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November 21, 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. 38 – October 2013**

Dear Mr. Morris:

The Hillsborough County Public Utilities Department (County) is pleased to provide the analytical results from the October 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 October 2, 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, and 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 wells TH-72, TH-76, and TH-77 were at 2.6, 61.9 and 52.7 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 continue to direct the Field Sampling Team to reduce the pumping rates to help achieve lower turbidity values prior to sample collection.

### **Conductivity**

The conductivity values observed in TH-72, TH-76, and TH-77 were 1,566, 399, and 383 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 1,000 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 120 mg/l and 240 mg/l, respectively, which is consistent with the unaffected deep wells across the site.

### **Chloride**

The chloride in TH-72 was observed at 350 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 13 mg/l and 9.1 mg/l, respectively, which is consistent with the unaffected deep wells across the site.

### **Total Ammonia**

The well closest to the source, TH-72 continues to exhibit ammonia above the former groundwater cleanup target level (GCTL) of 2.8 mg/l, at a concentration of 7.4 mg/l. The two down gradient monitoring wells, TH-76 and TH-77 were observed at 0.38 and 0.39 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 0.79, 1.7, and 1.3 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 October 4, 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. This diagram was generated manually in AutoCad <sup>TM</sup> utilizing only the three data points closest to the sinkhole. For the month of October, the elevation change between TH-72 and TH-76 is again only 0.03 ft., and the change between TH-72 and TH-77 is only 0.21 ft. The diagram indicates that flow within the UFA in the area of the former sinkhole 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 gradient over the period of record, and what appears to be a very consistent direction of flow, an additional down gradient UFA monitoring well may be warranted.

#### **Conclusions**

The upper Floridan / Limestone aquifer monitoring well, TH-72, which is located closest to the source, 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. Consistent concentrations of TDS, chloride, ammonia, iron, sodium, and conductivity have been observed, and no apparent trends are evident. However, the impacts, which were not unexpected, have only been observed 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. Conductivity, TDS, chloride and ammonia are all very low and consistent with the historical data set for the other 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.

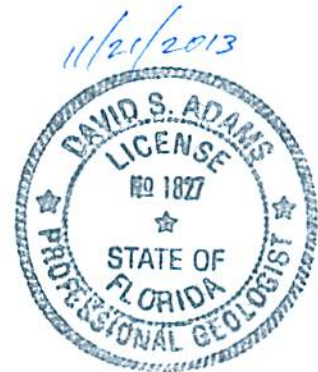
Enclosed for your review please find a site location map depicting the network of IAMP monitoring wells the water quality data summary table for the October 2013 sampling event, a groundwater elevation data table, groundwater contour and flow diagrams for the surficial and upper Floridan / Limestone 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.

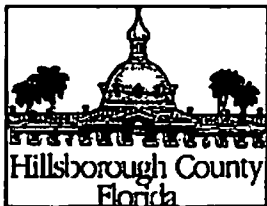
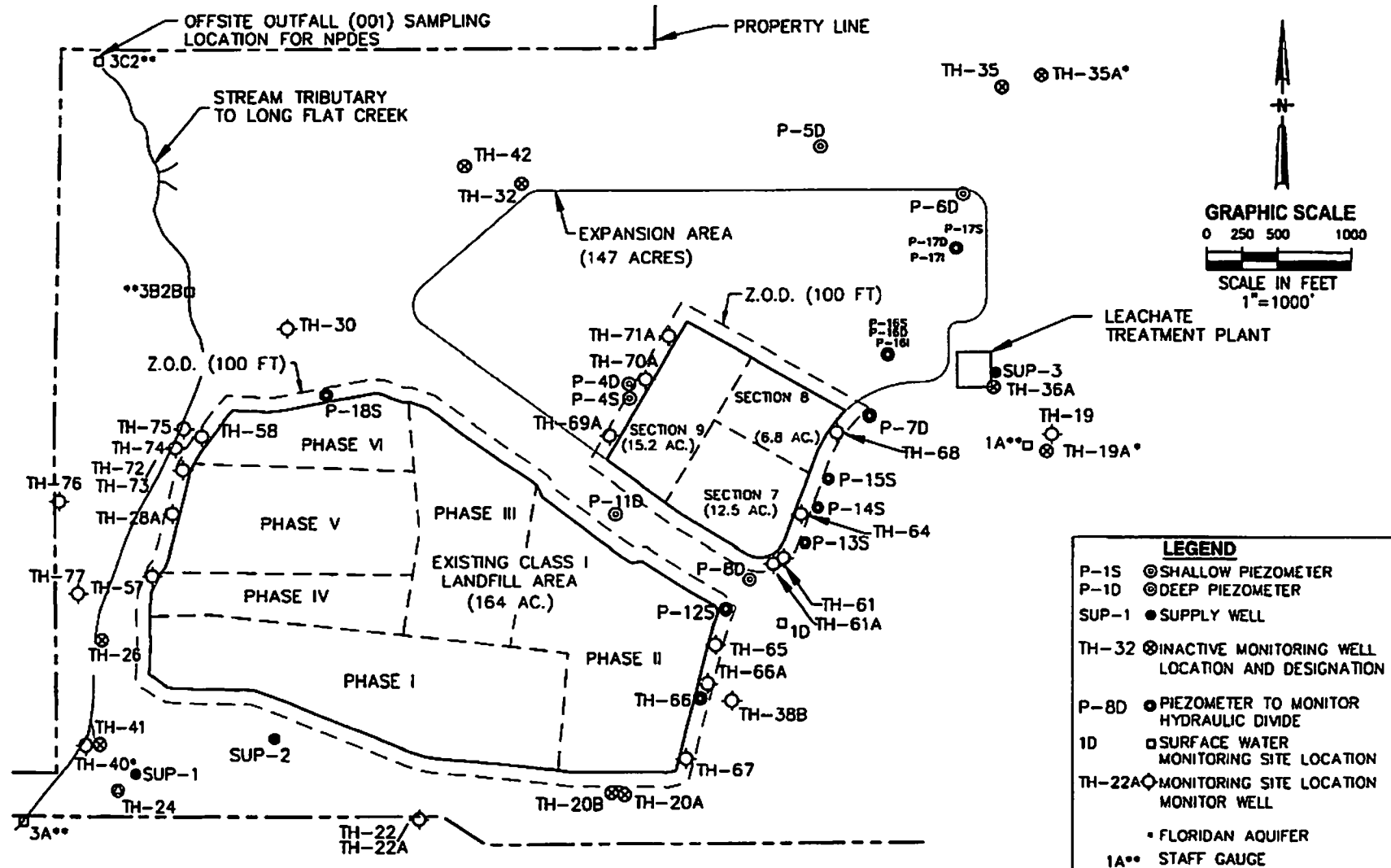
Respectfully submitted,



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



xc: George Cassidy, Director, Public Utilities Department  
Patricia Berry, Solid Waste Division Manager, Public Works Department  
Andy Berry, Environmental Services, Public Utilities Department  
Larry Ruiz, Landfill Manager, Public Works Department  
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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



**HDR**

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

**Southeast County Landfill  
Laboratory Analytical Data  
Upper Floridan Groundwater Monitoring Wells  
October 2, 2013**

