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May 29, 2014

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. 44 – April 2014**

Dear Mr. Morris:

The Hillsborough County Public Utilities Department (County) is pleased to provide the analytical results from the April 2014 sampling event conducted as part of the continuation of the Initial Assessment Monitoring Plan (IAMP). The IAMP was developed to address the potential impacts to groundwater from the sinkhole on the edge of Phase VI at the Southeast County Landfill (SCLF), which was discovered on December 14, 2010.

As part of the agreement between the County and Florida Department of Environmental Protection Southwest District Office (Department), three (3) upper Floridan/Limestone aquifer monitoring wells, designated as TH-72, TH-76 and TH-77 are sampled on a monthly schedule. Representative samples were collected from each of these wells on April 3, 2014 and analyzed for total dissolved solids (TDS), chloride, total ammonia, arsenic, iron, sodium, and five (5) field parameters. Each sample collected was analyzed by our contracted laboratory, Test America, Inc. The following paragraphs summarize the parameter specific results pertinent to the evaluation of potential water quality impacts from the sinkhole at the SCLF.

Turbidity

During the January sampling event, turbidity values in the Upper Floridan / Limestone aquifer monitoring wells TH-72, TH-76, and TH-77 were recorded at 1.33, 24.7, and 1.97 Nephelometric Turbidity Units (NTUs), respectively. The turbidity values observed are consistent with the historical data for these wells.

Conductivity

The conductivity values observed in TH-72, TH-76, and TH-77 were 1,992, 441, and 430 micromhos per centimeter (umhos/cm), respectively. Monitoring well TH-72 is the closest UFA monitoring well to the sinkhole, it 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 and fluids injected into the subsurface as part of the sinkhole stabilization and remediation processes. Conductivity values in TH-76 and TH-77 are relatively low and appear to be consistent with the unaffected deep wells across the site.

Total Dissolved Solids (TDS)

The TDS in TH-72 was observed at 1,400 mg/l, which 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 210 mg/l and 220 mg/l, respectively, which is consistent with the water quality of the unaffected deep wells across the site.

Chloride

Chloride was observed at 590 mg/l in TH-72, which is above the SDWS of 250 mg/l. The elevated chloride value observed is likely attributable to waste in the sinkhole and the grouting activities. Chloride values in TH-76 and TH-77 were observed at 12 and 9.4 mg/l, which is consistent with the unaffected deep wells across the site.

Iron

Total iron concentrations in two (2) of the three (3) UFA monitoring wells were observed above the SDWS of 0.3 mg/l. TH-72 and TH-76 exhibited iron at 0.71 and 0.34 mg/l, respectively. The elevated iron concentrations observed in these wells are consistent with historical data set for the site, and appear to be naturally occurring in the formation, and/or the result of the past strip mining activities in the area.

Sodium

Sodium was observed at a concentration of 220 mg/l in TH-72, which is above the PDWS of 160 mg/l. The elevated sodium value is likely attributable to the waste in the sinkhole and/or the grouting activities. Sodium values in TH-76 and TH-77 were observed at 19 and 15 mg/l, which is consistent with the unaffected deep wells across the site.

Groundwater Elevations and Direction of Flow

On April 1, 2014, 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 six (6) surface

water sites. No significant changes to the patterns of flow in the surficial aquifer were noted in the data set, and the flow diagram provided is consistent with the observations over the extensive period of record. 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™ utilizing only the three data points closest to the sinkhole. During this sampling event, the change in elevation between TH-72 and TH-76 is - 0.07 ft., and the change between TH-72 and TH-77 is + 0.12 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.

As we have discussed, based on the consistency of the gradient and direction of flow, an additional down gradient monitoring well is warranted. The County intends to move forward with the installation of this well, and will work directly with the Department on approval of the location and the appropriate construction details.

Conclusions

The water quality observed in the April 2014 IAMP sampling event indicates that the upper Floridan / Limestone well TH-72, which is closest to the sinkhole, continues to exhibit impacts to water quality. The impacts observed in TH-72 include elevated conductivity, TDS, chloride, ammonia, iron and sodium. These impacts are not unexpected within the upper Floridan / Limestone aquifer in the immediate vicinity of the sinkhole feature. Upper Floridan / Limestone aquifer monitoring wells, TH-76 and TH-77 continue to exhibit good water quality with no evidence of impact from the sinkhole. Conductivity values, TDS, chloride and ammonia are all very low and consistent with the historical data set for the unaffected upper Floridan aquifer groundwater monitoring wells at the SCLF, which supports the position that the impacts from the sinkhole are limited in extent and do not appear to be migrating beyond the area close to the feature.

Recommendations

The County continues to move forward with implementation of the IAMP, which includes the monthly sampling of the three upper Floridan / Limestone aquifer groundwater 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. We will continue to evaluate any water quality changes in both the surficial and upper Floridan aquifer wells, and present the findings in the monthly IAMP reports. The monitoring activities have been conducted for over three years and the consistency of the data set supports significant reduction in the frequency. The County intends to propose this reduction in the number of monitoring wells sampled and the frequency of sampling and reporting in a separate correspondence. If the Department has any specific concerns with this position, we would welcome any guidance.

