33
P-7D	138.92	15.65	123.27	12:00
P-8D	138.34	16.95	121.39	10:26
P-11D	138.02	16.25	121.77	10:30
P-12S	134.97	12.93	122.04	10:23
P-13S	140.21	16.80	123.41	12:08
P-14S	138.56	14.95	123.61	12:04
P-15S	139.19	15.82	123.37	12:02
P-16S	143.38	10.61	132.77	11:18
P-16I	144.15	22.53	121.62	11:09
P-16D	143.84	22.25	121.59	11:08
P-17S	137.35	15.54	121.81	11:10
P-17I	137.32	13.83	123.49	11:16
P-17D	137.22	14.18	123.04	11:15
P-18S	129.86	17.19	112.67	13:04
P-19	133.36	7.84	125.52	11:22
P-20	132.38	9.99	122.39	11:04
P-21	122.79	1.36	121.43	10:48
P-22	128.35	6.67	121.68	10:52
P-23	143.13	21.51	121.62	10:56
TH-19*	130.27	88.49	41.78	11:47
TH-20A	131.86	8.34	123.52	10:06
TH-20B	132.57	9.21	123.36	10:07
TH-22	128.82	4.21	124.61	9:48
TH-22A	129.27	4.82	124.45	9:49
TH-24A	128.23	3.68	124.55	9:54
TH-28A	131.10	27.45	103.65	13:16
TH-30	128.88	23.64	105.24	13:08
TH-32	129.90	13.06	116.84	12:23
TH-35	145.98	26.74	119.24	11:38
TH-36A	152.70	36.05	116.65	11:52
TH-38A	130.68	9.81	120.87	10:17
TH-38B	131.81	9.90	121.91	10:18
TH-40*	124.99	82.99	42.00	9:59
TH-41*	125.00	87.53	37.47	10:00
TH-42*	116.74	67.33	49.41	12:25
TH-57	128.36	18.24	110.12	13:19
TH-58	127.88	27.37	100.51	13:11
TH-61	138.73	15.90	122.83	12:10
TH-61A	139.45	15.99	123.46	12:11
TH-64	139.64	15.34	124.30	12:06
TH-65	135.40	13.37	122.03	10:20
TH-66	130.58	7.45	123.13	10:13
TH-66A	130.66	7.84	122.82	10:14
TH-67	129.51	4.75	124.76	10:10
TH-68	140.01	15.94	124.07	12:01
TH-69A	144.97	24.55	120.42	10:33
TH-70A	146.63	26.33	120.30	10:36
TH-71A	146.95	25.72	121.23	10:42
TH-72	130.96	87.92	43.04	13:13
TH-73	131.07	29.89	101.18	13:15
TH-74	109.08	8.94	100.14	13:24
TH-75	106.92	7.47	99.45	13:27
TH-76	111.21	68.22	42.99	12:48
TH-77	119.88	76.67	43.21	12:46
SW-3A	3.0'=125.53'	0.86	123.39	9:43
SW-3B2B	3.0'=97.97'	1.84	96.81	12:56
SW-3C2	6.0'=92.33'	1.88	88.21	12:35
Mine Cut #1	4.0'=122.14'	3.10	121.24	12:14
Mine Cut #2	6.0'=123.47'	3.16	120.63	11:40
Mine Cut #3	4.0'=112.27'	ND	ND	ND
Mine Cut #4	5.0'=97.54'	1.68	94.22	12:31

NGVD = National Geodetic Vertical Datum
T.O.C. = Top of Casing
B.T.O.C. = Below Top of Casing
* = Floridan Well
ND =No Data (Well has been compromised)
Mine Cut #3-unable to read due to vegetation.
W.L. = Water Level



Southeast County Landfill

Groundwater Elevation Contour Diagram – September 4, 2013



SEPTEMBER 2013
UPPER FLORIDAN / LIMESTONE AQUIFER CONTOUR DIAGRAM
iN THE VICINITY OF THE FORMER SINKHOLE
SOUTHEAST COUNTY LANDFILL
HILLSBOROUGH COUNTY, FLORIDA

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Tampa
6712 Benjamin Road
Suite 100
Tampa, FL 33634
Tel: (813)885-7427

TestAmerica Job ID: 660-56339-1
Client Project/Site: SELF- IAMP Monitoring Wells

For:
Hillsborough Co Public Utilities Dept
Environmental Services Group
Brandon Support Operations Complex
332 North Falkenburg Rd, 2nd Floor
Tampa, Florida 33619

Attn: David Adams

Authorized for release by:
9/16/2013 10:53:02 AM

Nancy Robertson, Project Manager II
nancy.robertson@testamericainc.com

Table of Contents

Sample Summary

Client: Hillsborough Co Public Utilities Dept
Project/Site: SELF- IAMP Monitoring Wells

TestAmerica Job ID: 660-56339-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
660-56339-1	TH-72	Ground Water	09/05/13 14:15	09/05/13 15:30
660-56339-2	TH-76	Ground Water	09/05/13 12:10	09/05/13 15:30
660-56339-3	TH-77	Ground Water	09/05/13 11:03	09/05/13 15:30
660-56339-4	BLANK FIELD	Ground Water	09/05/13 10:15	09/05/13 15:30

Job ID: 660-56339-1

Laboratory: TestAmerica Tampa

Narrative

Job Narrative
660-56339-1

Comments
No additional comments.