GENERAL PARAMETERS	Upper Floridan Wells			(MCL) STANDARD
	TH-72	TH-76	TH-77	
conductivity (umhos/cm) (field)	1566	399	383	NS
dissolved oxygen (mg/l) (field)	0.32	0.22	0.69	NS
pH (field)	6.86	7.61	7.50	(6.5 - 8.5)**
temperature (°C) (field)	23.53	22.99	23.59	NS
turbidity (NTU) (field)	12.6	61.9	52.7	NS
total dissolved solids (mg/l)	1000	120	240	500**
chloride (mg/l)	350	13	9.1	250**
ammonia nitrogen (mg/l as N)	7.4 J3	0.38	0.39	2.8***
				(MCL) STANDARD
Metals: (mg/l)	TH-72	TH-76	TH-77	
arsenic	0.004 u	0.004 u	0.004 u	0.01*
iron	0.79	1.7	1.3	0.3**
sodium	120	20	17	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. J3 = Estimated value Spike recovery of RPD outside of criteria. *=DENOTES PRIMARY DRINKING WATER STANDARD **=DENOTES SECONDARY DRINKING WATER STANDARD ***=DENOTES GROUNDWATER CLEANUP TARGET LEVELS				
<div>1000</div> ug/l=MICROGRAMS PER LITER mg/l=MILLIGRAMS PER LITER NS=NO STANDARD				

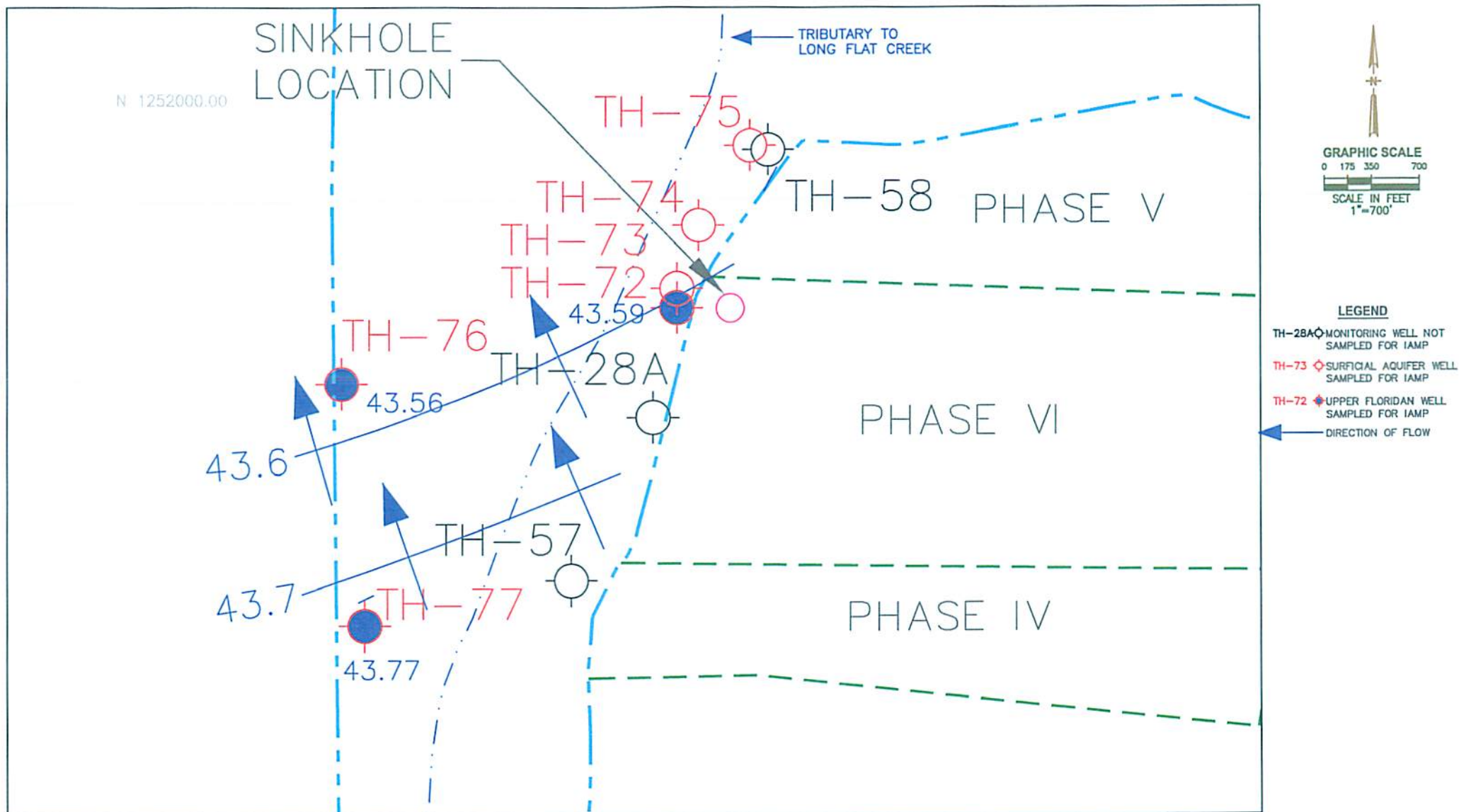
**Southeast County Landfill**  
**Groundwater and Surface Water Elevations**  
**October 4, 2013**