Mr. John Morris, P.G.
May 29, 2014
Page 4 of 4

Enclosed for your review please find a site location map depicting the location of the monitoring wells sampled, the water quality data summary table for the April 2014 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,

 5/29/2014

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



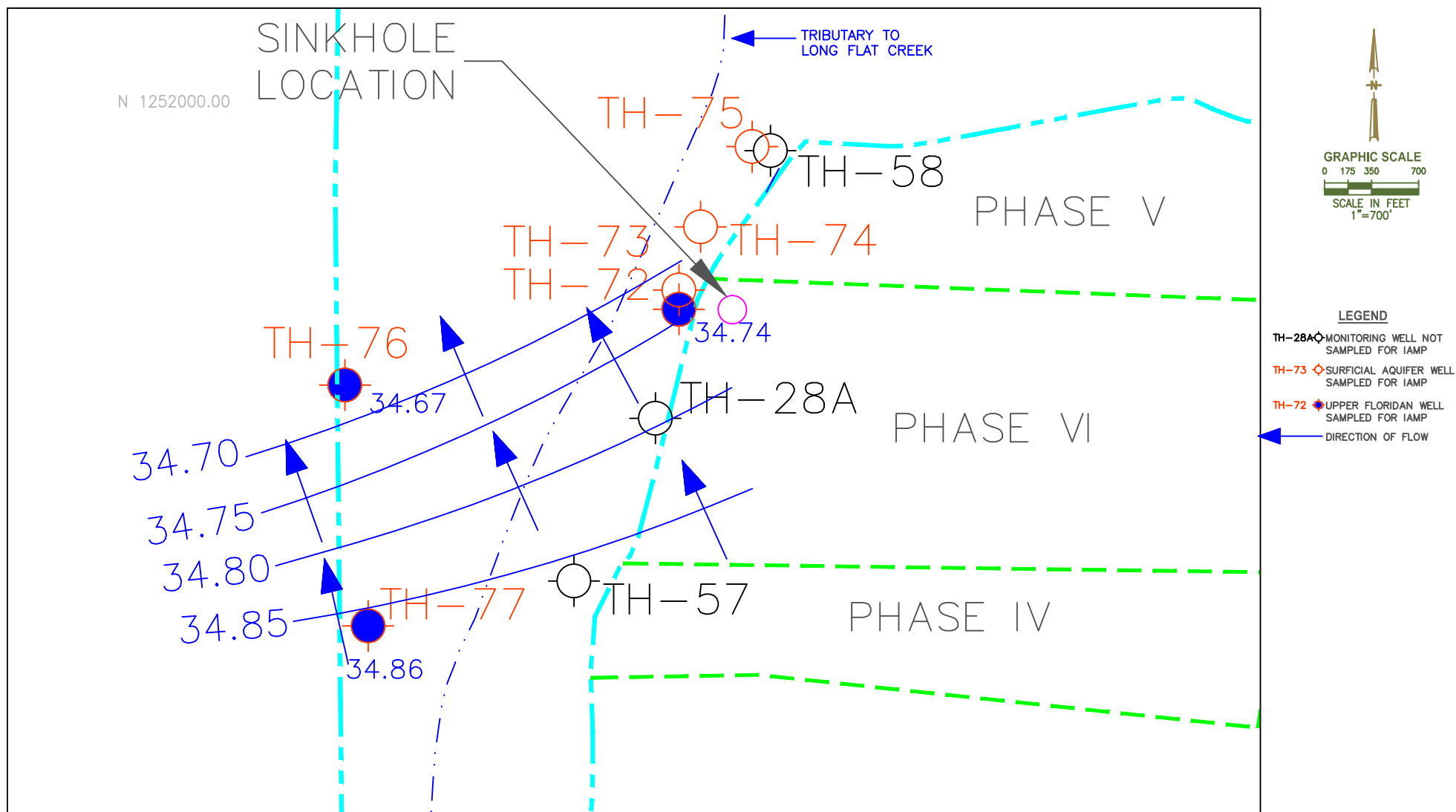
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Brian Miller, DOH
Rich Siemering, HDR
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**Southeast County Landfill
Laboratory Analytical Data
Upper Floridan Groundwater Monitoring Wells
April 3, 2014**

GENERAL				MCL STANDARD
PARAMETERS	TH-72	TH-76	TH-77	
conductivity (umhos/cm) (field)	1992	441	430	NS
dissolved oxygen (mg/l) (field)	0.22	0.18	0.28	NS
pH (field)	6.74	7.46	7.45	(6.5 - 8.5)**
temperature (°C) (field)	23.35	22.82	23.47	NS
turbidity (NTU) (field)	1.33	24.7	1.97	NS
total dissolved solids (mg/l)	1400	210	220	500**
chloride (mg/l)	590	12	9.4	250**
ammonia nitrogen (mg/l as N)	27	0.6	0.61	NS
				MCL STANDARD
Metals: (mg/l)	TH-72	TH-76	TH-77	
arsenic	0.0013 u	0.0013 u	0.0013 u	0.01*
iron	0.71	0.34	0.18	0.3**
sodium	220	19	15	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				
1400	Exceeds Standards			
ug/l=MICROGRAMS PER LITER				
mg/l=MILLIGRAMS PER LITER				
NS=NO STANDARD				