Receipt
The samples were received on 9/5/2013 3:30 PM; the samples arrived in good condition, properly preserved and, where required, on ice.
The temperature of the cooler at receipt was 4.9º C.

HPLC
No analytical or quality issues were noted.

Metals
No analytical or quality issues were noted.

General Chemistry
No analytical or quality issues were noted.

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
U	Indicates that the compound was analyzed for but not detected.

Metals

Qualifier	Qualifier Description
U	Indicates that the compound was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
U	Indicates that the compound was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Detection Summary

Client: Hillsborough Co Public Utilities Dept
Project/Site: SELF- IAMP Monitoring Wells

TestAmerica Job ID: 660-56339-1

Client Sample ID: TH-72 — Lab Sample ID: 660-56339-1

Analyte	Result	Qualifier	PQL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	290		10	5.0	mg/L	10		300.0	Total/NA
Iron	710		200	50	ug/L	1		6010B	Total Recoverable
Sodium	110		0.50	0.31	mg/L	1		6010B	Total Recoverable
Ammonia as N	7.6		0.25	0.13	mg/L	5		350.1	Total/NA
Total Dissolved Solids	760		25	25	mg/L	1		SM 2540C	Total/NA
Field pH	6.98				SU	1		Field Sampling	Total/NA
Field Temperature	23.45				Degrees C	1		Field Sampling	Total/NA
Oxygen, Dissolved	0.61				mg/L	1		Field Sampling	Total/NA
Specific Conductance	1001				uS/cm	1		Field Sampling	Total/NA
Turbidity	1.17				NTU	1		Field Sampling	Total/NA

Client Sample ID: TH-76 — Lab Sample ID: 660-56339-2

Analyte	Result	Qualifier	PQL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	12		1.0	0.50	mg/L	1		300.0	Total/NA
Iron	1500		200	50	ug/L	1		6010B	Total Recoverable
Sodium	20		0.50	0.31	mg/L	1		6010B	Total Recoverable
Ammonia as N	0.32		0.050	0.026	mg/L	1		350.1	Total/NA
Total Dissolved Solids	240		10	10	mg/L	1		SM 2540C	Total/NA
Field pH	7.74				SU	1		Field Sampling	Total/NA
Field Temperature	22.97				Degrees C	1		Field Sampling	Total/NA
Oxygen, Dissolved	0.21				mg/L	1		Field Sampling	Total/NA
Specific Conductance	278				uS/cm	1		Field Sampling	Total/NA
Turbidity	46.0				NTU	1		Field Sampling	Total/NA

Client Sample ID: TH-77 — Lab Sample ID: 660-56339-3

Analyte	Result	Qualifier	PQL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	8.9		1.0	0.50	mg/L	1		300.0	Total/NA
Iron	960		200	50	ug/L	1		6010B	Total Recoverable
Sodium	16		0.50	0.31	mg/L	1		6010B	Total Recoverable
Ammonia as N	0.35		0.050	0.026	mg/L	1		350.1	Total/NA
Total Dissolved Solids	230		10	10	mg/L	1		SM 2540C	Total/NA
Field pH	7.61				SU	1		Field Sampling	Total/NA
Field Temperature	23.68				Degrees C	1		Field Sampling	Total/NA
Oxygen, Dissolved	0.83				mg/L	1		Field Sampling	Total/NA
Specific Conductance	269				uS/cm	1		Field Sampling	Total/NA
Turbidity	47.1				NTU	1		Field Sampling	Total/NA

Client Sample ID: BLANK FIELD — Lab Sample ID: 660-56339-4

Analyte	Result	Qualifier	PQL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sodium	0.59		0.50	0.31	mg/L	1		6010B	Total Recoverable

This Detection Summary does not include radiochemical test results.

Client: Hillsborough Co Public Utilities Dept
Project/Site: SELF- IAMP Monitoring Wells

TestAmerica Job ID: 660-56339-1

Client Sample ID: TH-72
Date Collected: 09/05/13 14:15
Date Received: 09/05/13 15:30

Lab Sample ID: 660-56339-1
Matrix: Ground Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	290		10	5.0	mg/L			09/09/13 18:30	10

Method: 6010B - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	4.0	U	10	4.0	ug/L		09/06/13 11:21	09/09/13 10:18	1
Iron	710		200	50	ug/L		09/06/13 11:21	09/09/13 10:18	1
Sodium	110		0.50	0.31	mg/L		09/06/13 11:21	09/09/13 10:18	1

General Chemistry

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N	7.6		0.25	0.13	mg/L			09/11/13 13:37	5
Total Dissolved Solids	760		25	25	mg/L			09/12/13 10:15	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Field pH	6.98				SU			09/05/13 14:15	1
Field Temperature	23.45				Degrees C			09/05/13 14:15	1
Oxygen, Dissolved	0.61				mg/L			09/05/13 14:15	1
Specific Conductance	1001				uS/cm			09/05/13 14:15	1
Turbidity	1.17				NTU			09/05/13 14:15	1

Client: Hillsborough Co Public Utilities Dept
Project/Site: SELF- IAMP Monitoring Wells

TestAmerica Job ID: 660-56339-1

Client Sample ID: TH-76
Date Collected: 09/05/13 12:10
Date Received: 09/05/13 15:30

Lab Sample ID: 660-56339-2
Matrix: Ground Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	12		1.0	0.50	mg/L			09/10/13 12:54	1

Method: 6010B - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	4.0	U	10	4.0	ug/L		09/06/13 11:21	09/09/13 10:22	1
Iron	1500		200	50	ug/L		09/06/13 11:21	09/09/13 10:22	1
Sodium	20		0.50	0.31	mg/L		09/06/13 11:21	09/09/13 10:22	1