Measuring Point I.D.	T.O.C. Elevations (NGVD)	W.L. B.T.O.C.	W.L. (NGVD)	Time
P-4D	140.78	20.84	119.94	12:53
P-4S	140.95	9.72	131.23	12:54
P-5D	151.94	ND	ND	11:29
P-6D-A	148.01	23.40	124.61	13:00
P-7D	138.92	15.51	123.41	12:17
P-8D	138.34	16.62	121.72	12:33
P-11D	138.02	15.70	122.32	12:36
P-12S	134.97	12.60	122.37	12:31
P-13S	140.21	16.87	123.34	12:25
P-14S	138.56	15.03	123.53	12:23
P-15S	139.19	18.12	121.07	12:21
P-16S	143.38	15.63	127.75	13:20
P-16I	144.15	22.34	121.81	13:19
P-16D	143.84	22.02	121.82	13:18
P-17S	137.35	ND	ND	13:25
P-17I	137.32	13.79	123.53	13:26
P-17D	137.22	14.14	123.08	13:24
P-18S	129.86	17.10	112.76	12:04
P-19	133.36	7.89	125.47	13:32
P-20	132.38	10.08	122.30	13:15
P-21	122.79	1.50	121.29	13:05
P-22	128.35	6.79	121.56	13:07
P-23	143.13	21.38	121.75	13:11
TH-19*	130.27	87.93	42.34	13:49
TH-20A	131.86	8.34	123.52	14:08
TH-20B	132.57	9.24	123.33	14:09
TH-22	128.82	4.42	124.40	10:17
TH-22A	129.27	5.03	124.24	10:16
TH-24A	128.23	4.04	124.19	10:23
TH-28A	131.10	27.43	103.67	10:45
TH-30	128.88	23.60	105.28	10:36
TH-32	129.90	11.58	118.32	11:59
TH-35	145.98	26.54	119.44	13:41
TH-36A	152.70	37.89	114.81	13:52
TH-38A	130.68	8.90	121.78	14:00
TH-38B	131.81	ND	ND	14:02
TH-40*	124.99	82.70	42.29	10:30
TH-41*	125.00	87.64	37.36	10:28
TH-42*	116.74	65.69	51.05	11:54
TH-57	128.36	18.29	110.07	10:47
TH-58	127.88	27.41	100.47	10:38
TH-61	138.73	15.78	122.95	12:30
TH-61A	139.45	15.72	123.73	12:29
TH-64	139.64	15.36	124.28	12:25
TH-65	135.40	12.97	122.43	13:56
TH-66	130.58	7.22	123.36	14:02
TH-66A	130.66	7.62	123.04	14:02
TH-67	129.51	4.98	124.53	14:04
TH-68	140.01	15.60	124.41	12:19
TH-69A	144.97	23.96	121.01	12:40
TH-70A	146.63	25.62	121.01	12:43
TH-71A	146.95	25.26	121.69	12:55
TH-72	130.96	87.37	43.59	10:41
TH-73	131.07	29.74	101.33	10:40
TH-74	109.08	8.87	100.21	10:53
TH-75	106.92	7.45	99.47	10:56
TH-76	111.21	67.65	43.56	11:29
TH-77	119.88	76.11	43.77	11:17
SW-3A	3.0'=125.53'	0.70	123.23	10:10
SW-3B2B	3.0'=97.97'	0.70	95.67	11:06
SW-3C2	6.0'=92.33'	1.68	88.01	11:39
Mine Cut #1	4.0'=122.14'	ND	ND	ND
Mine Cut #2	6.0'=123.47'	3.20	120.67	13:45
Mine Cut #3	4.0'=112.27'	ND	ND	ND
Mine Cut #4	5.0'=97.54'	1.58	94.12	11:46
NGVD = National Geodetic Vertical Datum T.O.C. = Top of Casing B.T.O.C. = Below Top of Casing * = Floridan Well ND = No Data Mine Cut #1 and #3 - unable to read due to thick vegetation. W.L. = Water Level				









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

**Hillsborough County Southeast Landfill**  
**Laboratory Analytical Results from IAMP Groundwater Monitoring**  
**TH-72**

Date	Depth to Water (feet)	Water Table Elevation (NGVD)	conductivity (umhos/cm) (field)	dissolved oxygen (mg/l) (field)	pH (field)	temperature (°C) (field)	turbidity (NTU) (field)	total dissolved solids (mg/l)	chloride (mg/l)	ammonia nitrogen (mg/l as N)	arsenic (mg/l)	iron (mg/l)	sodium (mg/l)
01/27/2011	115.69	15.27	551	0.39	7.43	22.88	3.2	320	32	0.22	0.004 u	0.52	32
02/03/2011	112.18	18.78	565	1.09	7.38	22.95	9.9	300	32	0.21	0.004 u	0.62	27
02/10/2011	109.80	21.16	514	1.58	7.34	22.65	3.2	340	31	0.28	0.004 u	0.54	31
02/14/2011	108.18	22.78	483	1.15	7.36	22.7	3.5	320	32	0.24	0.0013 u	0.58	32
02/24/2011	111.71	19.25	513	0.19	7.34	22.85	1	350	32	0.22	0.004 u	0.53	31
03/03/2011	111.88	19.08	579	0.77	7.35	22.8	0.8	330	31	0.23	0.004 u	0.43	32
03/10/2011	113.65	17.31	551	1.26	7.41	22.73	0.9	320	30	0.18	0.004 u	0.35	31
03/17/2011	112.85	18.11	388	1.05	7.34	22.9	0.9	330	30	0.31	0.004 u	0.25	31
03/24/2011	114.33	16.63	1192	1.5	7.58	23.1	1.5	1,100	350	9	0.004 u	0.64	130
04/01/2011	115.70	15.26	928	0.16	7.41	22.8	3.6	620	110	2	0.004 u	0.24	59
04/08/2011	112.10	18.86	810	0.92	7.35	23.13	6.1	420	87	1.9	0.004 u	0.22	51
05/05/2011	116.21	14.75	609	0.71	7.67	23.01	6.6	320	33	0.3	0.004 u	0.27	37
06/08/2011	119.19	11.77	607	0.71	7.65	23.35	4.51	340	32	0.57	0.004 u	0.2	34
07/07/2011	113.30	17.66	606	0.72	7.4	23.25	3.94	150	64	2.1	0.004 u	7.9	27
08/04/2011	103.31	27.65	564	0.33	7.29	23.18	0.4	360	33	0.21	0.004 u	0.18 i	34
09/08/2011	97.99	32.97	536	1.11	7.29	23.2	0.6	340	34	0.41	0.004 u	0.18 i	36
10/04/2011	99.45	31.51	471	1.69	7.31	23.13	1.1	290	31	0.3	0.004 u	0.14 i	34
11/03/2011	103.37	27.59	550	1.8	7.28	23.04	1.51	290	32	0.29	0.004 u	0.15 i	34
12/08/2011	106.80	24.16	528	1.92	7.31	22.9	0.73	320	29	0.32	0.004 u	0.13 i	33
01/05/2012	113.08	17.88	535	0.2	7.23	22.74	0.44	330	32	0.29	0.004 u	0.097 i	31
02/10/2012	113.86	17.10	511	0.94	7.3	22.89	1.39	310	28	0.28	0.004 u	0.13 i	30
03/07/2012	121.00	9.96	575	0.27	7.15	23.23	0.5	310	25	0.22	0.004 u	0.11 i	31
04/05/2012	124.96	6.00	522	1.09	7.08	23.18	0.65	280	28	0.41	0.004 u	0.11 i	29
05/03/2012	126.55	4.41	746	1.6	6.9	23.46	0.81	380	72	2.3	0.004 u	0.54	49
06/07/2012	120.46	10.50	641	0.72	7.07	23.4	0.26	370	46	1	0.004 u	0.23	37
07/05/2012	104.95	26.01	900	0.23	6.54	23.52	0.4	650	190	2.9 j3	0.004 u	0.39	70
08/03/2012	98.26	32.70	843	0.69	6.77	23.6	2.23	730	210	3	0.004 u	0.48	78
09/06/2012	91.18	39.66	2,357	0.2	6.51	23.62	1.05	1,300	570	12	0.004 u	1.1	170
10/04/2012	90.19	40.77	1,654	0.6	6.43	23.22	0.46	1,500	650	25	0.004 u	1.9	210
11/07/2012	99.29	31.67	2,488	0.76	6.58	23.03	0.74	1,400	540	15	0.004 u	1.4	180
12/05/2012	101.82	29.14	2,416	0.23	6.49	23.18	0.45	1,300	540	13	0.004 u	1.3	180 j3
01/03/2013	100.65	30.31	2,430	1.1	6.44	23.09	0.42	1,400	500	15	0.004 u	1.3	170 j3
02/07/2013	105.58	25.38	2,206	0.6	6.5	23.1	0.22	1,100	470	13	0.004 u	1.1	160
03/07/2013	110.00	20.96	1,234	0.3	6.61	22.85	0.41	770	290	11	0.004 u	1.1	110
04/04/2013	111.35	19.61	1,252	0.33	6.74	23.15	9.9	870	260	10	0.004 u	1	100
05/02/2013	109.56	21.40	1,615	0.18	6.83	23.16	0.45	810	300	8.6	0.004 u	0.87	110
06/04/2013	109.62	21.34	1,440	0.31	7.13	23.3	0.27	850	290	8.4	0.004 u	0.82	120
07/03/2013	98.72	32.24	1,450	0.18	7.03	23.5	0.41	820	280	8.8	0.004 u	0.79	120
08/02/2013	ND	ND	1,256	0.46	6.88	23.43	0.2	800	290	6.8	0.004 u	0.72	120
09/05/2013	87.92	43.04	1,001	0.61	6.98	23.45	1.17	760	290	7.6	0.004 u	0.71	110

New survey data beginning with 10/4/2012.

u = parameter was analyzed but not detected

i = reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.

j3 = estimated value; value may not be accurate. Spike recovery or RPD outside of criteria.

