FLORIDA DEPARTMENT OF HEALTH

Florida Onsite Sewage Nitrogen Reduction Strategies Study

Task C.25

C-HS2 Monitoring Data Summary Report No. 4

Progress Report

August 2012

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In association with

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Florida Onsite Sewage Nitrogen Reduction Strategies Study

TASK C.25
PROGRESS REPORT

C-HS2 Monitoring
Data Summary Report No. 4

Prepared for:

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1.0 Background

Task C of the Florida Onsite Sewage Nitrogen Reduction Strategies Study includes monitoring at field sites in Florida to evaluate nitrogen reduction in soil and groundwater, to assess groundwater impacts from various onsite wastewater systems, and to provide data for parameter estimation, verification, and validation of models developed in Task D. The Task C.5 QAPP documents the objectives, monitoring framework, sample frequency and duration, and analytical methods to be used at the field sites. The Task C.23 instrumentation report for the C-HS2 mound system and plume documents the test area design, number and location of monitoring points, and preliminary field parameters from monitoring points for this Seminole County, Florida field site, and also includes preliminary sample collection and analyses.

2.0 Purpose

This report documents data that was collected in the fourth C-HS2 mound monitoring and sampling event which was conducted July 10 and 11, 2012. The corresponding sample event report was submitted as C-HS2 Sample Event Report No. 4, July 2012, as a deliverable under Task C.24. The monitoring event consisted of water use measurement from the household water meter, groundwater elevation measured within the standpipe piezometers, measurement of field parameters, and collection of effluent and groundwater samples and their analyses in a NELAC certified laboratory.

3.0 Materials and Methods

3.1 Project Site

The C-HS2 field site is located in Seminole County, FL in a neighborhood less than a mile from the Little Wekiva River. The onsite sewage treatment and disposal system (OSTDS) for the residence consists of a 1,050 gallon fiberglass baffled septic tank located adjacent to the drainfield mound and has a gravity fed standard bed mounded drainfield.

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3.2 Monitoring and Sampling Locations and Identification

A sampling grid for groundwater screening was developed downgradient of the OSTDS as depicted in Figure 1. A 10-foot by 40-foot grid was staked then locations surveyed (x, y, and z). Transect lines A through D were located perpendicular to the groundwater flow direction (southwest) and increase (higher letter identification) moving southward from the mound. Transect lines 0 through 15 were located parallel to the groundwater flow direction and increase moving from southeast to northwest. Groundwater monitoring points were installed in June and July 2011. One type of monitoring point was installed using either hand or drilling methods: standpipe piezometers. Standpipe piezometers consist of either ¾-inch or 2-inch diameter PVC with a 1-foot, 2-foot, or 4-foot screen (0.010-inch slots) and riser extending to the ground surface (refer to the Task C QAPP and Task C.23 C-HS2 Instrumentation Report for additional detail).

Each monitoring location was assigned a unique identification indicating grid location (self explanatory), and depth below ground surface (bottom of the drive point or well screen in feet). For example A09-7 is a standpipe piezometer sampler located on the grid at A09 at 7-feet below ground surface. A schematic of the C-HS2 monitoring network is shown in Figure 1. A complete list of all installed standpipe piezometers is included in Appendix A.

Following the third sample event, the property owners completed landscaping renovations in the front and backyard. During the fourth sample event the nested set of piezometers at locations A-09, B-15, C-00, D-04, D-07, and PZ-BKG07 as well as the single piezometers PZ03 and PZ04 could not be located; it is likely that the piezometers were destroyed during the new landscape installation. A total of 45 specific monitoring locations were sampled during this fourth C-HS2 sampling event.

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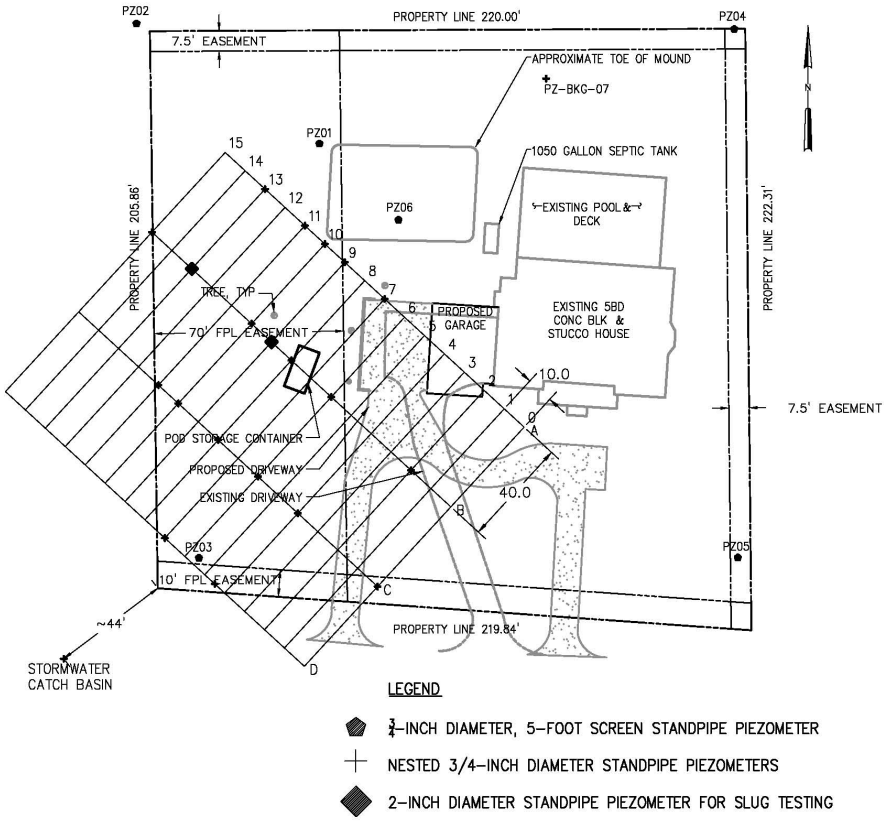