General Chemistry

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N	0.32		0.050	0.026	mg/L			09/11/13 12:42	1
Total Dissolved Solids	240		10	10	mg/L			09/12/13 10:15	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Field pH	7.74				SU			09/05/13 12:10	1
Field Temperature	22.97				Degrees C			09/05/13 12:10	1
Oxygen, Dissolved	0.21				mg/L			09/05/13 12:10	1
Specific Conductance	278				uS/cm			09/05/13 12:10	1
Turbidity	46.0				NTU			09/05/13 12:10	1

Client: Hillsborough Co Public Utilities Dept
Project/Site: SELF- IAMP Monitoring Wells

TestAmerica Job ID: 660-56339-1

Client Sample ID: TH-77
Date Collected: 09/05/13 11:03
Date Received: 09/05/13 15:30

Lab Sample ID: 660-56339-3
Matrix: Ground Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	8.9		1.0	0.50	mg/L			09/09/13 19:11	1

Method: 6010B - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	4.0	U	10	4.0	ug/L		09/06/13 11:21	09/09/13 10:25	1
Iron	960		200	50	ug/L		09/06/13 11:21	09/09/13 10:25	1
Sodium	16		0.50	0.31	mg/L		09/06/13 11:21	09/09/13 10:25	1

General Chemistry

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N	0.35		0.050	0.026	mg/L			09/11/13 12:42	1
Total Dissolved Solids	230		10	10	mg/L			09/12/13 10:15	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Field pH	7.61				SU			09/05/13 11:03	1
Field Temperature	23.68				Degrees C			09/05/13 11:03	1
Oxygen, Dissolved	0.83				mg/L			09/05/13 11:03	1
Specific Conductance	269				uS/cm			09/05/13 11:03	1
Turbidity	47.1				NTU			09/05/13 11:03	1

Client: Hillsborough Co Public Utilities Dept
Project/Site: SELF- IAMP Monitoring Wells

TestAmerica Job ID: 660-56339-1

Client Sample ID: BLANK FIELD
Date Collected: 09/05/13 10:15
Date Received: 09/05/13 15:30

Lab Sample ID: 660-56339-4
Matrix: Ground Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.50	U	1.0	0.50	mg/L			09/09/13 19:31	1

Method: 6010B - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	4.0	U	10	4.0	ug/L		09/06/13 11:21	09/09/13 10:28	1
Iron	50	U	200	50	ug/L		09/06/13 11:21	09/09/13 10:28	1
Sodium	**0.59**		0.50	0.31	mg/L		09/06/13 11:21	09/09/13 10:28	1

General Chemistry

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N	0.026	U	0.050	0.026	mg/L			09/11/13 12:42	1
Total Dissolved Solids	5.0	U	5.0	5.0	mg/L			09/12/13 10:15	1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 490-105770/6
Matrix: Water
Analysis Batch: 105770

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.50	U	1.0	0.50	mg/L			09/09/13 16:30	1

Lab Sample ID: LCS 490-105770/7
Matrix: Water
Analysis Batch: 105770

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	49.7		mg/L		99	90 - 110

Lab Sample ID: LCSD 490-105770/8
Matrix: Water
Analysis Batch: 105770

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	50.0	49.9		mg/L		100	90 - 110	0	20

Lab Sample ID: 660-56312-D-1 MS
Matrix: Water
Analysis Batch: 105770

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	48		50.0	91.0		mg/L		86	80 - 120

Lab Sample ID: MB 490-105878/7
Matrix: Water
Analysis Batch: 105878

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.50	U	1.0	0.50	mg/L			09/10/13 10:53	1

Lab Sample ID: LCS 490-105878/8
Matrix: Water
Analysis Batch: 105878

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	49.1		mg/L		98	90 - 110

Lab Sample ID: LCSD 490-105878/9
Matrix: Water
Analysis Batch: 105878

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	50.0	48.8		mg/L		98	90 - 110	1	20

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 660-141185/1-A
Matrix: Water
Analysis Batch: 141219

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 141185

Analyte	MB Result	MB Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	4.0	U	10	4.0	ug/L		09/06/13 11:21	09/09/13 08:37	1
Iron	50	U	200	50	ug/L		09/06/13 11:21	09/09/13 08:37	1
Sodium	0.31	U	0.50	0.31	mg/L		09/06/13 11:21	09/09/13 08:37	1

Lab Sample ID: LCS 660-141185/2-A
Matrix: Water
Analysis Batch: 141219

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 141185

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	1000	957		ug/L		96	80 - 120
Iron	1000	1060		ug/L		106	80 - 120
Sodium	10.0	9.79		mg/L		98	80 - 120

Lab Sample ID: 640-44938-D-3-B MS
Matrix: Water
Analysis Batch: 141219

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 141185

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	4.0	U	1000	996		ug/L		100	80 - 120
Iron	50	U	1000	1050		ug/L		105	80 - 120
Sodium	11		10.0	20.9		mg/L		100	80 - 120

Lab Sample ID: 640-44938-D-3-C MSD
Matrix: Water
Analysis Batch: 141219

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 141185

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	4.0	U	1000	1010		ug/L		101	80 - 120	2	20
Iron	50	U	1000	1070		ug/L		107	80 - 120	1	20
Sodium	11		10.0	21.3		mg/L		105	80 - 120	2	20