ND = No Data - water levels collected during quarterly ADR.

**1,100** EXCEEDS STANDARD

**Hillsborough County Southeast Landfill  
Laboratory Analytical Results from IAMP Groundwater Monitoring  
TH-76**

Date	Depth to Water (feet)	Water Table Elevation (NGVD)	conductivity (umhos/cm) (field)	dissolved oxygen (mg/l) (field)	pH (field)	temperature (°C) (field)	turbidity (NTU) (field)	total dissolved solids (mg/l)	chloride (mg/l)	ammonia nitrogen (mg/l as N)	arsenic (mg/l)	iron (mg/l)	sodium (mg/l)
05/02/2013	89.83	21.38	450	0.22	7.63	22.81	36.9	220	13	0.4	0.004 u	1.1	20
06/04/2013	89.91	21.30	401	0.27	7.86	22.9	16.2	240	13	0.4	0.004 u	0.66	22
07/03/2013	79.04	32.17	398	0.19	8	23	28.6	210	12	0.34	0.004 u	0.99	22
08/02/2013	ND	ND	343	0.22	7.57	23.02	42.2	230	13	0.26	0.004 u	1.6	21
09/05/2013	68.22	42.99	278	0.21	7.74	22.97	46	240	12	0.32	0.004 u	1.5	20

u = parameter was analyzed but not detected

ND = No Data - water levels collected during quarterly ADR.

**1.1** EXCEEDS STANDARD

**Hillsborough County Southeast Landfill  
Laboratory Analytical Results from IAMP Groundwater Monitoring  
TH-77**

Date	Depth to Water (feet)	Water Table Elevation (NGVD)	conductivity (umhos/cm) (field)	dissolved oxygen (mg/l) (field)	pH (field)	temperature (°C) (field)	turbidity (NTU) (field)	total dissolved solids (mg/l)	chloride (mg/l)	ammonia nitrogen (mg/l as N)	arsenic (mg/l)	iron (mg/l)	sodium (mg/l)
05/02/2013	98.31	21.57	440	0.57	7.39	23.39	59.4	190	9.4	0.39	0.004 u	<b>1.2</b>	17
06/04/2013	98.38	21.50	384	0.56	7.86	23.59	35.4	230	8.9	0.42	0.004 u	<b>0.89</b>	18
07/03/2013	87.48	32.40	388	0.41	7.8	23.7	38.4	210	8.9	0.4	0.004 u	<b>1.1</b>	17
08/02/2013	ND	ND	334	0.47	7.44	23.66	42.9	230	9.2	0.36	0.004 u	<b>1.1</b>	18
09/05/2013	76.66	43.22	269	0.83	7.61	23.68	47.1	230	8.9	0.35	0.004 u	<b>0.96</b>	16

u = parameter was analyzed but not detected

ND = No Data - water levels collected during quarterly ADR.

**1.2**

EXCEEDS STANDARD

# 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: 660-56863-1

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:  
10/11/2013 3:51:56 PM

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*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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## Sample Summary

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

TestAmerica Job ID: 660-56863-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
660-56863-1	TH-72	Ground Water	10/02/13 12:10	10/02/13 14:15
660-56863-2	TH-76	Ground Water	10/02/13 11:26	10/02/13 14:15
660-56863-3	TH-77	Ground Water	10/02/13 10:14	10/02/13 14:15
660-56863-4	BLANK FIELD 56863	Ground Water	10/02/13 10:00	10/02/13 14:15
660-56863-5	DUPLICATE NOT BLANK	Ground Water	10/02/13 00:00	10/02/13 14:15

## Case Narrative

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

TestAmerica Job ID: 660-56863-1

**Job ID: 660-56863-1**

**Laboratory: TestAmerica Tampa**

### Narrative

#### Job Narrative 660-56863-1

### Comments

No additional comments.

### Receipt

The samples were received on 10/2/2013 2:15 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.1° C.

### Metals

Method 6010B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for batch 142009 were outside control limits. The associated laboratory control sample (LCS) recovery met acceptance criteria.

No other analytical or quality issues were noted.

### General Chemistry

Method 350.1: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for batch 297308 were outside control limits with the parent sample 4 times greater than the spike amount. The associated laboratory control sample (LCS) recovery met acceptance criteria. The sample is flagged with J3.

No other analytical or quality issues were noted.

## Definitions/Glossary

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

TestAmerica Job ID: 660-56863-1

### 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.
J3	Estimated value; value may not be accurate. Spike recovery or RPD outside of criteria.

#### General Chemistry

Qualifier	Qualifier Description
J3	Estimated value; value may not be accurate. Spike recovery or RPD outside of criteria.
U	Indicates that the compound was analyzed for but not detected.
I	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.

### Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	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: 660-56863-1

### Client Sample ID: TH-72

### Lab Sample ID: 660-56863-1

Analyte	Result	Qualifier	PQL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	350		5.0	2.5	mg/L	10		300.0	Total/NA
Iron	790		200	50	ug/L	1		6010B	Total Recoverable
Sodium	120		0.50	0.31	mg/L	1		6010B	Total Recoverable
Ammonia as N	7.4	J3	0.25	0.13	mg/L	5		350.1	Total/NA
Total Dissolved Solids	1000		25	25	mg/L	1		SM 2540C	Total/NA
Field pH	6.86				SU	1		Field Sampling	Total/NA
Field Temperature	23.53				Degrees C	1		Field Sampling	Total/NA
Oxygen, Dissolved	0.32				mg/L	1		Field Sampling	Total/NA
Specific Conductance	1566				uS/cm	1		Field Sampling	Total/NA
Turbidity	12.60				NTU	1		Field Sampling	Total/NA

### Client Sample ID: TH-76

### Lab Sample ID: 660-56863-2

Analyte	Result	Qualifier	PQL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	13		0.50	0.25	mg/L	1		300.0	Total/NA
Iron	1700		200	50	ug/L	1		6010B	Total Recoverable
Sodium	20		0.50	0.31	mg/L	1		6010B	Total Recoverable
Ammonia as N	0.38		0.050	0.026	mg/L	1		350.1	Total/NA
Total Dissolved Solids	120		10	10	mg/L	1		SM 2540C	Total/NA
Field pH	7.61				SU	1		Field Sampling	Total/NA
Field Temperature	22.99				Degrees C	1		Field Sampling	Total/NA
Oxygen, Dissolved	0.22				mg/L	1		Field Sampling	Total/NA
Specific Conductance	399				uS/cm	1		Field Sampling	Total/NA
Turbidity	61.9				NTU	1		Field Sampling	Total/NA