Figure 1
C-HS2 Monitoring Network

3.3 Operational Monitoring

The water meter for the house site was read and recorded. The residence has a garden with irrigation thus the actual wastewater flow can only be estimated. A weather station (Sheffield in the Crossings, Longwood, FL) is located approximately 5 miles from the site. Data from this weather station is available at the following website: http://www.wunderground.com.

3.4 Soil Characteristics

Continuous soil samples were collected using the direct push method at grid locations A09, A11, B08 and C10 during the groundwater monitoring network instrumentation. The soil descriptions are provided in Appendix B, Table B.1. The soil samples were submitted to the University of Florida IFAS Analytical Services Laboratory and University of Florida SWS Mineralogy Core Laboratory for analysis. The soil samples were ana-

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lyzed for particle size distribution (see Table B.2), pH, organic matter, cation exchange capacity (CEC), ammonia, nitrate, TKN, phosphorus, potassium, calcium, magnesium, and sodium concentrations (see Table B.3). The complete soil data set is included in Appendix B.

3.5 Groundwater Elevation Measurements

Groundwater level measurements are used to determine hydraulic gradients and directions of flow. Groundwater levels were measured using a flat tape water level meter graduated in feet (measurement accuracy is 0.01 feet). The groundwater level within the standpipe piezometers sampled was measured for this sampling event.

3.6 Water Quality Sample Collection and Analyses

Groundwater and septic tank effluent (STE) were collected July 10 and 11, 2012 for water quality analysis. A sample was collected from the septic tank outlet filter to represent the effluent delivered to the drainfield. A peristaltic pump was used to collect STE directly into the analysis-specific containers. Groundwater samples were obtained using a peristaltic pump, which was attached directly to dedicated standpipe piezometer tubing. Samples were collected after sufficient purging (the sample was clear and pH and conductivity readings had stabilized) had occurred. Field parameters were then recorded. Stormwater samples were obtained from the stormwater catch basin southwest of the property using a sampling pole. The C-HS2-SW-6-inch sample refers to the sample collected directly from the 6-inch PVC pipe that appears to collect storm water from the property. The C-HS-SW-M sample refers to the sample collected directly from the bottom of the catch basin (see Figure 2).

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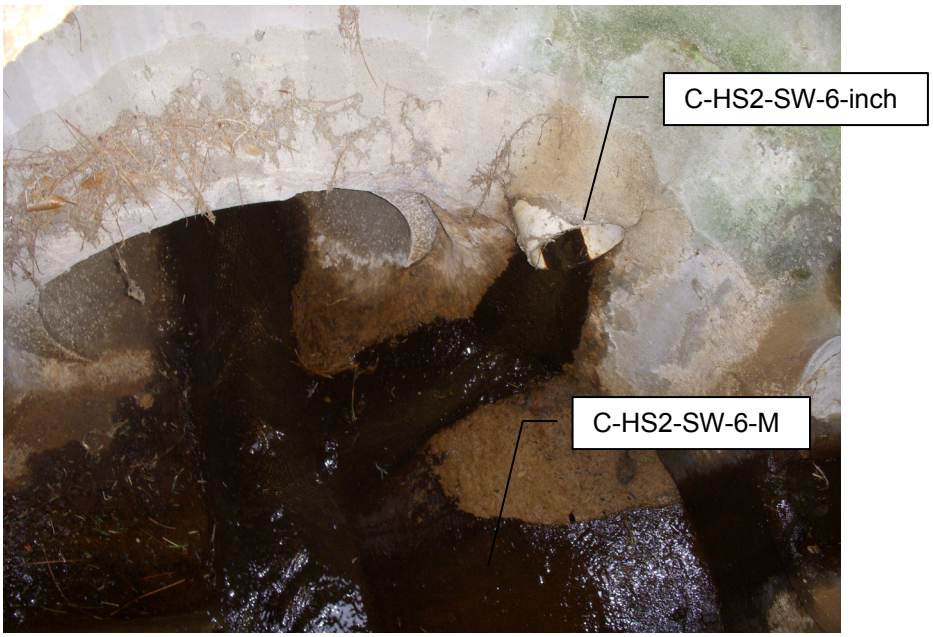

Figure 2
Photo of Stormwater Catch Basin Southwest of Property

The analysis-specific containers were supplied by the analytical laboratory and contained appropriate preservatives. The analysis-specific containers were labeled, placed in coolers and transported on ice to the analytical laboratory. Each sample container was secured in packing material as appropriate to prevent damage and spills, and was recorded on chain-of-custody forms supplied by the laboratory. Chain of custody forms were used to document the transfer of samples from field personnel to the analytical laboratory.