Southeast County Landfill
Groundwater and Surface Water Elevations
April 1, 2014

Measuring Point	T.O.C. Elevations	W.L.	W.L.	Time
I.D.	(NGVD)	B.T.O.C.	(NGVD)	
P-4D	140.78	22.49	118.29	1:43 PM
P-4S	140.95	10.17	130.78	1:42 PM
P-5D	151.94	Dry	151.94	12:01 PM
P-6D-A	148.01	26.69	121.32	12:07 PM
P-7D	138.92	17.74	121.18	12:47 PM
P-8D	138.34	18.11	120.23	1:28 PM
P-11D	138.02	17.82	120.20	1:31 PM
P-12S	134.97	14.12	120.85	1:26 PM
P-13S	140.21	18.70	121.51	12:57 PM
P-14S	138.56	17.17	121.39	12:59 PM
P-15S	139.19	18.29	120.90	1:01 PM
P-16S	143.38	16.20	127.18	12:17 PM
P-16I	144.15	23.75	120.40	12:17 PM
P-16D	143.84	23.50	120.34	12:18 PM
P-17S	137.35	14.22	123.13	12:24 PM
P-17I	137.32	16.06	121.26	12:24 PM
P-17D	137.22	16.16	121.06	12:23 PM
P-18S	129.86	18.20	111.66	2:09 PM
P-19	133.36	15.44	117.92	12:04 PM
P-20	132.38	12.20	120.18	12:12 PM
P-21	122.79	3.15	119.64	2:02 PM
P-22	128.35	4.80	123.55	2:57 PM
P-23	143.13	23.36	119.77	1:57 PM
TH-19*	130.27	96.96	33.31	12:36 PM
TH-20A	131.86	9.12	122.74	1:11 PM
TH-20B	132.57	10.00	122.57	1:10 PM
TH-22	128.82	8.30	120.52	2:04 PM
TH-22A	129.27	5.41	123.86	2:55 PM
TH-24A	128.23	4.45	123.78	3:01 PM
TH-28A	131.10	27.91	103.19	2:24 PM
TH-30	128.88	23.90	104.98	2:13 PM
TH-32	129.90	14.92	114.98	11:55 AM
TH-35	145.98	28.30	117.68	12:28 PM
TH-36A	152.70	32.49	120.21	12:39 PM
TH-38A	130.68	9.92	120.76	1:15 PM
TH-38B	131.81	10.65	121.16	1:17 PM
TH-40*	124.99	92.12	32.87	11:15 AM
TH-41*	125.00	97.08	27.92	11:15 AM
TH-42*	116.74	74.72	42.02	1:34 PM
TH-57	128.36	18.98	109.38	2:26 PM
TH-58	127.88	27.79	100.09	2:16 PM
TH-61	138.73	17.29	121.44	1:04 PM
TH-61A	139.45	18.02	121.43	1:04 PM
TH-64	139.64	17.46	122.18	1:02 PM
TH-65	135.40	14.60	120.80	1:23 PM
TH-66	130.58	8.69	121.89	1:20 PM
TH-66A	130.66	9.11	121.55	1:20 PM
TH-67	129.51	5.49	124.02	1:13 PM
TH-68	140.01	18.84	121.17	12:49 PM
TH-69A	144.97	25.71	119.26	1:38 PM
TH-70A	146.63	26.60	120.03	1:40 PM
TH-71A	146.95	24.49	122.46	1:52 PM
TH-72*	130.96	96.22	34.74	2:19 PM
TH-73	131.07	30.52	100.55	2:21 PM
TH-74	109.08	9.24	99.84	2:31 PM
TH-75	106.92	7.62	99.30	2:36 PM
TH-76*	111.21	76.54	34.67	11:26 AM
TH-77*	119.88	85.02	34.86	11:20 AM
SW-3A	3.0'=125.53'	0.60	123.13	11:11 AM
SW-3B2B	3.0'=97.97'	1.74	96.71	11:30 AM
SW-3C2	6.0'=92.33'	1.50	87.83	11:37 AM
Mine Cut #1	4.0'=122.14'	2.69	120.83	12:53 PM
Mine Cut #2	6.0'=123.47'	2.88	120.35	12:31 PM
Mine Cut #3	4.0'=112.27'	2.33	110.60	11:45 AM
Mine Cut #4	5.0'=97.54'	1.75	94.54	11:43 AM
NGVD = National Geodetic Vertical Datum				
T.O.C. = Top of Casing				
B.T.O.C. = Below Top of Casing				
* = Floridan Well				
ND = No Data - Sampling Location Dry				
W.L. = Water Level				



APRIL 2014
 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	520	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
10/02/2013	87.39	43.57	1,566	0.32	6.86	23.53	12.6	1,000	350	7.4 j3	0.004 u	0.79	120
11/06/2013	97.90	33.06	2,145	0.16	6.69	23.36	0.8	1,200	450	12	0.004 u	0.64	170
12/05/2013	98.50	32.46	2,615	0.39	6.74	23.45	0.58	1,200	580	16	0.004 u	0.65	200
01/03/2014	99.02	31.94	2,220	0.84	6.83	22.88	1.64	1,200	580	25	0.004 u	0.67	230 j3
02/06/2014	99.50	31.46	2,452	0.13	6.69	23.13	2.07	1,300	580	23 j3	0.004 u	0.71	210
03/04/2014	97.91	33.05	2,173	0.24	6.67	23.4	1.33	1,500	580	22	0.004 u	0.74	220

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
10/02/2013	67.69	43.46	399	0.22	7.61	22.99	61.9	120	13	0.38	0.004 u	1.7	20
11/06/2013	78.19	33.02	446	0.64	7.54	22.84	29	260	13	0.36	0.004 u	1.1	20
12/05/2013	78.80	32.41	478	0.48	7.45	22.9	19.2	240	12	0.35	0.004 u	0.96	20
01/03/2014	79.38	31.83	398	0.58	7.67	22.35	19.4	190	12	0.23 j3	0.004 u	1.1	20
02/06/2014	79.87	31.34	446	0.14	7.54	22.57	18.1	230	12	0.45	0.004 u	0.96	20
03/04/2014	78.20	33.01	434	0.18	7.36	22.7	26.2	230	12	0.33	0.004 u	0.69	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	1.2	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	0.89	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	1.1	17
08/02/2013	ND	ND	334	0.47	7.44	23.66	42.9	230	9.2	0.36	0.004 u	1.1	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	0.96	16
10/02/2013	76.14	43.72	383	0.69	7.5	23.59	52.7	240	9.1	0.39	0.004 u	1.3	17
11/06/2013	86.68	33.20	423	0.74	7.43	23.51	25.1	230	9.7	0.36 j3	0.004 u	0.68	17
12/05/2013	87.29	32.59	451	0.9	7.44	23.6	16.4	220	9	0.36	0.004 u	0.58	17
01/03/2014	87.87	32.01	371	0.85	7.65	23.18	16.5	160	9.1	0.39	0.004 u	0.63	17
02/06/2014	88.30	31.58	424	0.09	7.53	23.39	4.62	250	9.2	0.27	0.004 u	0.26	16
03/04/2014	86.70	33.18	418	0.36	7.34	23.38	1.12	230	9.3	0.32	0.004 u	0.21	16

u = parameter was analyzed but not detected
j3 = estimated value; value may not be accurate. Spike recovery or RPD outside of criteria.
ND = No Data - water levels collected during quarterly ADR.

1.2 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: 660-60010-1

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:
4/11/2014 4:54:17 PM

Nancy Robertson, Project Manager II
(813)885-7427
nancy.robertson@testamericainc.com

LINKS

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results through
TotalAccess

Have a Question?