### Client Sample ID: TH-77

### Lab Sample ID: 660-56863-3

Analyte	Result	Qualifier	PQL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	9.1		0.50	0.25	mg/L	1		300.0	Total/NA
Iron	1300		200	50	ug/L	1		6010B	Total Recoverable
Sodium	17		0.50	0.31	mg/L	1		6010B	Total Recoverable
Ammonia as N	0.39		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	7.50				SU	1		Field Sampling	Total/NA
Field Temperature	23.59				Degrees C	1		Field Sampling	Total/NA
Oxygen, Dissolved	0.69				mg/L	1		Field Sampling	Total/NA
Specific Conductance	383				uS/cm	1		Field Sampling	Total/NA
Turbidity	52.7				NTU	1		Field Sampling	Total/NA

### Client Sample ID: BLANK FIELD 56863

### Lab Sample ID: 660-56863-4

Analyte	Result	Qualifier	PQL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sodium	0.52		0.50	0.31	mg/L	1		6010B	Total Recoverable
Ammonia as N	0.034	I	0.050	0.026	mg/L	1		350.1	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Tampa

## Detection Summary

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

TestAmerica Job ID: 660-56863-1

Client Sample ID: DUPLICATE NOT BLANK

Lab Sample ID: 660-56863-5

Analyte	Result	Qualifier	PQL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	13		0.50	0.25	mg/L	1		300.0	Total/NA
Iron	1700		200	50	ug/L	1		6010B	Total Recoverable
Sodium	21		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	260		10	10	mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Tampa

# Client Sample Results

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

TestAmerica Job ID: 660-56863-1

**Client Sample ID: TH-72**

**Date Collected: 10/02/13 12:10**

**Date Received: 10/02/13 14:15**

**Lab Sample ID: 660-56863-1**

**Matrix: Ground Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	350		5.0	2.5	mg/L			10/08/13 16:53	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		10/03/13 13:11	10/04/13 10:57	1
Iron	790		200	50	ug/L		10/03/13 13:11	10/04/13 10:57	1
Sodium	120		0.50	0.31	mg/L		10/03/13 13:11	10/04/13 10:57	1

## General Chemistry

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N	7.4	J3	0.25	0.13	mg/L			10/07/13 19:49	5
Total Dissolved Solids	1000		25	25	mg/L			10/07/13 11:46	1

## Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Field pH	6.86				SU			10/02/13 12:10	1
Field Temperature	23.53				Degrees C			10/02/13 12:10	1
Oxygen, Dissolved	0.32				mg/L			10/02/13 12:10	1
Specific Conductance	1566				uS/cm			10/02/13 12:10	1
Turbidity	12.60				NTU			10/02/13 12:10	1

TestAmerica Tampa



# Client Sample Results

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

TestAmerica Job ID: 660-56863-1

**Client Sample ID: TH-76**

**Date Collected: 10/02/13 11:26**

**Date Received: 10/02/13 14:15**

**Lab Sample ID: 660-56863-2**

**Matrix: Ground Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	13		0.50	0.25	mg/L			10/08/13 17:05	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		10/03/13 13:11	10/04/13 11:00	1
Iron	1700		200	50	ug/L		10/03/13 13:11	10/04/13 11:00	1
Sodium	20		0.50	0.31	mg/L		10/03/13 13:11	10/04/13 11:00	1

## General Chemistry

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N	0.38		0.050	0.026	mg/L			10/07/13 18:28	1
Total Dissolved Solids	120		10	10	mg/L			10/07/13 11:46	1

## Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Field pH	7.61				SU			10/02/13 11:26	1
Field Temperature	22.99				Degrees C			10/02/13 11:26	1
Oxygen, Dissolved	0.22				mg/L			10/02/13 11:26	1
Specific Conductance	399				uS/cm			10/02/13 11:26	1
Turbidity	61.9				NTU			10/02/13 11:26	1

TestAmerica Tampa

# Client Sample Results

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

TestAmerica Job ID: 660-56863-1

**Client Sample ID: TH-77**

**Date Collected: 10/02/13 10:14**

**Date Received: 10/02/13 14:15**

**Lab Sample ID: 660-56863-3**

**Matrix: Ground Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	9.1		0.50	0.25	mg/L			10/08/13 17:18	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		10/03/13 13:11	10/04/13 11:03	1
Iron	1300		200	50	ug/L		10/03/13 13:11	10/04/13 11:03	1
Sodium	17		0.50	0.31	mg/L		10/03/13 13:11	10/04/13 11:03	1

## General Chemistry

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N	0.39		0.050	0.026	mg/L			10/07/13 18:28	1
Total Dissolved Solids	240		10	10	mg/L			10/07/13 11:46	1

## Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Field pH	7.50				SU			10/02/13 10:14	1
Field Temperature	23.59				Degrees C			10/02/13 10:14	1
Oxygen, Dissolved	0.69				mg/L			10/02/13 10:14	1
Specific Conductance	383				uS/cm			10/02/13 10:14	1
Turbidity	52.7				NTU			10/02/13 10:14	1

# Client Sample Results

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

TestAmerica Job ID: 660-56863-1

**Client Sample ID: BLANK FIELD 56863**

**Lab Sample ID: 660-56863-4**

**Date Collected: 10/02/13 10:00**

**Matrix: Ground Water**

**Date Received: 10/02/13 14:15**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.25	U	0.50	0.25	mg/L			10/08/13 17:30	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		10/03/13 13:11	10/04/13 11:07	1
Iron	50	U	200	50	ug/L		10/03/13 13:11	10/04/13 11:07	1
Sodium	0.52		0.50	0.31	mg/L		10/03/13 13:11	10/04/13 11:07	1

## General Chemistry

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N	0.034	I	0.050	0.026	mg/L			10/07/13 18:28	1
Total Dissolved Solids	5.0	U	5.0	5.0	mg/L			10/07/13 11:46	1

# Client Sample Results

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

TestAmerica Job ID: 660-56863-1

**Client Sample ID: DUPLICATE NOT BLANK**

**Lab Sample ID: 660-56863-5**

**Date Collected: 10/02/13 00:00**

**Matrix: Ground Water**

**Date Received: 10/02/13 14:15**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	13		0.50	0.25	mg/L			10/08/13 17:43	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		10/03/13 13:11	10/04/13 11:10	1
Iron	1700		200	50	ug/L		10/03/13 13:11	10/04/13 11:10	1
Sodium	21		0.50	0.31	mg/L		10/03/13 13:11	10/04/13 11:10	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			10/07/13 18:28	1
Total Dissolved Solids	260		10	10	mg/L			10/07/13 11:46	1

# QC Sample Results

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

TestAmerica Job ID: 660-56863-1

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 680-297351/2

Matrix: Water

Analysis Batch: 297351

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.25	U	0.50	0.25	mg/L			10/08/13 13:44	1