In addition, field sample duplicates were collected immediately subsequent to the regular samples. The field duplicate samples taken include:

- C-HS2-STE
- C-HS2-A10-9
- C-HS2-B08-5
- C-HS2-C06-10
- C-HS2-C08-5

Field parameters (pH, specific conductance, temperature (Temp), and dissolved oxygen (DO)) were measured using portable electronic probes with probe tips placed in an overflowing plastic beaker as groundwater was being pumped. All samples were analyzed

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by the laboratory for: total alkalinity, chemical oxygen demand (COD), total Kjeldahl nitrogen (TKN-N), ammonia nitrogen (NH_3-N), nitrate/nitrite nitrogen (NO_X-N), and chloride (Cl). At some of the locations with elevated nitrogen in previous preliminary sampling events, anions, cations, total organic carbon (TOC) and dissolved organic carbon (DOC) were included. Additionally, for the STE sample carbonaceous biological oxygen demand ($CBOD_5$) and fecal coliform (fecal) were included. All analyses were performed by an independent and fully certified analytical laboratory (Southern Analytical Laboratory). Table 1 lists the analytical parameters, analytical methods, and detection limits for these analyses.

Table 1
Analytical Parameters, Method of Analysis, and Detection Limits

Analytical Parameter	Method of Analysis	Method Detection Limit (mg/L)
Total Alkalinity as $CaCO_3$	SM 2320B	2 mg/L
Chemical Oxygen Demand (COD)	EPA 410.4	10 mg/L
Carbonaceous BOD ($CBOD_5$)	SM 5210B	2 mg/L
Total Kjeldahl Nitrogen (TKN-N)	EPA 351.2	0.05 mg/L
Ammonia Nitrogen (NH_3-N)	EPA 350.1	0.005 mg/L
Nitrate/Nitrite Nitrogen (NO_X-N)	EPA 300.0	0.02 mg/L
Dissolved Organic Carbon (DOC)	SM 5310B	0.5 mg/L
Total Organic Carbon (TOC)	SM 5310B	0.5 mg/L
Fecal Coliform (fecal)	SM9222D	1 ct/100mL
Anions		
Fluoride	EPA 300.0	0.01 mg/L
Chloride	EPA 300.0	0.05 mg/L
Nitrate-N	EPA 300.0	0.01 mg/L
Nitrite-N	EPA 300.0	0.01 mg/L
Orthophosphate-P	EPA 300.0	0.01 mg/L
Sulfate	EPA 300.0	0.20 mg/L
Cations		
Boron	EPA 200.7	0.05 mg/L
Calcium	EPA 200.7	0.01 mg/L
Iron	EPA 200.7	0.02 mg/L
Magnesium	EPA 200.7	0.01 mg/L
Manganese	EPA 200.7	0.001 mg/L
Potassium	EPA 200.7	0.01 mg/L
Sodium	EPA 200.7	0.01 mg/L

3.7 Data Management

To allow for a better visualization of the data collected at the site the mapping program **Surfer** was utilized. **Surfer** is a grid-based mapping program that interpolates irregularly spaced XYZ data into a regularly spaced grid. Although there are several methods used

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in Surfer to fill in areas where data is missing, the Kriging method was used as the output gave the most informative graphs.

4.0 Results

4.1 Operational Data and Site Conditions

Table 2 summarizes the water meter readings and average daily water use for the residence at site C-HS2.

Table 2
Water Meter Readings and Water Usage for C-HS2

Residence	Date and Time Read	Meter Reading	Gallons per day
C-HS2 Residence	7/13/2011 14:45	5302677.9	
	7/20/2011 17:50	5304207.8	215
	7/26/2011 15:19	5305257.9	178
	10/27/2011 15:19	5327920.4	244
	11/30/2011 8:00	5355610.4	822[1]
	3/13/2012 8:10	5378780.2	223
	7/10/2012 16:15	5,453,899.3	629[2]

[1]Homeowner refilled swimming pool between readings.

[2]A considerable quantity of water was used for the establishment of new landscape.

Monthly recorded meteorological data is provided in Appendix C. Table 3 provides the daily averages leading up to and during the sample event.

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Table 3
Meteorological Data Daily Averages Measured July 1, 2012 – July 11, 2012

Date	Temperature (°F)			Humidity (%)	Wind (mph)	Rain Total (inches)
	High	Avg	Low	Avg	Avg	Sum
7/1/2012	97	89	71	58	2	0.00
7/2/2012	96	89	75	57	2	0.00
7/3/2012	91	87	76	62	0	0.00
7/4/2012	94	86	74	64	1	0.03
7/5/2012	87	87	87	60	0	0.00
7/6/2012	95	87	76	64	2	0.00
7/7/2012	97	88	75	60	1	0.00
7/8/2012	97	90	75	57	1	0.00
7/9/2012	97	86	76	65	1	0.00
7/10/2012	97	84	73	67	2	0.00
7/11/2012	84	80	74	80	1	0.61

4.2 Groundwater Levels

Water levels were measured within the standpipe piezometers sampled on July 10 and 11, 2012 for this sampling event as summarized in Table 4. Figures 3 through 6 illustrate the surficial groundwater contours as measured within the standpipe piezometers on July 27, 2011 (Figure 3), November 30, 2011 (Figure 4), March 13, 2012 (Figure 5), and July 10, 2012 (Figure 6) during each of the sample events. As discussed in Section 3.2, several monitoring locations were buried or cut prior to this sample event. Therefore, the surficial groundwater contour map for sample event 4 (Figure 6) provides the western side yard measured elevations rather than the full property provided in prior sample events. A summary of all recorded groundwater elevations taken at the standpipe piezometers within the grid is presented in Appendix D. As depicted, the groundwater elevations have been found to fluctuate due to periods of dry weather and/or heavy precipitation; however, the general flow-path does not change significantly. The vertical head differential on nested wells is generally within measurement and survey error, and thus no real vertical gradient is indicated within the limited vertical extent of these nested wells.