Visit us at:
www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

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

1
2
3
4
5
6
7
8
9
10
11
12
13
14

Table of Contents

Cover Page	1
Table of Contents	2
Sample Summary	3
Case Narrative	4
Definitions/Glossary	5
Detection Summary	6
Client Sample Results	8
QC Sample Results	13
QC Association Summary	16
Lab Chronicle	18
Method Summary	20
Certification Summary	21
Chain of Custody	23
Receipt Checklists	30



Sample Summary

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

TestAmerica Job ID: 660-60010-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
660-60010-1	DUPLICATE NOT BLANK	Ground Water	04/03/14 00:00	04/03/14 15:46
660-60010-2	BLANK FIELD	Ground Water	04/03/14 10:25	04/03/14 15:46
660-60010-3	TH-72	Water	04/03/14 13:37	04/03/14 15:46
660-60010-4	TH-76	Ground Water	04/03/14 12:11	04/03/14 15:46
660-60010-5	TH-77	Ground Water	04/03/14 11:00	04/03/14 15:46

Case Narrative

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

TestAmerica Job ID: 660-60010-1

Job ID: 660-60010-1

Laboratory: TestAmerica Tampa

Narrative

Job Narrative
660-60010-1

Comments

No additional comments.

Receipt

The samples were received on 4/3/2014 3:46 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.0° C.

Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

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

TestAmerica Job ID: 660-60010-1

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.

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.
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: 660-60010-1

Client Sample ID: DUPLICATE NOT BLANK

Lab Sample ID: 660-60010-1

Analyte	Result	Qualifier	PQL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	12		0.50	0.25	mg/L	1		300.0	Total/NA
Iron	280		100	33	ug/L	1		6020A	Total Recoverable
Sodium	18		0.50	0.25	mg/L	1		6020A	Total Recoverable
Ammonia as N	0.58		0.050	0.026	mg/L	1		350.1	Total/NA
Total Dissolved Solids	220		10	10	mg/L	1		SM 2540C	Total/NA

Client Sample ID: BLANK FIELD

Lab Sample ID: 660-60010-2

Analyte	Result	Qualifier	PQL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sodium	0.74		0.50	0.25	mg/L	1		6020A	Total Recoverable

Client Sample ID: TH-72

Lab Sample ID: 660-60010-3

Analyte	Result	Qualifier	PQL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	590		10	5.0	mg/L	20		300.0	Total/NA
Iron	710		100	33	ug/L	1		6020A	Total Recoverable
Sodium	220		0.50	0.25	mg/L	1		6020A	Total Recoverable
Ammonia as N	27		2.5	1.3	mg/L	50		350.1	Total/NA
Total Dissolved Solids	1400		25	25	mg/L	1		SM 2540C	Total/NA
Field pH	6.74				SU	1		Field Sampling	Total/NA
Field Temperature	23.35				Degrees C	1		Field Sampling	Total/NA
Oxygen, Dissolved	0.22				mg/L	1		Field Sampling	Total/NA
Specific Conductance	1992				uS/cm	1		Field Sampling	Total/NA
Turbidity	1.33				NTU	1		Field Sampling	Total/NA

Client Sample ID: TH-76

Lab Sample ID: 660-60010-4

Analyte	Result	Qualifier	PQL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	12		0.50	0.25	mg/L	1		300.0	Total/NA
Iron	340		100	33	ug/L	1		6020A	Total Recoverable
Sodium	19		0.50	0.25	mg/L	1		6020A	Total Recoverable
Ammonia as N	0.60		0.050	0.026	mg/L	1		350.1	Total/NA
Total Dissolved Solids	210		10	10	mg/L	1		SM 2540C	Total/NA
Field pH	7.46				SU	1		Field Sampling	Total/NA
Field Temperature	22.82				Degrees C	1		Field Sampling	Total/NA
Oxygen, Dissolved	0.18				mg/L	1		Field Sampling	Total/NA
Specific Conductance	441				uS/cm	1		Field Sampling	Total/NA
Turbidity	24.7				NTU	1		Field Sampling	Total/NA

Client Sample ID: TH-77

Lab Sample ID: 660-60010-5

Analyte	Result	Qualifier	PQL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	9.4		0.50	0.25	mg/L	1		300.0	Total/NA
Iron	180		100	33	ug/L	1		6020A	Total Recoverable

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: 660-60010-1

Client Sample ID: TH-77 (Continued)

Lab Sample ID: 660-60010-5

Analyte	Result	Qualifier	PQL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sodium	15		0.50	0.25	mg/L	1		6020A	Total
									Recoverable
Ammonia as N	0.61		0.050	0.026	mg/L	1		350.1	Total/NA
Total Dissolved Solids	220		10	10	mg/L	1		SM 2540C	Total/NA
Field pH	7.45				SU	1		Field Sampling	Total/NA
Field Temperature	23.47				Degrees C	1		Field Sampling	Total/NA
Oxygen, Dissolved	0.28				mg/L	1		Field Sampling	Total/NA
Specific Conductance	430				uS/cm	1		Field Sampling	Total/NA
Turbidity	1.97				NTU	1		Field Sampling	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: 660-60010-1

Client Sample ID: DUPLICATE NOT BLANK

Lab Sample ID: 660-60010-1

Date Collected: 04/03/14 00:00

Matrix: Ground Water

Date Received: 04/03/14 15:46

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	12		0.50	0.25	mg/L			04/07/14 18:07	1

Method: 6020A - Inductively Coupled Plasma - Mass Spectrometry - Total Recoverable

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	1.3	U	2.5	1.3	ug/L		04/08/14 09:35	04/09/14 14:23	1
Iron	280		100	33	ug/L		04/08/14 09:35	04/09/14 14:23	1
Sodium	18		0.50	0.25	mg/L		04/08/14 09:35	04/09/14 14:23	1

General Chemistry

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N	0.58		0.050	0.026	mg/L			04/10/14 17:51	1
Total Dissolved Solids	220		10	10	mg/L			04/08/14 12:32	1