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 680-293277/25
Matrix: Water
Analysis Batch: 293277

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N	0.026	U	0.050	0.026	mg/L			09/11/13 12:51	1

Lab Sample ID: LCS 680-293277/28
Matrix: Water
Analysis Batch: 293277

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia as N	1.00	0.994		mg/L		99	90 - 110

Method: 350.1 - Nitrogen, Ammonia (Continued)

Lab Sample ID: 640-44981-K-5 MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 293277

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia as N	0.27		1.00	1.27		mg/L		100	90 - 110

Lab Sample ID: 640-44981-K-5 MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 293277

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ammonia as N	0.27		1.00	1.26		mg/L		99	90 - 110	0	30

Lab Sample ID: 640-44981-K-1 DU — **Client Sample ID: Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 293277

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Ammonia as N	0.12		0.115		mg/L		2	30

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 660-141356/1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 141356

Analyte	MB Result	MB Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	5.0	U	5.0	5.0	mg/L			09/12/13 10:15	1

Lab Sample ID: LCS 660-141356/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 141356

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	10000	9960		mg/L		100	80 - 120

Lab Sample ID: 640-44944-H-5 DU — **Client Sample ID: Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 141356

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	390		373		mg/L		4	20

HPLC/IC

Analysis Batch: 105770

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
660-56312-D-1 MS	Matrix Spike	Total/NA	Water	300.0	
660-56339-1	TH-72	Total/NA	Ground Water	300.0	
660-56339-3	TH-77	Total/NA	Ground Water	300.0	
660-56339-4	BLANK FIELD	Total/NA	Ground Water	300.0	
LCS 490-105770/7	Lab Control Sample	Total/NA	Water	300.0	
LCSD 490-105770/8	Lab Control Sample Dup	Total/NA	Water	300.0	
MB 490-105770/6	Method Blank	Total/NA	Water	300.0	

Analysis Batch: 105878

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
660-56339-2	TH-76	Total/NA	Ground Water	300.0	
LCS 490-105878/8	Lab Control Sample	Total/NA	Water	300.0	
LCSD 490-105878/9	Lab Control Sample Dup	Total/NA	Water	300.0	
MB 490-105878/7	Method Blank	Total/NA	Water	300.0	

Metals

Prep Batch: 141185

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
640-44938-D-3-B MS	Matrix Spike	Total Recoverable	Water	3005A	
640-44938-D-3-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	3005A	
660-56339-1	TH-72	Total Recoverable	Ground Water	3005A	
660-56339-2	TH-76	Total Recoverable	Ground Water	3005A	
660-56339-3	TH-77	Total Recoverable	Ground Water	3005A	
660-56339-4	BLANK FIELD	Total Recoverable	Ground Water	3005A	
LCS 660-141185/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
MB 660-141185/1-A	Method Blank	Total Recoverable	Water	3005A	

Analysis Batch: 141219

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
640-44938-D-3-B MS	Matrix Spike	Total Recoverable	Water	6010B	141185
640-44938-D-3-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	6010B	141185
660-56339-1	TH-72	Total Recoverable	Ground Water	6010B	141185
660-56339-2	TH-76	Total Recoverable	Ground Water	6010B	141185
660-56339-3	TH-77	Total Recoverable	Ground Water	6010B	141185
660-56339-4	BLANK FIELD	Total Recoverable	Ground Water	6010B	141185
LCS 660-141185/2-A	Lab Control Sample	Total Recoverable	Water	6010B	141185
MB 660-141185/1-A	Method Blank	Total Recoverable	Water	6010B	141185

General Chemistry

Analysis Batch: 141356

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
640-44944-H-5 DU	Duplicate	Total/NA	Water	SM 2540C	
660-56339-1	TH-72	Total/NA	Ground Water	SM 2540C	
660-56339-2	TH-76	Total/NA	Ground Water	SM 2540C	
660-56339-3	TH-77	Total/NA	Ground Water	SM 2540C	
660-56339-4	BLANK FIELD	Total/NA	Ground Water	SM 2540C	
LCS 660-141356/2	Lab Control Sample	Total/NA	Water	SM 2540C	
MB 660-141356/1	Method Blank	Total/NA	Water	SM 2540C	

General Chemistry (Continued)

Analysis Batch: 293277

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
640-44981-K-1 DU	Duplicate	Total/NA	Water	350.1	
640-44981-K-5 MS	Matrix Spike	Total/NA	Water	350.1	
640-44981-K-5 MSD	Matrix Spike Duplicate	Total/NA	Water	350.1	
660-56339-1	TH-72	Total/NA	Ground Water	350.1	
660-56339-2	TH-76	Total/NA	Ground Water	350.1	
660-56339-3	TH-77	Total/NA	Ground Water	350.1	
660-56339-4	BLANK FIELD	Total/NA	Ground Water	350.1	
LCS 680-293277/28	Lab Control Sample	Total/NA	Water	350.1	
MB 680-293277/25	Method Blank	Total/NA	Water	350.1	

Field Service / Mobile Lab

Analysis Batch: 141179

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
660-56339-1	TH-72	Total/NA	Ground Water	Field Sampling	
660-56339-2	TH-76	Total/NA	Ground Water	Field Sampling	
660-56339-3	TH-77	Total/NA	Ground Water	Field Sampling	