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Table 4
Standpipe Piezometer Groundwater Levels
Measured on July 10, 2012

Identification	Water Table Elevation (feet)	Identification	Water Table Elevation (feet)
C-HS2-PZ01-7	93.51	C-HS2-B08-5	92.99
C-HS2-PZ02-6	93.34	C-HS2-B08-7	93.01
C-HS2-PZ06-12	95.73[1]	C-HS2-B08-10	92.99
C-HS2-A07-6	93.32	C-HS2-B10-5	93.09
C-HS2-A07-8	93.31	C-HS2-B10-7	93.11
C-HS2-A07-11	93.35	C-HS2-B10-10	93.10
C-HS2-A10-7	93.38	C-HS2-C04-5	92.52
C-HS2-A10-9	93.47	C-HS2-C04-7	92.49
C-HS2-A10-12	93.45	C-HS2-C04-10	92.48
C-HS2-A11-5	93.45	C-HS2-C06-5	92.53
C-HS2-A11-7	93.42	C-HS2-C06-7	92.48
C-HS2-A11-10	93.47	C-HS2-C06-10	92.44
C-HS2-A13-5	93.44	C-HS2-C08-5	92.42
C-HS2-A13-7	93.44	C-HS2-C08-7	92.39
C-HS2-A13-10	93.45	C-HS2-C08-10	92.37
C-HS2-B02-6	92.80	C-HS2-C10-6	92.64
C-HS2-B02-8	92.80	C-HS2-C10-8	92.61
C-HS2-B02-11	92.77	C-HS2-C10-12	92.58
C-HS2-B06-6	92.91	C-HS2-C11-5	92.69[1]
C-HS2-B06-8	92.91	C-HS2-C11-7	92.37
C-HS2-B06-11	92.93	C-HS2-C11-10	92.35

[1]Most likely erroneous instrument reading

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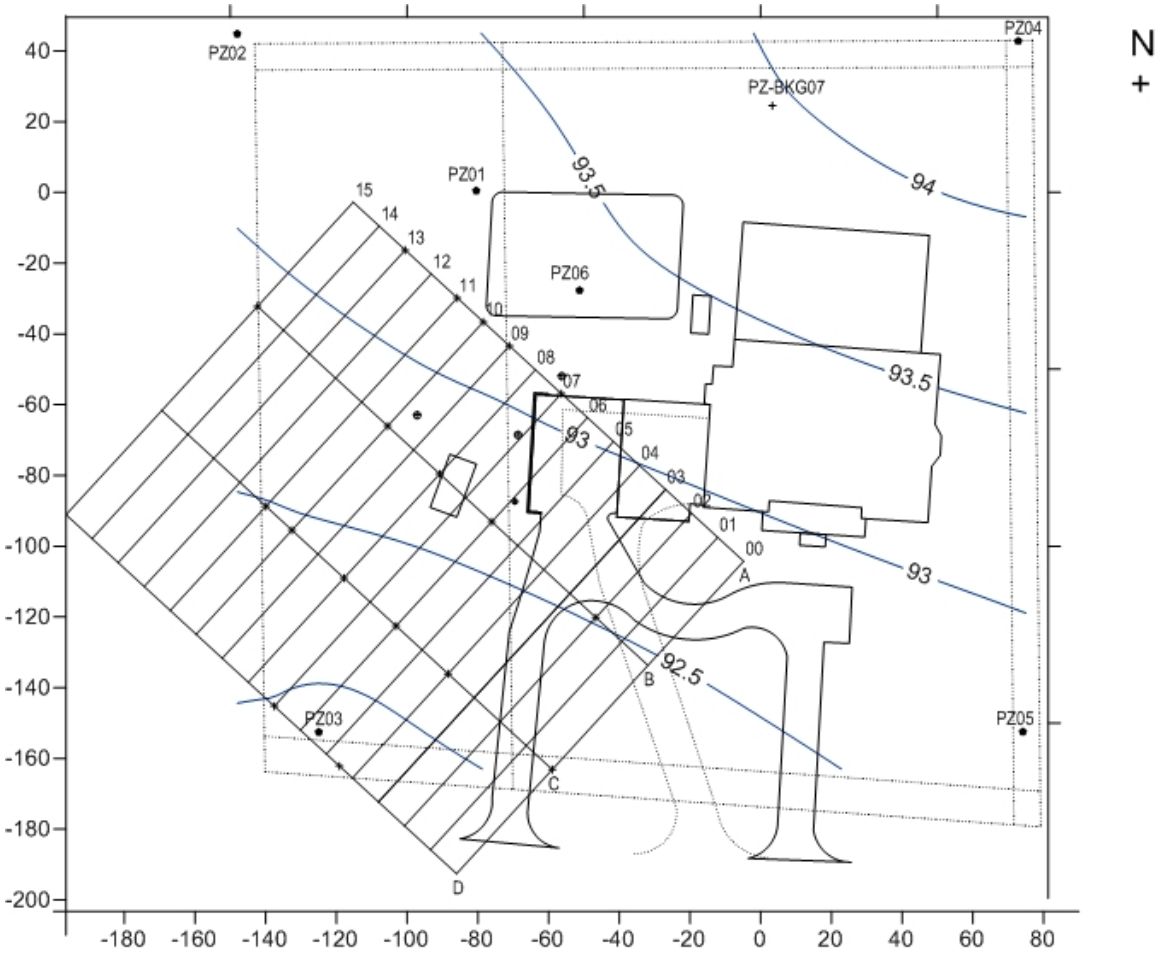