Client Sample Results

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

TestAmerica Job ID: 660-60010-1

Client Sample ID: BLANK FIELD

Lab Sample ID: 660-60010-2

Date Collected: 04/03/14 10:25

Matrix: Ground Water

Date Received: 04/03/14 15:46

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			04/07/14 18:21	1

Method: 6020A - Inductively Coupled Plasma - Mass Spectrometry - Total Recoverable

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	1.3	U	2.5	1.3	ug/L		04/08/14 09:35	04/09/14 15:00	1
Iron	33	U	100	33	ug/L		04/08/14 09:35	04/09/14 15:00	1
Sodium	0.74		0.50	0.25	mg/L		04/08/14 09:35	04/09/14 15:00	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			04/11/14 09:17	1
Total Dissolved Solids	5.0	U	5.0	5.0	mg/L			04/08/14 12:32	1

Client Sample Results

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

TestAmerica Job ID: 660-60010-1

Client Sample ID: TH-72

Date Collected: 04/03/14 13:37

Date Received: 04/03/14 15:46

Lab Sample ID: 660-60010-3

Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	590		10	5.0	mg/L			04/07/14 18:36	20

Method: 6020A - Inductively Coupled Plasma - Mass Spectrometry - Total Recoverable

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	1.3	U	2.5	1.3	ug/L		04/08/14 09:35	04/09/14 15:07	1
Iron	710		100	33	ug/L		04/08/14 09:35	04/09/14 15:07	1
Sodium	220		0.50	0.25	mg/L		04/08/14 09:35	04/09/14 15:07	1

General Chemistry

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N	27		2.5	1.3	mg/L			04/10/14 18:37	50
Total Dissolved Solids	1400		25	25	mg/L			04/08/14 12:32	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Field pH	6.74				SU			04/03/14 13:37	1
Field Temperature	23.35				Degrees C			04/03/14 13:37	1
Oxygen, Dissolved	0.22				mg/L			04/03/14 13:37	1
Specific Conductance	1992				uS/cm			04/03/14 13:37	1
Turbidity	1.33				NTU			04/03/14 13:37	1

TestAmerica Tampa

Client Sample Results

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

TestAmerica Job ID: 660-60010-1

Client Sample ID: TH-76

Date Collected: 04/03/14 12:11

Date Received: 04/03/14 15:46

Lab Sample ID: 660-60010-4

Matrix: Ground Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	12		0.50	0.25	mg/L			04/07/14 18:50	1

Method: 6020A - Inductively Coupled Plasma - Mass Spectrometry - Total Recoverable

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	1.3	U	2.5	1.3	ug/L		04/08/14 09:35	04/09/14 15:15	1
Iron	340		100	33	ug/L		04/08/14 09:35	04/09/14 15:15	1
Sodium	19		0.50	0.25	mg/L		04/08/14 09:35	04/09/14 15:15	1

General Chemistry

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N	0.60		0.050	0.026	mg/L			04/10/14 17:51	1
Total Dissolved Solids	210		10	10	mg/L			04/08/14 12:32	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Field pH	7.46				SU			04/03/14 12:11	1
Field Temperature	22.82				Degrees C			04/03/14 12:11	1
Oxygen, Dissolved	0.18				mg/L			04/03/14 12:11	1
Specific Conductance	441				uS/cm			04/03/14 12:11	1
Turbidity	24.7				NTU			04/03/14 12:11	1

TestAmerica Tampa

Client Sample Results

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

TestAmerica Job ID: 660-60010-1

Client Sample ID: TH-77

Date Collected: 04/03/14 11:00

Date Received: 04/03/14 15:46

Lab Sample ID: 660-60010-5

Matrix: Ground Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	9.4		0.50	0.25	mg/L			04/07/14 19:05	1

Method: 6020A - Inductively Coupled Plasma - Mass Spectrometry - Total Recoverable

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	1.3	U	2.5	1.3	ug/L		04/08/14 09:35	04/09/14 15:37	1
Iron	180		100	33	ug/L		04/08/14 09:35	04/09/14 15:37	1
Sodium	15		0.50	0.25	mg/L		04/08/14 09:35	04/09/14 15:37	1

General Chemistry

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N	0.61		0.050	0.026	mg/L			04/10/14 17:51	1
Total Dissolved Solids	220		10	10	mg/L			04/08/14 12:32	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Field pH	7.45				SU			04/03/14 11:00	1
Field Temperature	23.47				Degrees C			04/03/14 11:00	1
Oxygen, Dissolved	0.28				mg/L			04/03/14 11:00	1
Specific Conductance	430				uS/cm			04/03/14 11:00	1
Turbidity	1.97				NTU			04/03/14 11:00	1

TestAmerica Tampa

QC Sample Results

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

TestAmerica Job ID: 660-60010-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 680-323250/5

Matrix: Water

Analysis Batch: 323250

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			04/07/14 14:16	1

Lab Sample ID: LCS 680-323250/6

Matrix: Water

Analysis Batch: 323250

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	9.86		mg/L		99	90 - 110

Lab Sample ID: LCSD 680-323250/7

Matrix: Water

Analysis Batch: 323250

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	9.91		mg/L		99	90 - 110	1	30

Lab Sample ID: 660-60010-5 MS

Matrix: Ground Water

Analysis Batch: 323250

Client Sample ID: TH-77

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	9.4		10.0	19.7		mg/L		103	80 - 120

Lab Sample ID: 660-60010-5 MSD

Matrix: Ground Water

Analysis Batch: 323250

Client Sample ID: TH-77

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	9.4		10.0	19.4		mg/L		100	80 - 120	2	30

Lab Sample ID: 640-47391-C-2 DU

Matrix: Water

Analysis Batch: 323250

Client Sample ID: Duplicate

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chloride	4.2		4.23		mg/L		0.2	30

Method: 6020A - Inductively Coupled Plasma - Mass Spectrometry

Lab Sample ID: MB 680-323322/1-A

Matrix: Water

Analysis Batch: 323886

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 323322

Analyte	MB Result	MB Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	1.3	U	2.5	1.3	ug/L		04/08/14 09:35	04/09/14 14:08	1
Iron	33	U	100	33	ug/L		04/08/14 09:35	04/09/14 14:08	1
Sodium	0.25	U	0.50	0.25	mg/L		04/08/14 09:35	04/09/14 14:08	1