Client Sample ID: TH-72

Lab Sample ID: 660-56339-1

Date Collected: 09/05/13 14:15

Matrix: Ground Water

Date Received: 09/05/13 15:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		10	105770	09/09/13 18:30	JHS	TAL NSH
Total Recoverable	Prep	3005A			141185	09/06/13 11:21	RAG	TAL TAM
Total Recoverable	Analysis	6010B		1	141219	09/09/13 10:18	GAF	TAL TAM
Total/NA	Analysis	SM 2540C		1	141356	09/12/13 10:15	TKO	TAL TAM
Total/NA	Analysis	350.1		5	293277	09/11/13 13:37	JME	TAL SAV
Total/NA	Analysis	Field Sampling		1	141179	09/05/13 14:15		TAL TAM

Client Sample ID: TH-76

Lab Sample ID: 660-56339-2

Date Collected: 09/05/13 12:10

Matrix: Ground Water

Date Received: 09/05/13 15:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	105878	09/10/13 12:54	JHS	TAL NSH
Total Recoverable	Prep	3005A			141185	09/06/13 11:21	RAG	TAL TAM
Total Recoverable	Analysis	6010B		1	141219	09/09/13 10:22	GAF	TAL TAM
Total/NA	Analysis	SM 2540C		1	141356	09/12/13 10:15	TKO	TAL TAM
Total/NA	Analysis	350.1		1	293277	09/11/13 12:42	JME	TAL SAV
Total/NA	Analysis	Field Sampling		1	141179	09/05/13 12:10		TAL TAM

Client Sample ID: TH-77

Lab Sample ID: 660-56339-3

Date Collected: 09/05/13 11:03

Matrix: Ground Water

Date Received: 09/05/13 15:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	105770	09/09/13 19:11	JHS	TAL NSH
Total Recoverable	Prep	3005A			141185	09/06/13 11:21	RAG	TAL TAM
Total Recoverable	Analysis	6010B		1	141219	09/09/13 10:25	GAF	TAL TAM
Total/NA	Analysis	SM 2540C		1	141356	09/12/13 10:15	TKO	TAL TAM
Total/NA	Analysis	350.1		1	293277	09/11/13 12:42	JME	TAL SAV
Total/NA	Analysis	Field Sampling		1	141179	09/05/13 11:03		TAL TAM

Client Sample ID: BLANK FIELD

Lab Sample ID: 660-56339-4

Date Collected: 09/05/13 10:15

Matrix: Ground Water

Date Received: 09/05/13 15:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	105770	09/09/13 19:31	JHS	TAL NSH
Total Recoverable	Prep	3005A			141185	09/06/13 11:21	RAG	TAL TAM
Total Recoverable	Analysis	6010B		1	141219	09/09/13 10:28	GAF	TAL TAM
Total/NA	Analysis	SM 2540C		1	141356	09/12/13 10:15	TKO	TAL TAM
Total/NA	Analysis	350.1		1	293277	09/11/13 12:42	JME	TAL SAV

Lab Chronicle

Client: Hillsborough Co Public Utilities Dept
Project/Site: SELF- IAMP Monitoring Wells

TestAmerica Job ID: 660-56339-1

Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

TAL TAM = TestAmerica Tampa, 6712 Benjamin Road, Suite 100, Tampa, FL 33634, TEL (813)885-7427

Method Summary

Client: Hillsborough Co Public Utilities Dept
Project/Site: SELF- IAMP Monitoring Wells

TestAmerica Job ID: 660-56339-1

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	TAL NSH
6010B	Metals (ICP)	SW846	TAL TAM
350.1	Nitrogen, Ammonia	MCAWW	TAL SAV
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL TAM
Field Sampling	Field Sampling	EPA	TAL TAM

Protocol References:

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM = "Standard Methods For The Examination Of Water And Wastewater",

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

TAL TAM = TestAmerica Tampa, 6712 Benjamin Road, Suite 100, Tampa, FL 33634, TEL (813)885-7427

Certification Summary

Client: Hillsborough Co Public Utilities Dept
Project/Site: SELF- IAMP Monitoring Wells

TestAmerica Job ID: 660-56339-1

Laboratory: TestAmerica Tampa

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alabama	State Program	4	40610	06-30-14
Florida	NELAP	4	E84282	06-30-14
Georgia	State Program	4	905	06-30-14
USDA	Federal		P330-11-00177	04-20-14

Laboratory: TestAmerica Nashville

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	ISO/IEC 17025		0453.07	12-31-13
Alaska (UST)	State Program	10	UST-087	07-24-14
Arizona	State Program	9	AZ0473	05-05-14
Arizona	State Program	9	AZ0473	05-05-14 *
Arkansas DEQ	State Program	6	88-0737	04-25-14
California	NELAP	9	1168CA	10-31-13
Canadian Assoc Lab Accred (CALA)	Canada		3744	03-08-14
Connecticut	State Program	1	PH-0220	12-31-13
Florida	NELAP	4	E87358	06-30-14
Illinois	NELAP	5	200010	12-09-13
Iowa	State Program	7	131	05-01-14
Kansas	NELAP	7	E-10229	10-31-13
Kentucky (UST)	State Program	4	19	06-30-14
Louisiana	NELAP	6	30613	06-30-14
Maryland	State Program	3	316	03-31-14
Massachusetts	State Program	1	M-TN032	06-30-14
Minnesota	NELAP	5	047-999-345	12-31-13
Mississippi	State Program	4	N/A	06-30-14
Montana (UST)	State Program	8	NA	01-01-15
Nevada	State Program	9	TN00032	07-31-14
New Hampshire	NELAP	1	2963	10-10-13
New Jersey	NELAP	2	TN965	06-30-14
New York	NELAP	2	11342	04-01-14
North Carolina DENR	State Program	4	387	12-31-13
North Dakota	State Program	8	R-146	06-30-14
Ohio VAP	State Program	5	CL0033	01-19-14
Oklahoma	State Program	6	9412	08-31-14
Oregon	NELAP	10	TN200001	04-29-14
Pennsylvania	NELAP	3	68-00585	06-30-14
Rhode Island	State Program	1	LAO00268	12-30-13
South Carolina	State Program	4	84009 (001)	02-28-14
Tennessee	State Program	4	2008	02-23-14
Texas	NELAP	6	T104704077-09-TX	08-31-14
USDA	Federal		S-48469	11-02-13
Utah	NELAP	8	TN00032	07-31-14
Virginia	NELAP	3	460152	06-14-14
Washington	State Program	10	C789	07-19-14
West Virginia DEP	State Program	3	219	02-28-14
Wisconsin	State Program	5	998020430	08-31-14
Wyoming (UST)	A2LA	8	453.07	12-31-13