Figure 3
Surficial Groundwater Contours July 27, 2011

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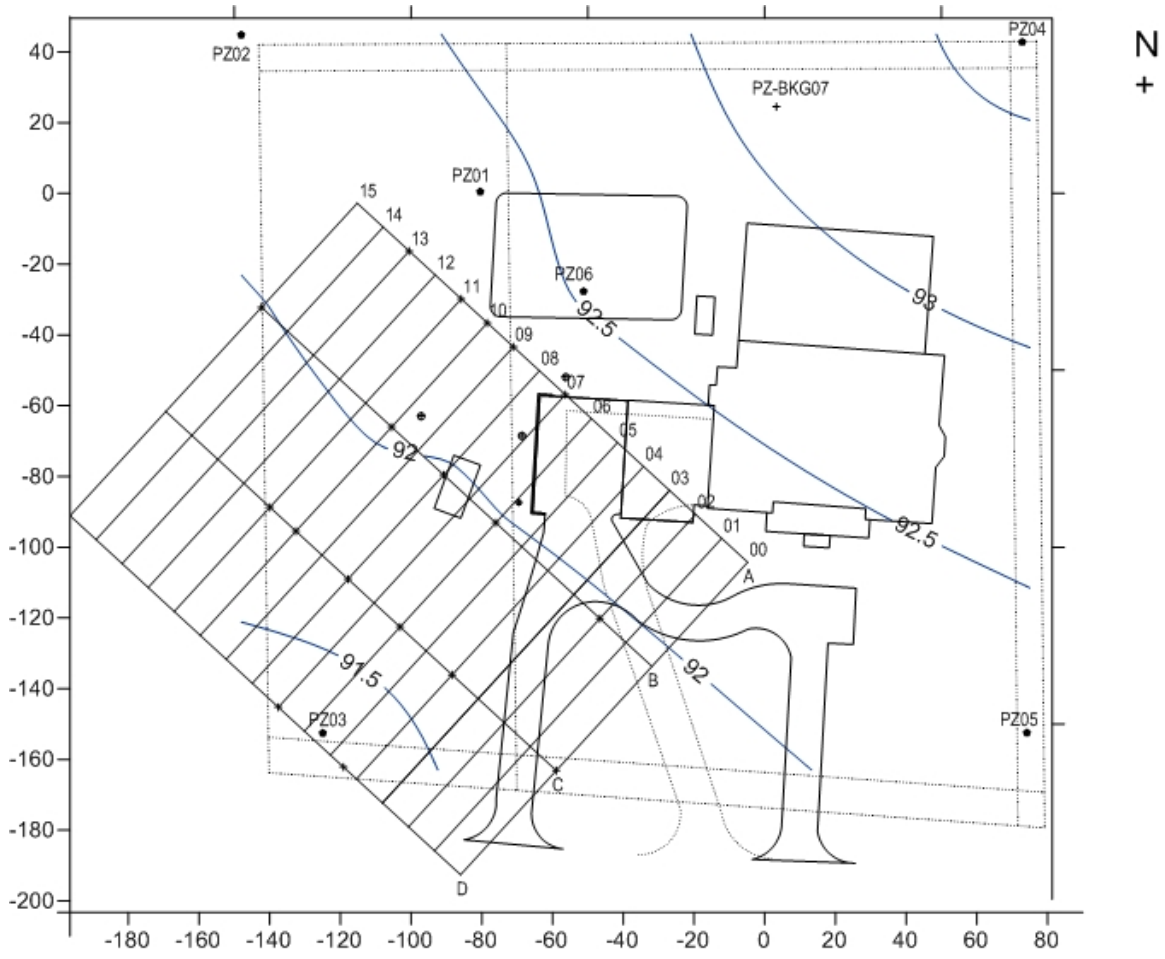