TestAmerica Tampa

QC Sample Results

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

TestAmerica Job ID: 660-60010-1

Method: 6020A - Inductively Coupled Plasma - Mass Spectrometry (Continued)

Lab Sample ID: LCS 680-323322/2-A

Matrix: Water

Analysis Batch: 323886

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 323322

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	100	107		ug/L		107	75 - 125
Iron	5000	5090		ug/L		102	75 - 125
Sodium	5.00	5.04		mg/L		101	75 - 125

Lab Sample ID: 660-60010-1 MS

Matrix: Ground Water

Analysis Batch: 323886

Client Sample ID: DUPLICATE NOT BLANK

Prep Type: Total Recoverable

Prep Batch: 323322

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	1.3	U	100	112		ug/L		112	75 - 125
Iron	280		5000	5360		ug/L		102	75 - 125
Sodium	18		5.00	24.0		mg/L		114	75 - 125

Lab Sample ID: 660-60010-1 MSD

Matrix: Ground Water

Analysis Batch: 323886

Client Sample ID: DUPLICATE NOT BLANK

Prep Type: Total Recoverable

Prep Batch: 323322

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	1.3	U	100	104		ug/L		104	75 - 125	7	20
Iron	280		5000	5340		ug/L		101	75 - 125	0	20
Sodium	18		5.00	23.8		mg/L		109	75 - 125	1	20

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 680-324047/33

Matrix: Water

Analysis Batch: 324047

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			04/11/14 10:16	1

Lab Sample ID: LCS 680-324047/30

Matrix: Water

Analysis Batch: 324047

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	1.01		mg/L		101	90 - 110

Lab Sample ID: 640-47392-I-19 MS

Matrix: Water

Analysis Batch: 324047

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
Ammonia as N	0.24		1.00	1.18		mg/L		94	90 - 110

TestAmerica Tampa

QC Sample Results

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

TestAmerica Job ID: 660-60010-1

Method: 350.1 - Nitrogen, Ammonia (Continued)

Lab Sample ID: 640-47392-I-19 MSD

Matrix: Water

Analysis Batch: 324047

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
Ammonia as N	0.24		1.00	1.21		mg/L		97	90 - 110	3	30

Lab Sample ID: 660-60010-3 DU

Matrix: Water

Analysis Batch: 324047

Client Sample ID: TH-72

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Ammonia as N	27		27.6		mg/L		0.5	30

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

Lab Sample ID: MB 660-147409/1

Matrix: Water

Analysis Batch: 147409

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			04/08/14 12:32	1

Lab Sample ID: LCS 660-147409/2

Matrix: Water

Analysis Batch: 147409

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	9940		mg/L		99	80 - 120

Lab Sample ID: 660-60010-4 DU

Matrix: Ground Water

Analysis Batch: 147409

Client Sample ID: TH-76

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	210		232		mg/L		11	20

QC Association Summary

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

TestAmerica Job ID: 660-60010-1

HPLC/IC

Analysis Batch: 323250

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
640-47391-C-2 DU	Duplicate	Total/NA	Water	300.0	
660-60010-1	DUPLICATE NOT BLANK	Total/NA	Ground Water	300.0	
660-60010-2	BLANK FIELD	Total/NA	Ground Water	300.0	
660-60010-3	TH-72	Total/NA	Water	300.0	
660-60010-4	TH-76	Total/NA	Ground Water	300.0	
660-60010-5	TH-77	Total/NA	Ground Water	300.0	
660-60010-5 MS	TH-77	Total/NA	Ground Water	300.0	
660-60010-5 MSD	TH-77	Total/NA	Ground Water	300.0	
LCS 680-323250/6	Lab Control Sample	Total/NA	Water	300.0	
LCSD 680-323250/7	Lab Control Sample Dup	Total/NA	Water	300.0	
MB 680-323250/5	Method Blank	Total/NA	Water	300.0	

Metals

Prep Batch: 323322

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
660-60010-1	DUPLICATE NOT BLANK	Total Recoverable	Ground Water	3005A	
660-60010-1 MS	DUPLICATE NOT BLANK	Total Recoverable	Ground Water	3005A	
660-60010-1 MSD	DUPLICATE NOT BLANK	Total Recoverable	Ground Water	3005A	
660-60010-2	BLANK FIELD	Total Recoverable	Ground Water	3005A	
660-60010-3	TH-72	Total Recoverable	Water	3005A	
660-60010-4	TH-76	Total Recoverable	Ground Water	3005A	
660-60010-5	TH-77	Total Recoverable	Ground Water	3005A	
LCS 680-323322/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
MB 680-323322/1-A	Method Blank	Total Recoverable	Water	3005A	

Analysis Batch: 323886

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
660-60010-1	DUPLICATE NOT BLANK	Total Recoverable	Ground Water	6020A	323322
660-60010-1 MS	DUPLICATE NOT BLANK	Total Recoverable	Ground Water	6020A	323322
660-60010-1 MSD	DUPLICATE NOT BLANK	Total Recoverable	Ground Water	6020A	323322
660-60010-2	BLANK FIELD	Total Recoverable	Ground Water	6020A	323322
660-60010-3	TH-72	Total Recoverable	Water	6020A	323322
660-60010-4	TH-76	Total Recoverable	Ground Water	6020A	323322
660-60010-5	TH-77	Total Recoverable	Ground Water	6020A	323322
LCS 680-323322/2-A	Lab Control Sample	Total Recoverable	Water	6020A	323322
MB 680-323322/1-A	Method Blank	Total Recoverable	Water	6020A	323322