Laboratory: TestAmerica Savannah

* Expired certification is currently pending renewal and is considered valid.

Certification Summary

Client: Hillsborough Co Public Utilities Dept
Project/Site: SELF- IAMP Monitoring Wells

TestAmerica Job ID: 660-56339-1

Laboratory: TestAmerica Savannah (Continued)

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
	AFCEE		SAVLAB	
A2LA	DoD ELAP		399.01	07-31-14
A2LA	ISO/IEC 17025		399.01	02-28-15
Alabama	State Program	4	41450	06-30-14
Arkansas DEQ	State Program	6	88-0692	02-01-14 *
California	NELAP	9	3217CA	07-31-14 *
Colorado	State Program	8	N/A	12-31-13
Connecticut	State Program	1	PH-0161	03-31-15
Florida	NELAP	4	E87052	06-30-14
GA Dept. of Agriculture	State Program	4	N/A	12-31-13
Georgia	State Program	4	N/A	06-30-14
Georgia	State Program	4	803	06-30-14
Guam	State Program	9	09-005r	06-17-14
Hawaii	State Program	9	N/A	06-30-14
Illinois	NELAP	5	200022	11-30-13
Indiana	State Program	5	N/A	06-30-14
Iowa	State Program	7	353	07-01-15
Kentucky	State Program	4	90084	12-31-13
Kentucky (UST)	State Program	4	18	06-30-14
Louisiana	NELAP	6	30690	06-30-14
Maine	State Program	1	GA00006	08-16-14
Maryland	State Program	3	250	12-31-13
Massachusetts	State Program	1	M-GA006	06-30-14
Michigan	State Program	5	9925	06-30-14
Mississippi	State Program	4	N/A	06-30-14
Montana	State Program	8	CERT0081	01-01-14
Nebraska	State Program	7	TestAmerica-Savannah	06-30-14
New Jersey	NELAP	2	GA769	06-30-14
New Mexico	State Program	6	N/A	06-30-14
New York	NELAP	2	10842	04-01-14
North Carolina DENR	State Program	4	269	12-31-13
North Carolina DHHS	State Program	4	13701	07-31-14
Oklahoma	State Program	6	9984	08-31-13 *
Pennsylvania	NELAP	3	68-00474	06-30-14
Puerto Rico	State Program	2	GA00006	01-01-14
South Carolina	State Program	4	98001	06-30-13 *
Tennessee	State Program	4	TN02961	06-30-14
Texas	NELAP	6	T104704185-08-TX	11-30-13
USDA	Federal		SAV 3-04	04-07-14
Virginia	NELAP	3	460161	06-14-14
Washington	State Program	10	C1794	06-10-14
West Virginia	State Program	3	9950C	12-31-13
West Virginia DEP	State Program	3	94	09-30-13 *
Wisconsin	State Program	5	999819810	08-31-14
Wyoming	State Program	8	8TMS-L	06-30-14

* Expired certification is currently pending renewal and is considered valid.

Serial Number

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

TestAmerica Tampa
6712 Benjamin Rd, Suite 100
Tampa, FL 33634
www.testamericainc.com
Phone: (813) 885 7427
Fax: (813) 885 7049

Alternate Laboratory Name/Location:
Phone:
Fax:

PROJECT REFERENCE	PROJECT NO.	PROJECT LOCATION
SELF-IAMP Monitoring Wells		Lithia, FL
TESTAMERICA (LAB) PROJECT MANAGER	P.O. NUMBER	CONTRACT NO.
Nancy Robertson		
CLIENT (SITE) PM	CLIENT PHONE	CLIENT FAX
Michael Townsel	(813) 663-3222	(813) 274-6801
CLIENT NAME	CLIENT EMAIL	
Hills. County Public Utilities	townselm@hillsboroughcounty.org	
CLIENT ADDRESS		
332 North Falkenburg Road		
COMPANY CONTRACTING THIS WORK	SAMPLER'S SIGNATURE	

PAGE ___ OF ___

STANDARD REPORT DELIVERY ○
DATE DUE ___
EXPEDITED REPORT DELIVERY (SURCHARGE) ○
DATE DUE ___
NUMBER OF COOLERS SUBMITTED PER SHIPMENT