Lab Sample ID: LCS 680-297351/3

Matrix: Water

Analysis Batch: 297351

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	10.0		mg/L		100	90 - 110

Lab Sample ID: LCSD 680-297351/4

Matrix: Water

Analysis Batch: 297351

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	10.0	10.0		mg/L		100	90 - 110	0	30

Lab Sample ID: 660-56858-E-1 MS

Matrix: Water

Analysis Batch: 297351

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	49		20.0	69.2		mg/L		99	80 - 120

Lab Sample ID: 660-56858-E-1 MSD

Matrix: Water

Analysis Batch: 297351

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	49		20.0	69.4		mg/L		100	80 - 120	0	30

Lab Sample ID: 680-94528-C-5 MS

Matrix: Water

Analysis Batch: 297351

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	10		10.0	20.3		mg/L		101	80 - 120

Lab Sample ID: 680-94528-C-5 MSD

Matrix: Water

Analysis Batch: 297351

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10		10.0	20.4		mg/L		102	80 - 120	0	30

TestAmerica Tampa

# QC Sample Results

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

TestAmerica Job ID: 660-56863-1

## Method: 6010B - Metals (ICP)

Lab Sample ID: MB 660-141976/1-A

Matrix: Water

Analysis Batch: 142009

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 141976

Analyte	MB Result	MB Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	4.0	U	10	4.0	ug/L		10/03/13 13:11	10/04/13 09:33	1
Iron	50	U	200	50	ug/L		10/03/13 13:11	10/04/13 09:33	1
Sodium	0.31	U	0.50	0.31	mg/L		10/03/13 13:11	10/04/13 09:33	1

Lab Sample ID: LCS 660-141976/2-A

Matrix: Water

Analysis Batch: 142009

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 141976

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	1000	970		ug/L		97	80 - 120
Iron	1000	1070		ug/L		107	80 - 120
Sodium	10.0	10.1		mg/L		101	80 - 120

Lab Sample ID: 660-56865-E-7-B MS

Matrix: Water

Analysis Batch: 142009

Client Sample ID: Matrix Spike

Prep Type: Total Recoverable

Prep Batch: 141976

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	4.0	U	1000	985		ug/L		99	80 - 120
Iron	2000	J3	1000	3690	J3	ug/L		173	80 - 120
Sodium	24		10.0	33.5		mg/L		98	80 - 120

Lab Sample ID: 660-56865-E-7-C MSD

Matrix: Water

Analysis Batch: 142009

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total Recoverable

Prep Batch: 141976

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	4.0	U	1000	993		ug/L		99	80 - 120	1	20
Iron	2000	J3	1000	3780	J3	ug/L		182	80 - 120	2	20
Sodium	24		10.0	34.1		mg/L		103	80 - 120	2	20

## Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 680-297308/35

Matrix: Water

Analysis Batch: 297308

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			10/07/13 19:56	1

Lab Sample ID: LCS 680-297308/27

Matrix: Water

Analysis Batch: 297308

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	0.987		mg/L		99	90 - 110

TestAmerica Tampa



# QC Sample Results

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

TestAmerica Job ID: 660-56863-1

## Method: 350.1 - Nitrogen, Ammonia (Continued)

Lab Sample ID: 660-56863-1 MS

Matrix: Ground Water

Analysis Batch: 297308

Client Sample ID: TH-72

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia as N	7.4	J3	1.00	8.06	J3	mg/L		63	90 - 110

Lab Sample ID: 660-56863-1 MSD

Matrix: Ground Water

Analysis Batch: 297308

Client Sample ID: TH-72

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ammonia as N	7.4	J3	1.00	7.88	J3	mg/L		44	90 - 110	2	30

Lab Sample ID: 660-56863-2 DU

Matrix: Ground Water

Analysis Batch: 297308

Client Sample ID: TH-76

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Ammonia as N	0.38		0.360		mg/L		6	30

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

Lab Sample ID: MB 660-142040/1

Matrix: Water

Analysis Batch: 142040

Client Sample ID: Method Blank

Prep Type: Total/NA

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			10/07/13 11:46	1

Lab Sample ID: LCS 660-142040/2

Matrix: Water

Analysis Batch: 142040

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

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

Lab Sample ID: 660-56863-5 DU

Matrix: Ground Water

Analysis Batch: 142040

Client Sample ID: DUPLICATE NOT BLANK

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	260		260		mg/L		0	20

TestAmerica Tampa

## QC Association Summary

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

TestAmerica Job ID: 660-56863-1

### HPLC/IC

#### Analysis Batch: 297351

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
660-56858-E-1 MS	Matrix Spike	Total/NA	Water	300.0	
660-56858-E-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	
660-56863-1	TH-72	Total/NA	Ground Water	300.0	
660-56863-2	TH-76	Total/NA	Ground Water	300.0	
660-56863-3	TH-77	Total/NA	Ground Water	300.0	
660-56863-4	BLANK FIELD 56863	Total/NA	Ground Water	300.0	
660-56863-5	DUPLICATE NOT BLANK	Total/NA	Ground Water	300.0	
680-94528-C-5 MS	Matrix Spike	Total/NA	Water	300.0	
680-94528-C-5 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	
LCS 680-297351/3	Lab Control Sample	Total/NA	Water	300.0	
LCSD 680-297351/4	Lab Control Sample Dup	Total/NA	Water	300.0	
MB 680-297351/2	Method Blank	Total/NA	Water	300.0	

### Metals

#### Prep Batch: 141976

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
660-56863-1	TH-72	Total Recoverable	Ground Water	3005A	
660-56863-2	TH-76	Total Recoverable	Ground Water	3005A	
660-56863-3	TH-77	Total Recoverable	Ground Water	3005A	
660-56863-4	BLANK FIELD 56863	Total Recoverable	Ground Water	3005A	
660-56863-5	DUPLICATE NOT BLANK	Total Recoverable	Ground Water	3005A	
660-56865-E-7-B MS	Matrix Spike	Total Recoverable	Water	3005A	
660-56865-E-7-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	3005A	
LCS 660-141976/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
MB 660-141976/1-A	Method Blank	Total Recoverable	Water	3005A	

#### Analysis Batch: 142009

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
660-56863-1	TH-72	Total Recoverable	Ground Water	6010B	141976
660-56863-2	TH-76	Total Recoverable	Ground Water	6010B	141976
660-56863-3	TH-77	Total Recoverable	Ground Water	6010B	141976
660-56863-4	BLANK FIELD 56863	Total Recoverable	Ground Water	6010B	141976
660-56863-5	DUPLICATE NOT BLANK	Total Recoverable	Ground Water	6010B	141976
660-56865-E-7-B MS	Matrix Spike	Total Recoverable	Water	6010B	141976
660-56865-E-7-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	6010B	141976
LCS 660-141976/2-A	Lab Control Sample	Total Recoverable	Water	6010B	141976
MB 660-141976/1-A	Method Blank	Total Recoverable	Water	6010B	141976