Figure 4
Surficial Groundwater Contours November 30, 2011

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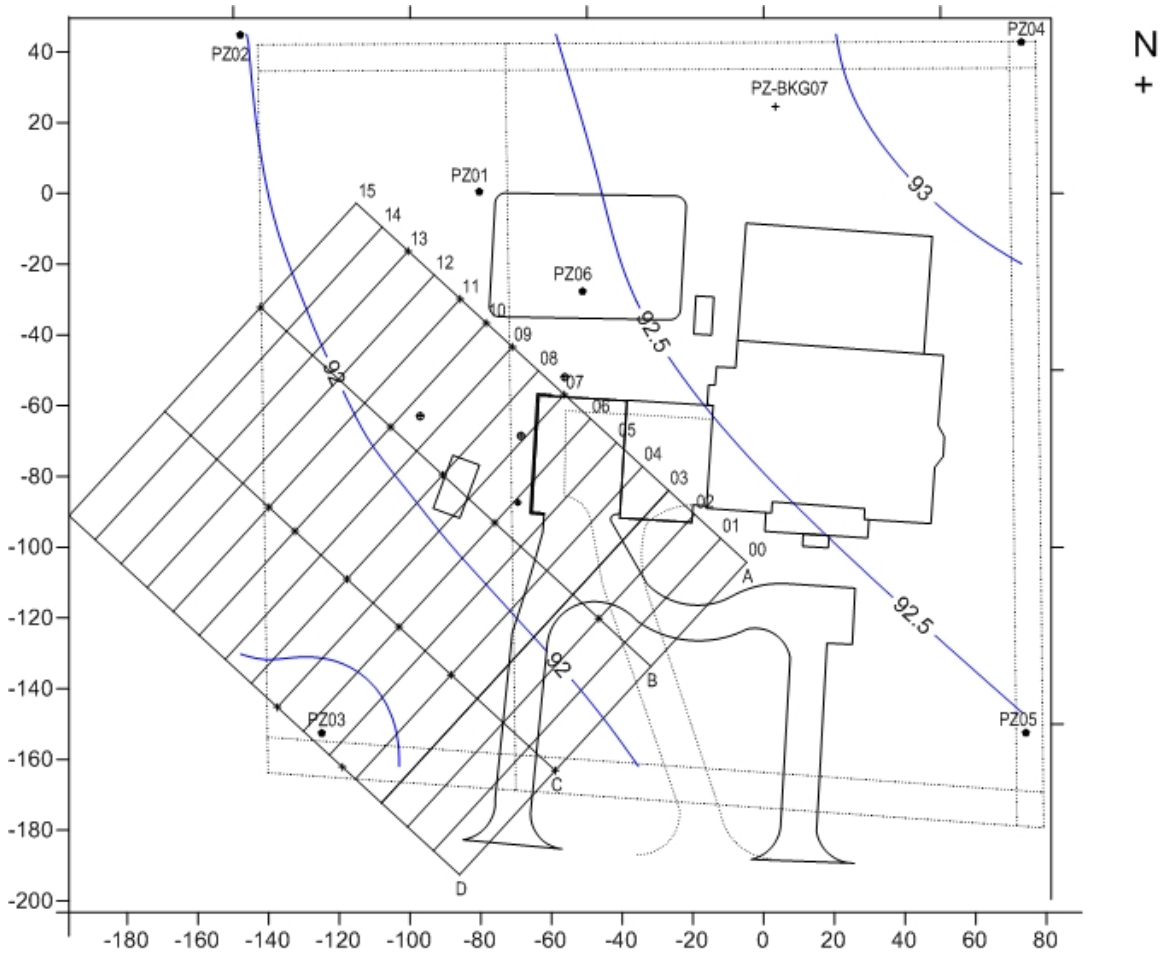

Figure 5
Surficial Groundwater Contours March 13, 2012

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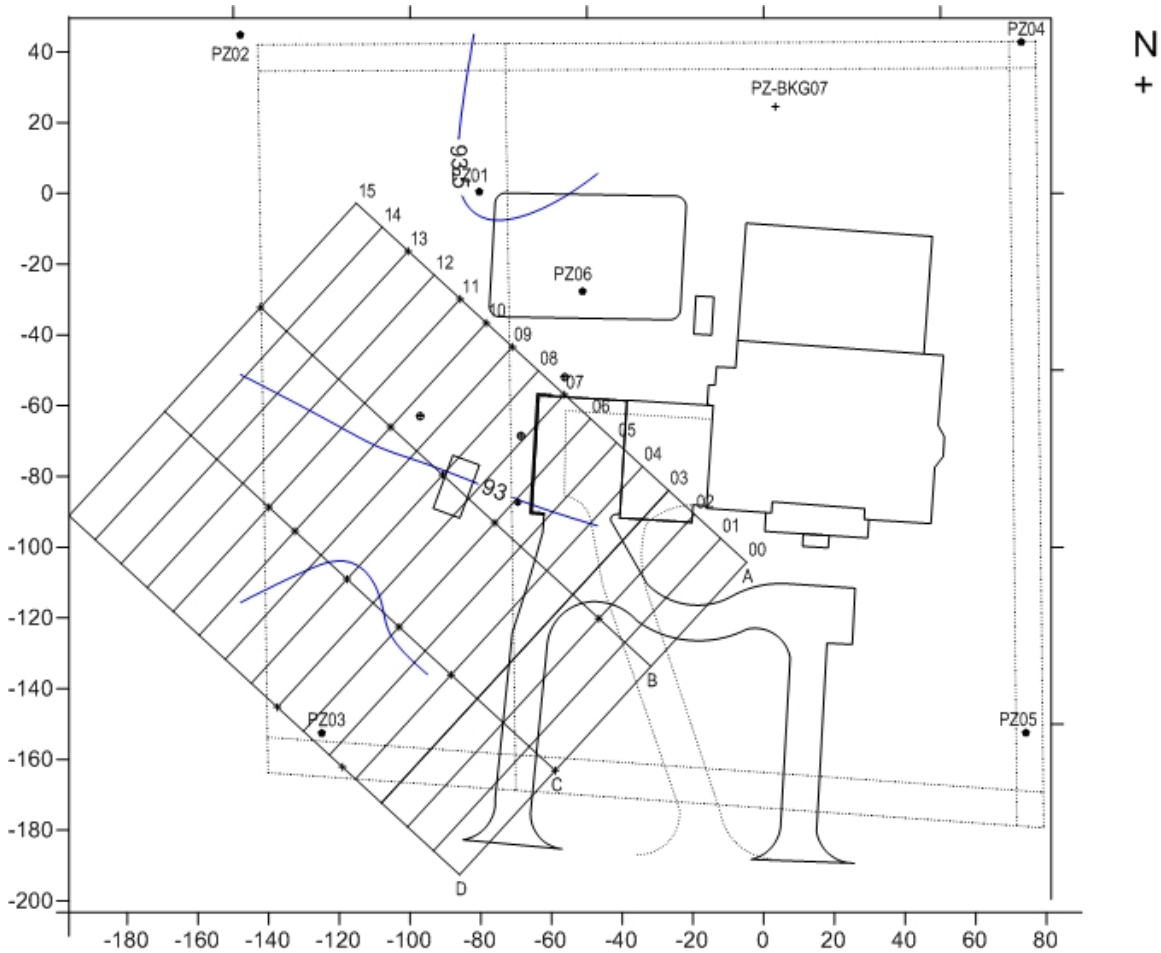