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	MATRIX TYPE: COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT,)	NUMBER OF CONTAINERS SUBMITTED: H2SO4 Ammonia-N	TDS	Chloride	HNO3 As, Fe, Na	REMARKS
								Ice	Ice			
9-5-13	14.15	TH - 72	G	X				X	X	X	X	
↓	12.10	TH - 76	↓	↓				X	X	X	X	
	11.03	TH - 77						X	X	X	X	
↓	10.15	Field Blank	↓	↓				X	X	X	X	

660-56339 Chain of Custody

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
	9-5-13	1530						
RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
Carol McNulty	9/5/13	1530						

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT YES ○ NO ○	CUSTODY SEAL NO.	STL LOG NO.	LABORATORY REMARKS:
						4.9° C cu07

FCU036:12.20.00:2

Original - Return to Laboratory with Sample(s)

9/16/2013

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECEIPT FORM

660-56339 Chain of Custody

Cooler Received/Opened On 9/7/2013@ 0825

1. Tracking # 1831 (last 4 digits, FedEx)

Courier: FedEx IR Gun ID 96210146

2. Temperature of rep. sample or temp blank when opened: 1.2 *Degrees Celsius*

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO...NA

4. Were custody seals on outside of cooler? YES...NO...NA

If yes, how many and where: one front

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) DA

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...NA

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence #_____

I certify that I unloaded the cooler and answered questions 7-14 (intial) CM

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES..NO..NA

b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) CM

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) CM

I certify that I attached a label with the unique LIMS number to each container (intial) CM

21. Were there Non-Conformance issues at login? YES...NO Was a NCM generated? YES...NO...#_____

BIS = Broken in shipment

TestAmerica Tampa
6712 Benjamin Road Suite 100
Tampa, FL 33634
Phone (813) 885-7427 Fax (813) 885-7049

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Robertson, Nancy	Carrier Tracking No(s):	COC No: 660-59590.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: nancy.robertson@testamericainc.com		Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc				Job #: 660-56339-1

Address: 2960 Foster Creighton Drive,	Due Date Requested: 9/11/2013
City: Nashville	TAT Requested (days):
State, Zip: TN, 37204	
Phone: 615-726-0177(Tel) 615-726-3404(Fax)	PO #:
Email:	WO #:
Project Name: SELF MWs,SS,Private Wells,NPDES	Project #: 66003915
Site: Southeast Landfill	SSOW#:

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	300_ORGFM_28D/ (MOD) Anions (all analytes)	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
TH-72 (660-56339-1)	9/5/13	14:15 Eastern		Water			X	1	-1
TH-76 (660-56339-2)	9/5/13	12:10 Eastern		Water			X	1	-2
TH-77 (660-56339-3)	9/5/13	11:03 Eastern		Water			X	1	-3
BLANK EQUIPMENT (660-56339-4)	9/5/13	10:15 Eastern		Water			X	1	-4

Loc: 660
56339

Possible Hazard Identification
Unconfirmed

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by: Rodney PRICE	Date/Time: 9-6-2013 1641	Company	Received by:	Date/Time: 9/7/13 0825	Company TAN
	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ∆ Yes ∆ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 1.2 °C

Page 23 of 31

9/16/2013

TestAmerica Tampa
6712 Benjamin Road Suite 100
Tampa, FL 33634
Phone (813) 885-7427 Fax (813) 885-7049

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Robertson, Nancy	Carrier Tracking No(s):	COC No: 660-59591.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: nancy.robertson@testamericainc.com		Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Analysis Requested		Job #: 660-56339-1
Address: 5102 LaRoche Avenue, ,	Due Date Requested: 9/12/2013			Preservation Codes:
City: Savannah	TAT Requested (days):			A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
State, Zip: GA, 31404				Other:
Phone: 912-354-7858(Tel) 912-352-0165(Fax)	PO #:			
Email:	WO #:			
Project Name: SELF MWs,SS,Private Wells,NPDES	Project #: 66003915			
Site: Southeast Landfill	SSOW#:			

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	350.1/ Nitrogen, Ammonia	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
TH-72 (660-56339-1)	9/5/13	14:15 Eastern		Water			X	1	
TH-76 (660-56339-2)	9/5/13	12:10 Eastern		Water			X	1	
TH-77 (660-56339-3)	9/5/13	11:03 Eastern		Water			X	1	
BLANK EQUIPMENT (660-56339-4)	9/5/13	10:15 Eastern		Water			X	1	

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify)	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	Rodney Rice	9-6-2013 1416				
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by: Dmedia	Date/Time: 9/7/13 0850	Company TASAV

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 0.8°

9/16/2013

Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: Southeast County Landfill	SITE LOCATION: Lithia, Florida	
WELL NO: TH-72	SAMPLE ID: TH-72	DATE: 9-5-13

PURGING DATA

WELL DIAMETER (inches): 2	TUBING DIAMETER (inches): 0.5	WELL SCREEN INTERVAL DEPTH: 180 feet to 190 feet	STATIC DEPTH TO WATER (feet): 87.92	PURGE PUMP TYPE OR BAILER: BP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (190 feet – 87.92 feet) X 0.16 gallons/foot = 16.33 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): ~~189~~ 189	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 189	PURGING INITIATED AT: 13.21	PURGING ENDED AT: 14.15	TOTAL VOLUME PURGED (gallons): 24.84

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)
13.57	16.56	16.56	.46	87.92	6.97	23.48	1005	.57	11.6	NONE	NONE
14.06	4.14	20.70	.46	87.92	6.98	23.47	1007	.61	3.4	↓	↓
14.15	4.14	24.84	.46	87.92	6.98	23.45	1001	.61	1.17	↓	↓