General Chemistry

Analysis Batch: 147409

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
660-60010-1	DUPLICATE NOT BLANK	Total/NA	Ground Water	SM 2540C	
660-60010-2	BLANK FIELD	Total/NA	Ground Water	SM 2540C	
660-60010-3	TH-72	Total/NA	Water	SM 2540C	
660-60010-4	TH-76	Total/NA	Ground Water	SM 2540C	
660-60010-4 DU	TH-76	Total/NA	Ground Water	SM 2540C	
660-60010-5	TH-77	Total/NA	Ground Water	SM 2540C	
LCS 660-147409/2	Lab Control Sample	Total/NA	Water	SM 2540C	
MB 660-147409/1	Method Blank	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: 660-60010-1

General Chemistry (Continued)

Analysis Batch: 324047

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
640-47392-I-19 MS	Matrix Spike	Total/NA	Water	350.1	
640-47392-I-19 MSD	Matrix Spike Duplicate	Total/NA	Water	350.1	
660-60010-1	DUPLICATE NOT BLANK	Total/NA	Ground Water	350.1	
660-60010-2	BLANK FIELD	Total/NA	Ground Water	350.1	
660-60010-3	TH-72	Total/NA	Water	350.1	
660-60010-3 DU	TH-72	Total/NA	Water	350.1	
660-60010-4	TH-76	Total/NA	Ground Water	350.1	
660-60010-5	TH-77	Total/NA	Ground Water	350.1	
LCS 680-324047/30	Lab Control Sample	Total/NA	Water	350.1	
MB 680-324047/33	Method Blank	Total/NA	Water	350.1	

Field Service / Mobile Lab

Analysis Batch: 147395

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
660-60010-3	TH-72	Total/NA	Water	Field Sampling	
660-60010-4	TH-76	Total/NA	Ground Water	Field Sampling	
660-60010-5	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: 660-60010-1

Client Sample ID: DUPLICATE NOT BLANK

Date Collected: 04/03/14 00:00

Date Received: 04/03/14 15:46

Lab Sample ID: 660-60010-1

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	323250	04/07/14 18:07	PAT	TAL SAV
Total Recoverable	Prep	3005A			323322	04/08/14 09:35	BJB	TAL SAV
Total Recoverable	Analysis	6020A		1	323886	04/09/14 14:23	BWR	TAL SAV
Total/NA	Analysis	350.1		1	324047	04/10/14 17:51	JME	TAL SAV
Total/NA	Analysis	SM 2540C		1	147409	04/08/14 12:32	TKO	TAL TAM

Client Sample ID: BLANK FIELD

Date Collected: 04/03/14 10:25

Date Received: 04/03/14 15:46

Lab Sample ID: 660-60010-2

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	323250	04/07/14 18:21	PAT	TAL SAV
Total Recoverable	Prep	3005A			323322	04/08/14 09:35	BJB	TAL SAV
Total Recoverable	Analysis	6020A		1	323886	04/09/14 15:00	BWR	TAL SAV
Total/NA	Analysis	350.1		1	324047	04/11/14 09:17	JME	TAL SAV
Total/NA	Analysis	SM 2540C		1	147409	04/08/14 12:32	TKO	TAL TAM

Client Sample ID: TH-72

Date Collected: 04/03/14 13:37

Date Received: 04/03/14 15:46

Lab Sample ID: 660-60010-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		20	323250	04/07/14 18:36	PAT	TAL SAV
Total Recoverable	Prep	3005A			323322	04/08/14 09:35	BJB	TAL SAV
Total Recoverable	Analysis	6020A		1	323886	04/09/14 15:07	BWR	TAL SAV
Total/NA	Analysis	350.1		50	324047	04/10/14 18:37	JME	TAL SAV
Total/NA	Analysis	SM 2540C		1	147409	04/08/14 12:32	TKO	TAL TAM
Total/NA	Analysis	Field Sampling		1	147395	04/03/14 13:37		TAL TAM

Client Sample ID: TH-76

Date Collected: 04/03/14 12:11

Date Received: 04/03/14 15:46

Lab Sample ID: 660-60010-4

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	323250	04/07/14 18:50	PAT	TAL SAV
Total Recoverable	Prep	3005A			323322	04/08/14 09:35	BJB	TAL SAV
Total Recoverable	Analysis	6020A		1	323886	04/09/14 15:15	BWR	TAL SAV
Total/NA	Analysis	350.1		1	324047	04/10/14 17:51	JME	TAL SAV
Total/NA	Analysis	SM 2540C		1	147409	04/08/14 12:32	TKO	TAL TAM
Total/NA	Analysis	Field Sampling		1	147395	04/03/14 12:11		TAL TAM

TestAmerica Tampa

Lab Chronicle

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

TestAmerica Job ID: 660-60010-1

Client Sample ID: TH-77

Date Collected: 04/03/14 11:00

Date Received: 04/03/14 15:46

Lab Sample ID: 660-60010-5

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	323250	04/07/14 19:05	PAT	TAL SAV
Total Recoverable	Prep	3005A			323322	04/08/14 09:35	BJB	TAL SAV
Total Recoverable	Analysis	6020A		1	323886	04/09/14 15:37	BWR	TAL SAV
Total/NA	Analysis	350.1		1	324047	04/10/14 17:51	JME	TAL SAV
Total/NA	Analysis	SM 2540C		1	147409	04/08/14 12:32	TKO	TAL TAM
Total/NA	Analysis	Field Sampling		1	147395	04/03/14 11:00		TAL TAM

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: 660-60010-1

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	TAL SAV
6020A	Inductively Coupled Plasma - Mass Spectrometry	SW846	TAL SAV
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: 660-60010-1

Laboratory: TestAmerica Tampa

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Florida	NELAP	4	E84282	06-30-14

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	01-31-15
California	NELAP	9	3217CA	07-31-14
Colorado	State Program	8	N/A	12-31-14
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	06-30-14
Georgia	State Program	4	N/A	06-30-14
Georgia	State Program	4	803	06-30-14
Guam	State Program	9	09-005r	04-17-14 *
Hawaii	State Program	9	N/A	06-30-14
Illinois	NELAP	5	200022	11-30-14
Indiana	State Program	5	N/A	06-30-14
Iowa	State Program	7	353	07-01-15
Kentucky (DW)	State Program	4	90084	12-31-14
Kentucky (UST)	State Program	4	18	06-30-14
Louisiana	NELAP	6	LA100015	12-31-14
Maine	State Program	1	GA00006	08-16-14
Maryland	State Program	3	250	12-31-14
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	01-01-15
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	03-31-15
North Carolina DENR	State Program	4	269	12-31-14
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	12-31-14
South Carolina	State Program	4	98001	06-30-14
Tennessee	State Program	4	TN02961	06-30-14
Texas	NELAP	6	T104704185-08-TX	11-30-14
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 DEP	State Program	3	94	06-30-14
West Virginia DHHR	State Program	3	9950C	12-31-14
Wisconsin	State Program	5	999819810	08-31-14