Figure 6
Surficial Groundwater Contours July 10, 2012

4.3 Water Quality Analyses

4.3.1 Field Parameters

Field parameters (temperature, pH, dissolved oxygen (DO), and specific conductivity) were measured at all the sampling locations during the sampling event and are provided in Appendix E. Variations in measured values were expected as the chemical composition of the groundwater varied due to the discharge of STE. Table 5 depicts the range for all samples taken to date for both the "impacted" (PZ03, PZ06, A07, A09, A10,

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A11, B02, B06, B08, B10, C04, C06, C08, C10, C11, D04, D07) and "non-impacted" (A13, B15, PZ01, PZ02, PZ04, PZ-BKG07) groundwater monitoring locations.

Table 5
Field Parameter Ranges

Field Parameters	"Impacted" Range	"Non-Impacted" Range
Temperature (°C)	18.5 - 29.5	18.8 – 29.6
pH	4.4 – 7.4	4.4 – 7.3
DO (mg/L)	0.01 – 5.5	0.1 – 2.0
Specific conductance (µS)	123 - 950	125 - 442

4.3.2 Correlations

Correlations between various field parameters and nitrogen concentration were conducted. Such correlations can provide insight into expected nitrogen removal or can be used to approximate difficult to obtain parameter values. However, no significant correlations were observed including the relationship between specific conductance and the concentrations of total nitrogen or NOx-N (Figure 7).

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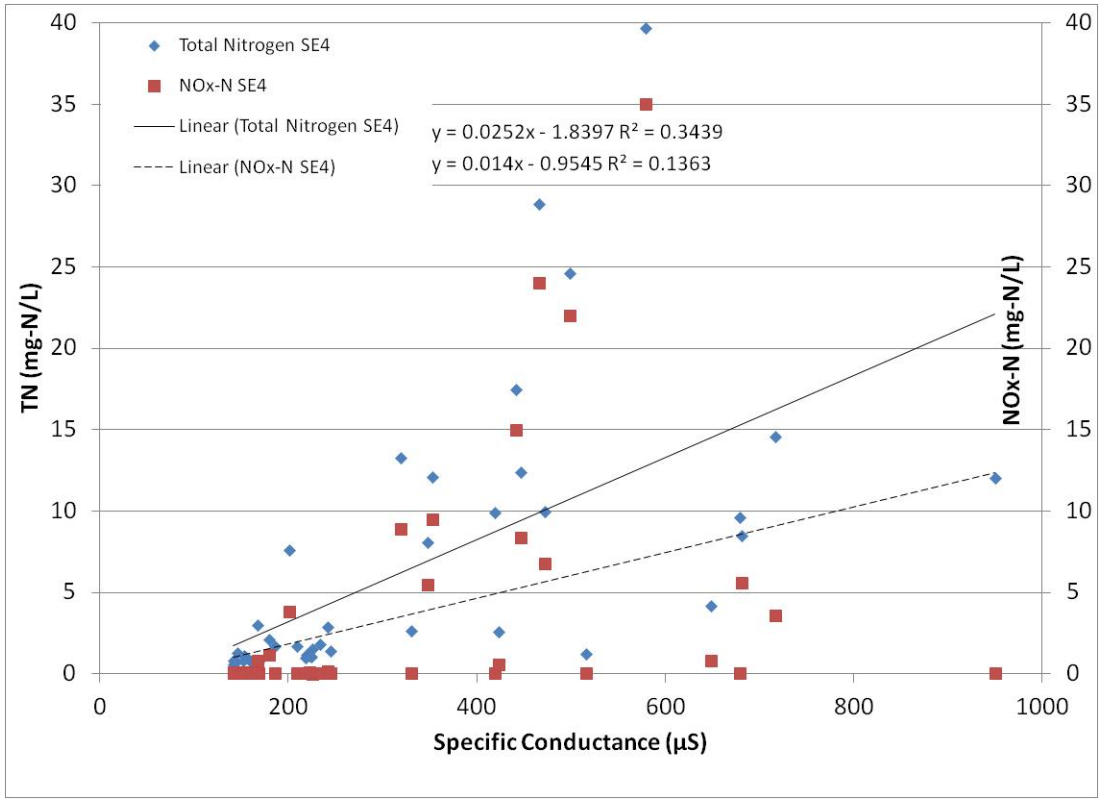

Figure 7
Correlation Between the Specific Conductance (uS) and the Concentrations of Total Nitrogen (mg-N/L) and NOX (mg-N/L)

4.3.3 Analytical Parameters

In addition to measuring field parameters, all samples were analyzed for total alkalinity (as $CaCO_3$), total Kjeldahl nitrogen (TKN-N), ammonia nitrogen (NH3-N), nitrate/nitrite nitrogen (NOX-N), and chloride (CL). By analyzing for the different nitrogen species, a clearer picture is gained on the transformation of nitrogen within the plume. The complete water quality analytical results for Sample Event No. 4 are listed in Table 1 of Appendix E. The summary of the water quality is presented in Table 1 of Appendix F. The laboratory report containing the raw analytical data is included in Appendix G.