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: Andrew Balloon / ~~Michael Townsel~~ ZACK PATTERSON	SAMPLER(S) SIGNATURE(S): AB Zack Patterson	SAMPLING INITIATED AT: 14.15	SAMPLING ENDED AT: 14.25
PUMP OR TUBING DEPTH IN WELL (feet): 189	TUBING MATERIAL CODE: ~~PE~~ T	FIELD-FILTERED: Y (N) Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP DEDICATED	TUBING DEDICATED (Cemented)	DUPLICATE: Y (N)	

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

REMARKS: **SEE C.O.C. FOR SAMPLE ANALYSIS** Sunny 80's

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)

Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: SELF IAMP	SITE LOCATION: Lithia, Florida	
WELL NO: TH-76	SAMPLE ID:	DATE: 9-5-13

PURGING DATA

WELL DIAMETER (inches): 2	TUBING DIAMETER (inches): 1/2	WELL SCREEN INTERVAL DEPTH: 163.35feet to 178.35feet	STATIC DEPTH TO WATER (feet): 68.22	PURGE PUMP TYPE OR BAILER: DBP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ((178.35 - 68.22) feet – feet) X x.16 gallons/foot = 17.56 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): 177.35	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 177.35	PURGING INITIATED AT: 11.17	PURGING ENDED AT: 12.10	TOTAL VOLUME PURGED (gallons): 27.03

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 mS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
11.52	17.85	17.85	.51	69.96	7.76	23.02	275	.22	44.1	cloudy	NONE
12.01	4.59	22.44	.51	69.96	7.75	23.03	277	.21	45.5	↓	↓
12.10	4.59	27.03	.51	69.96	7.74	22.97	278	.21	46.0	↓	↓

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: ANDREW BALLOON / ZACK PATTERSON	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 12.10	SAMPLING ENDED AT: 12.20
PUMP OR TUBING DEPTH IN WELL (feet): 177.35	TUBING MATERIAL CODE: T	FIELD-FILTERED: Y (N) Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP DEDICATED	TUBING DEDICATED	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	SAMPLE PUMP FLOW RATE (mL per minute)
				See	COC				

SEE C.O.C. FOR SAMPLE ANALYSIS DBP = DEDICATED BLADDER PUMP Sunny 80's

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)

Revision Date: February 2009

Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: SELF IAMP	SITE LOCATION: Lithia, Florida	
WELL NO: TH-77	SAMPLE ID:	DATE: 9-5-13

PURGING DATA

WELL DIAMETER (inches): 2	TUBING DIAMETER (inches): 1/2	WELL SCREEN INTERVAL DEPTH: 154.2 feet to 169.2 feet	STATIC DEPTH TO WATER (feet): 76.66	PURGE PUMP TYPE OR BAILER: DBP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH − STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable)
= (169.2 feet − 76.66 feet) X .16 gallons/foot = 14.80 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): 168.2	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 168.2	PURGING INITIATED AT: 10.05	PURGING ENDED AT: 11.03	TOTAL VOLUME PURGED (gallons): 22.62

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. µS/cm	DISSOLVED OXYGEN mg/L	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
10.43	14.82	14.82	.39	77.04	7.60	23.67	270	.55	43.5	cloudy	NONE
10.53	3.9	18.72	.39	77.04	7.61	23.82	270	.75	46.0	↓	↓
11.03	3.9	22.62	.39	77.04	7.61	23.68	269	.83	47.1	↓	↓

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: ANDREW BALLOON / ZACK PATTERSON	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 11.03	SAMPLING ENDED AT: 11.13
PUMP OR TUBING DEPTH IN WELL (feet): 168.2	TUBING MATERIAL CODE: T	FIELD-FILTERED: Y (N) Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP DEDICATED	TUBING Y DEDICATED	DUPLICATE: Y (N)	

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

SEE C.O.C. FOR SAMPLE ANALYSIS

10% of 43.5 for turb ± 4.3

DBP = DEDICATED BLADDER PUMP.

Sunny 80's

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)

Revision Date: February 2009

Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME:	SELF IAMP	SITE LOCATION:	LITHIA, FLORIDA
WELL NO:	FIELD BLANK	SAMPLE ID:	DATE: 9-5-13

PURGING DATA

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

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

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)

FIELD BLANK

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 INITIATED AT:	SAMPLING ENDED AT:
ZACK PATTERSON	Zack Patterson	10.15	10.20

PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y (N) Filtration Equipment Type:	FILTER SIZE: ____ µm

FIELD DECONTAMINATION: PUMP Y N TUBING Y N (replaced) 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	SAMPLE PUMP FLOW RATE (mL per minute)

REMARKS: See CoC for Analysis.

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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Revision Date: February 12, 2009

Login Sample Receipt Checklist

Client: Hillsborough Co Public Utilities Dept

Job Number: 660-56339-1

Login Number: 56339

List Source: TestAmerica Tampa

List Number: 1

Creator: McNulty, Carol

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Hillsborough Co Public Utilities Dept

Job Number: 660-56339-1

Login Number: 56339
List Number: 1
Creator: Huckaba, Jimmy

List Source: TestAmerica Nashville
List Creation: 09/07/13 10:07 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Hillsborough Co Public Utilities Dept

Job Number: 660-56339-1

Login Number: 56339
List Number: 1
Creator: Mulvehill, Dana J

List Source: TestAmerica Savannah
List Creation: 09/07/13 09:30 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	