### General Chemistry

#### Analysis Batch: 142040

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
660-56863-1	TH-72	Total/NA	Ground Water	SM 2540C	
660-56863-2	TH-76	Total/NA	Ground Water	SM 2540C	
660-56863-3	TH-77	Total/NA	Ground Water	SM 2540C	
660-56863-4	BLANK FIELD 56863	Total/NA	Ground Water	SM 2540C	
660-56863-5	DUPLICATE NOT BLANK	Total/NA	Ground Water	SM 2540C	
660-56863-5 DU	DUPLICATE NOT BLANK	Total/NA	Ground Water	SM 2540C	
LCS 660-142040/2	Lab Control Sample	Total/NA	Water	SM 2540C	

TestAmerica Tampa

## QC Association Summary

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

TestAmerica Job ID: 660-56863-1

### General Chemistry (Continued)

#### Analysis Batch: 142040 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 660-142040/1	Method Blank	Total/NA	Water	SM 2540C	

#### Analysis Batch: 297308

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
660-56863-1	TH-72	Total/NA	Ground Water	350.1	
660-56863-1 MS	TH-72	Total/NA	Ground Water	350.1	
660-56863-1 MSD	TH-72	Total/NA	Ground Water	350.1	
660-56863-2	TH-76	Total/NA	Ground Water	350.1	
660-56863-2 DU	TH-76	Total/NA	Ground Water	350.1	
660-56863-3	TH-77	Total/NA	Ground Water	350.1	
660-56863-4	BLANK FIELD 56863	Total/NA	Ground Water	350.1	
660-56863-5	DUPLICATE NOT BLANK	Total/NA	Ground Water	350.1	
LCS 680-297308/27	Lab Control Sample	Total/NA	Water	350.1	
MB 680-297308/35	Method Blank	Total/NA	Water	350.1	

### Field Service / Mobile Lab

#### Analysis Batch: 142084

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
660-56863-1	TH-72	Total/NA	Ground Water	Field Sampling	
660-56863-2	TH-76	Total/NA	Ground Water	Field Sampling	
660-56863-3	TH-77	Total/NA	Ground Water	Field Sampling	

# Lab Chronicle

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

TestAmerica Job ID: 660-56863-1

**Client Sample ID: TH-72**

**Date Collected: 10/02/13 12:10**

**Date Received: 10/02/13 14:15**

**Lab Sample ID: 660-56863-1**

**Matrix: Ground Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		10	297351	10/08/13 16:53	CMB	TAL SAV
Total Recoverable	Prep	3005A			141976	10/03/13 13:11	GAF	TAL TAM
Total Recoverable	Analysis	6010B		1	142009	10/04/13 10:57	GAF	TAL TAM
Total/NA	Analysis	SM 2540C		1	142040	10/07/13 11:46	TKO	TAL TAM
Total/NA	Analysis	350.1		5	297308	10/07/13 19:49	JME	TAL SAV
Total/NA	Analysis	Field Sampling		1	142084	10/02/13 12:10		TAL TAM

**Client Sample ID: TH-76**

**Date Collected: 10/02/13 11:26**

**Date Received: 10/02/13 14:15**

**Lab Sample ID: 660-56863-2**

**Matrix: Ground Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	297351	10/08/13 17:05	CMB	TAL SAV
Total Recoverable	Prep	3005A			141976	10/03/13 13:11	GAF	TAL TAM
Total Recoverable	Analysis	6010B		1	142009	10/04/13 11:00	GAF	TAL TAM
Total/NA	Analysis	SM 2540C		1	142040	10/07/13 11:46	TKO	TAL TAM
Total/NA	Analysis	350.1		1	297308	10/07/13 18:28	JME	TAL SAV
Total/NA	Analysis	Field Sampling		1	142084	10/02/13 11:26		TAL TAM

**Client Sample ID: TH-77**

**Date Collected: 10/02/13 10:14**

**Date Received: 10/02/13 14:15**

**Lab Sample ID: 660-56863-3**

**Matrix: Ground Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	297351	10/08/13 17:18	CMB	TAL SAV
Total Recoverable	Prep	3005A			141976	10/03/13 13:11	GAF	TAL TAM
Total Recoverable	Analysis	6010B		1	142009	10/04/13 11:03	GAF	TAL TAM
Total/NA	Analysis	SM 2540C		1	142040	10/07/13 11:46	TKO	TAL TAM
Total/NA	Analysis	350.1		1	297308	10/07/13 18:28	JME	TAL SAV
Total/NA	Analysis	Field Sampling		1	142084	10/02/13 10:14		TAL TAM

**Client Sample ID: BLANK FIELD 56863**

**Date Collected: 10/02/13 10:00**

**Date Received: 10/02/13 14:15**

**Lab Sample ID: 660-56863-4**

**Matrix: Ground Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	297351	10/08/13 17:30	CMB	TAL SAV
Total Recoverable	Prep	3005A			141976	10/03/13 13:11	GAF	TAL TAM
Total Recoverable	Analysis	6010B		1	142009	10/04/13 11:07	GAF	TAL TAM
Total/NA	Analysis	SM 2540C		1	142040	10/07/13 11:46	TKO	TAL TAM
Total/NA	Analysis	350.1		1	297308	10/07/13 18:28	JME	TAL SAV

TestAmerica Tampa

## Lab Chronicle

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

TestAmerica Job ID: 660-56863-1

**Client Sample ID: DUPLICATE NOT BLANK**

**Lab Sample ID: 660-56863-5**

**Date Collected: 10/02/13 00:00**

**Matrix: Ground Water**

**Date Received: 10/02/13 14:15**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	297351	10/08/13 17:43	CMB	TAL SAV
Total Recoverable	Prep	3005A			141976	10/03/13 13:11	GAF	TAL TAM
Total Recoverable	Analysis	6010B		1	142009	10/04/13 11:10	GAF	TAL TAM
Total/NA	Analysis	SM 2540C		1	142040	10/07/13 11:46	TKO	TAL TAM
Total/NA	Analysis	350.1		1	297308	10/07/13 18:28	JME	TAL SAV

### Laboratory References:

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: 660-56863-1

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	TAL SAV
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 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: 660-56863-1

### 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 Savannah

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	02-28-15
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	08-31-14
Pennsylvania	NELAP	3	68-00474	06-30-14
Puerto Rico	State Program	2	GA00006	01-01-14
South Carolina	State Program	4	98001	06-30-14
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

TestAmerica Tampa

## Certification Summary

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

TestAmerica Job ID: 660-56863-1

### 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
West Virginia	State Program	3	9950C	12-31-13
West Virginia DEP	State Program	3	94	06-30-14
Wisconsin	State Program	5	999819810	08-31-14
Wyoming	State Program	8	8TMS-L	06-30-14

# Isamiro

*Journal of Management Inquiry* 18(6)

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⑤ 6712 Benjamin Rd, Suite 100  
Tampa, FL 33634

Phone:  
Fax:[illegible]

## Chain of Custody Record

[illegible]