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

TestAmerica Tampa

Certification Summary

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

TestAmerica Job ID: 660-60010-1

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
Wyoming	State Program	8	8TMS-L	06-30-14

660-60010 Chain of Custody

Form FD 9000-24
GROUNDWATER SAMPLING LOG

SITE NAME: SELF IAMP	SITE LOCATION: LITHIA, FL
WELL NO: FIELD BLANK	SAMPLE ID: _____ DATE: 4-3-14

PURGING DATA

WELL DIAMETER (inches): N/A	TUBING DIAMETER (inches): N/A	WELL SCREEN INTERVAL DEPTH: — feet to — feet	STATIC DEPTH TO WATER (feet): N/A	PURGE PUMP TYPE OR BAILER: N/A
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable)				
EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME (only fill out if applicable)				
INITIAL PUMP OR TUBING DEPTH IN WELL (feet): N/A	FINAL PUMP OR TUBING DEPTH IN WELL (feet): N/A	PURGING INITIATED AT: N/A	PURGING ENDED AT: N/A	TOTAL VOLUME PURGED (gallons): N/A

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" = 0.0028; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailor; 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: <i>[Signature]</i>				SAMPLING INITIATED AT: 10.25		SAMPLING ENDED AT: 10.30	
PUMP OR TUBING DEPTH IN WELL (feet): N/A				TUBING MATERIAL CODE: T		FIELD-FILTERED: Y <input checked="" type="radio"/> N <input type="radio"/>			FILTER SIZE: _____ μm		
FIELD DECONTAMINATION: PUMP <input checked="" type="radio"/> N <input type="radio"/> Dedicated				TUBING <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 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 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 = Bailor; 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

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Form FD 9000-24
GROUNDWATER SAMPLING LOG

SITE NAME: SELF IAMP		SITE LOCATION: Lithia, Florida	
WELL NO: TH-76	SAMPLE ID:	DATE: 4-3-14	

PURGING DATA

WELL DIAMETER (inches): 2	TUBING DIAMETER (inches): 0.5	WELL SCREEN INTERVAL DEPTH: 163.35 feet to 178.35 feet	STATIC DEPTH TO WATER (feet): 76.40	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 feet - 76.40 feet) X .16 gallons/foot = 16.32 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: 11.20
				PURGING ENDED AT: 12.11
				TOTAL VOLUME PURGED (gallons): 25.5

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)
11.53	16.5	16.5	.50	77.56	7.47	22.78	438	.20	24.0	very faint Murky	None
12.08	4.5	21	.50	77.53	7.46	22.79	441	.21	21.8	↓	↓
12.11	4.5	25.5	.50	77.55	7.46	22.82	441	.18	24.7	↓	↓

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 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" = 0.0026; 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: <i>[Signature]</i>				SAMPLING INITIATED AT: 12.11		SAMPLING ENDED AT: 12.26	
PUMP OR TUBING DEPTH IN WELL (feet): 177.35				TUBING MATERIAL CODE: T		FIELD-FILTERED: Y <input checked="" type="radio"/> N <input type="radio"/>		FILTER SIZE: µm			
FIELD DECONTAMINATION: PUMP Y <input type="radio"/> N <input checked="" type="radio"/> Dedicated				TUBING Y <input type="radio"/> N <input checked="" type="radio"/> Dedicated		DUPLICATE: Y <input type="radio"/> N <input checked="" type="radio"/> APP					

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 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; 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

PURGING DATA

SAMPLING DATA

SEE C.O.C. FOR SAMPLE ANALYSIS

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

Revision Date: February 2009

Form FD 9000-24
GROUNDWATER SAMPLING LOG

SITE NAME: SELF IAMP	SITE LOCATION: LITHIA, FL	
WELL NO:	SAMPLE ID:	DATE: 4-3-14

PURGING DATA

WELL DIAMETER (inches): <input checked="" type="checkbox"/>	TUBING DIAMETER (inches): <input checked="" type="checkbox"/>	WELL SCREEN INTERVAL DEPTH: <input checked="" type="checkbox"/> feet to <input checked="" type="checkbox"/> feet	STATIC DEPTH TO WATER (feet): <input checked="" type="checkbox"/>	PURGE PUMP TYPE OR BAILER: <input checked="" type="checkbox"/>
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): <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)
DUPLICATE											

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 = Bailor; 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: <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 type="checkbox"/> Filtration Equipment Type: _____			FILTER SIZE: _____ μm		
FIELD DECONTAMINATION: PUMP <input checked="" type="checkbox"/> Y <input checked="" type="checkbox"/> N <input type="checkbox"/> Dedicated				TUBING <input checked="" type="checkbox"/> Y <input checked="" type="checkbox"/> N <input type="checkbox"/> Dedicated		DUPLICATE: <input checked="" type="checkbox"/> Y <input 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 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 = Bailor; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
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 pH: ± 0.2 units Temperature: ± 0.2 °C Specific Conductance: ± 5% Dissolved Oxygen: all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) Turbidity: all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 2009

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Login Sample Receipt Checklist

Client: Hillsborough Co Public Utilities Dept

Job Number: 660-60010-1

Login Number: 60010

List Source: TestAmerica Tampa

List Number: 1

Creator: McNulty, Carol

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.	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 $<6\text{mm}$ (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: 660-60010-1

Login Number: 60010

List Number: 1

Creator: Banda, Christy S

List Source: TestAmerica Savannah

List Creation: 04/05/14 09:46 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?	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	