Form FD 9000-24  
**GROUNDWATER SAMPLING LOG**

SITE NAME: SELF IAMP		SITE LOCATION: Lithia, Florida	
WELL NO: TH-72	SAMPLE ID:		DATE: 10-2-13

**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): 87.39	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) = ( 190 feet - 87.39 feet ) X .16 gallons/foot = 10.26 gallons											
EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME (only fill out if applicable) = .16 gallons + (.0006 gallons/foot X 192 feet) + .30 gallons = 1.61 gallons											
INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 189	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 189	PURGING INITIATED AT: 11.55	PURGING ENDED AT: 12.10	TOTAL VOLUME PURGED (gallons): 7.20							
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)
12.06	5.28	5.28	.48	87.35	6.86	23.55	1560	.34	19.4	NONE	NONE
12.08	.96	6.24	.48	87.38	6.87	23.55	1564	.32	13.69		
12.10	.96	7.20	.48	87.39	6.86	23.53	1566	.32	12.60	↓	↓
<p>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</p> <p>TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0028; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016</p> <p>PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)</p>											

**SAMPLING DATA**

SAMPLED BY (PRINT) / AFFILIATION: ANDREW BALLOON / ZACK PATTERSON				SAMPLER(S) SIGNATURE(S): <i>Zack Patterson</i>				SAMPLING INITIATED AT: 12.10		SAMPLING ENDED AT: 12.22	
PUMP OR TUBING DEPTH IN WELL (feet): 189				TUBING MATERIAL CODE: T				FIELD-FILTERED: Y <input checked="" type="radio"/> N <input type="radio"/>		FILTER SIZE: _____ µm	
FIELD DECONTAMINATION: PUMP Y <input checked="" type="radio"/> N <input type="radio"/> (Dedicated)				TUBING Y <input checked="" type="radio"/> N <input type="radio"/> (Dedicated)				DUPLICATE: Y <input checked="" type="radio"/> N <input type="radio"/>			
SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION				INTENDED ANALYSIS AND/OR METHOD		SAMPLING EQUIPMENT CODE	
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH					
					SEE COC						
SEE C.O.C. FOR SAMPLE ANALYSIS DBP = Dedicated Bladder Pump											
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; RFPF = 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

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Form FD 9000-24  
**GROUNDWATER SAMPLING LOG**

SITE NAME: SELF IAMP		SITE LOCATION: Lithia, Florida	
WELL NO: TH-77	SAMPLE ID:	DATE: 10-2-13	

**PURGING DATA**

WELL DIAMETER (inches): 2	TUBING DIAMETER (inches): 0.5	WELL SCREEN INTERVAL DEPTH: 154.2 feet to 169.2 feet	STATIC DEPTH TO WATER (feet): 76.14	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 - 76.14 feet ) X .16 gallons/foot = 14.90 gallons											
EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME (only fill out if applicable) = 0 gallons + ( 0.006 gallons/foot X 172.2 feet ) + .30 gallons = 1.03 gallons											
INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 168.2	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 168.2	PURGING INITIATED AT: 9.35	PURGING ENDED AT: 10.14	TOTAL VOLUME PURGED (gallons): 23.4							
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)
10.00	15.00	15.0	.60	76.62	7.47	23.55	384	.75	49.1	cloudy	none
10.07	4.2	19.2	.60	76.64	7.49	23.57	383	.74	52.4	↓	↓
10.14	4.2	23.4	.60	76.61	7.50	23.59	383	.69	52.7	↓	↓
WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.85; 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): <i>Zack Patterson</i>				SAMPLING INITIATED AT: 10.14		SAMPLING ENDED AT: 10.26	
PUMP OR TUBING DEPTH IN WELL (feet): 168.2				TUBING MATERIAL CODE: T		FIELD-FILTERED: Y (N)		FILTER SIZE: _____ µm			
FIELD DECONTAMINATION: PUMP Y N (Dedicated)				TUBING Y N (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 COC											
SEE C.O.C. FOR SAMPLE ANALYSIS DBP= Dedicated bladder pump Sunny 30% clouds.											
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; RFPF = 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)

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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" = 0.0008; 3/16" = 0.0014; 1/4" = 0.0028; 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)											

SAMPLED BY (PRINT) / AFFILIATION: ANDREW BALLOON / ZACK PATTERSON				SAMPLER(S) SIGNATURE(S): <i>Zack Patterson</i>			SAMPLING INITIATED AT: 10.00		SAMPLING ENDED AT:	
PUMP OR TUBING DEPTH IN WELL (feet):				TUBING MATERIAL CODE: T			FIELD-FILTERED: Y <u>N</u>		FILTER SIZE: _____ µm	
FIELD DECONTAMINATION: PUMP Y <u>N</u> Dedicated				TUBING Y <u>N</u> Dedicated			DUPLICATE: Y <u>N</u>			
SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD		SAMPLING EQUIPMENT CODE	
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH				
			1							
					SEE COC					
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 = Bailor; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)										

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

Revision Date: February 2009



**Form FD 9000-24**  
**GROUNDWATER SAMPLING LOG**

SITE NAME: <b>SELF TAMP</b>	SITE LOCATION: <b>LITHIA, FL</b>
WELL NO: <b>DUPE</b>	DATE: <b>10-2-13</b>

**PURGING DATA**

WELL DIAMETER (inches): <input checked="" type="checkbox"/>	TUBING DIAMETER (inches): <input checked="" type="checkbox"/>	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet): <input checked="" type="checkbox"/>	PURGE PUMP TYPE OR BAILER: <input checked="" type="checkbox"/>
<b>WELL VOLUME PURGE:</b> 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable)				
= (      feet      -      feet      ) X      gallons/foot      =      gallons				
<b>EQUIPMENT VOLUME PURGE:</b> 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): <input checked="" type="checkbox"/>	FINAL PUMP OR TUBING DEPTH IN WELL (feet): <input checked="" type="checkbox"/>	PURGING INITIATED AT: <input checked="" type="checkbox"/>	PURGING ENDED AT: <input checked="" type="checkbox"/>	TOTAL VOLUME PURGED (gallons): <input checked="" type="checkbox"/>

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)
DUPE											

**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" = 0.008; 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: <b>ANDREW BALLOON / ZACK PATTERSON</b>				SAMPLER(S) SIGNATURE(S): <i>[Signature]</i>				SAMPLING INITIATED AT: <input checked="" type="checkbox"/>		SAMPLING ENDED AT: <input checked="" type="checkbox"/>	
PUMP OR TUBING DEPTH IN WELL (feet): <input checked="" type="checkbox"/>				TUBING MATERIAL CODE: T				FIELD-FILTERED: Y <input checked="" type="checkbox"/> N <input checked="" type="checkbox"/>		FILTER SIZE: _____ μm	
FIELD DECONTAMINATION: PUMP Y N Dedicated				TUBING Y N Dedicated				DUPLICATE: <input checked="" type="checkbox"/> Y <input checked="" type="checkbox"/> 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 COC

**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

## Login Sample Receipt Checklist

Client: Hillsborough Co Public Utilities Dept

Job Number: 660-56863-1

Login Number: 56863

List Source: TestAmerica Tampa

List Number: 1

Creator: Snead, Joshua

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ 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.	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 $<6\text{mm}$ (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: 660-56863-1

Login Number: 56863

List Number: 1

Creator: Banda, Christy S

List Source: TestAmerica Savannah

List Creation: 10/04/13 08:27 AM

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ 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 $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	