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4.3.4 Nitrate/Nitrite Concentrations with Depth

The general trend of the nitrogen plume at the site can be somewhat determined. Although **Surfer** is an excellent tool for mapping the information from the site, it cannot project a 3-dimensional view of concentrations with depth. The 65 piezometers installed at different locations and depths below the ground surface were mapped in **Surfer**. The concentrations of NOX at all locations where groundwater samples were obtained are illustrated in Figures 8, 9, 10, and 11 respectively. The maps show contours of the concentrations as estimated using the Kriging method in Surfer. As is evident, an overall trend in a southwesterly flow direction of the nitrogen plume is visible. However, in the third sampling event (Figure 10) the plots show an apparent downward movement of the nitrogen plume relative to the first and second sampling events. In the fourth sample event (Figure 11) the plot shows the nitrogen plume nearer the surface similar to the first sample event (Figure 8). The highest concentration of NOX (Figure 11) is in C-HS2-B08-5 (35 mg-N/L) southwest of the mound.

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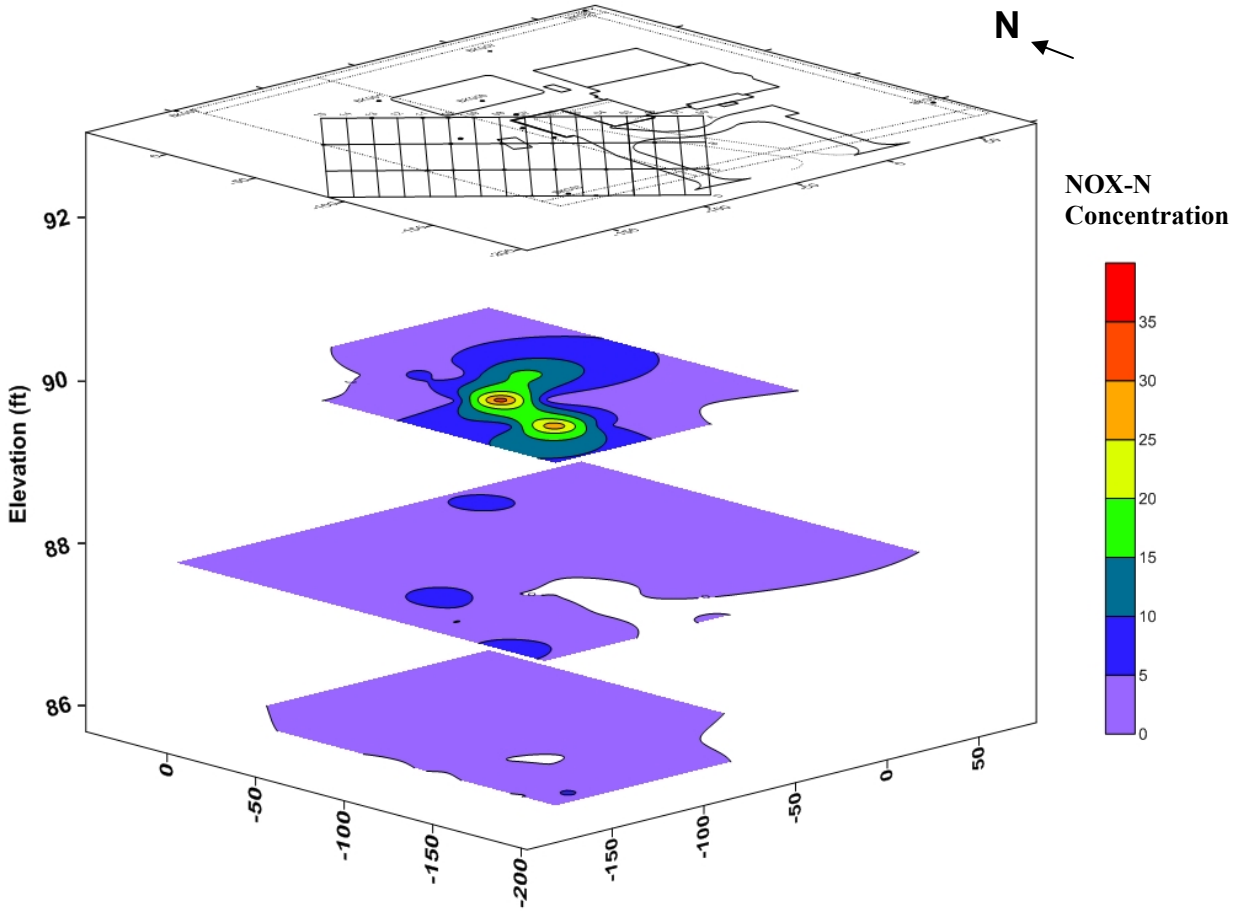

Figure 8
A layered schematic (using Surfer) illustrating NOX Concentrations (mg-N/L) in the subsurface at three different elevation intervals (based on July 2011 sampling event).

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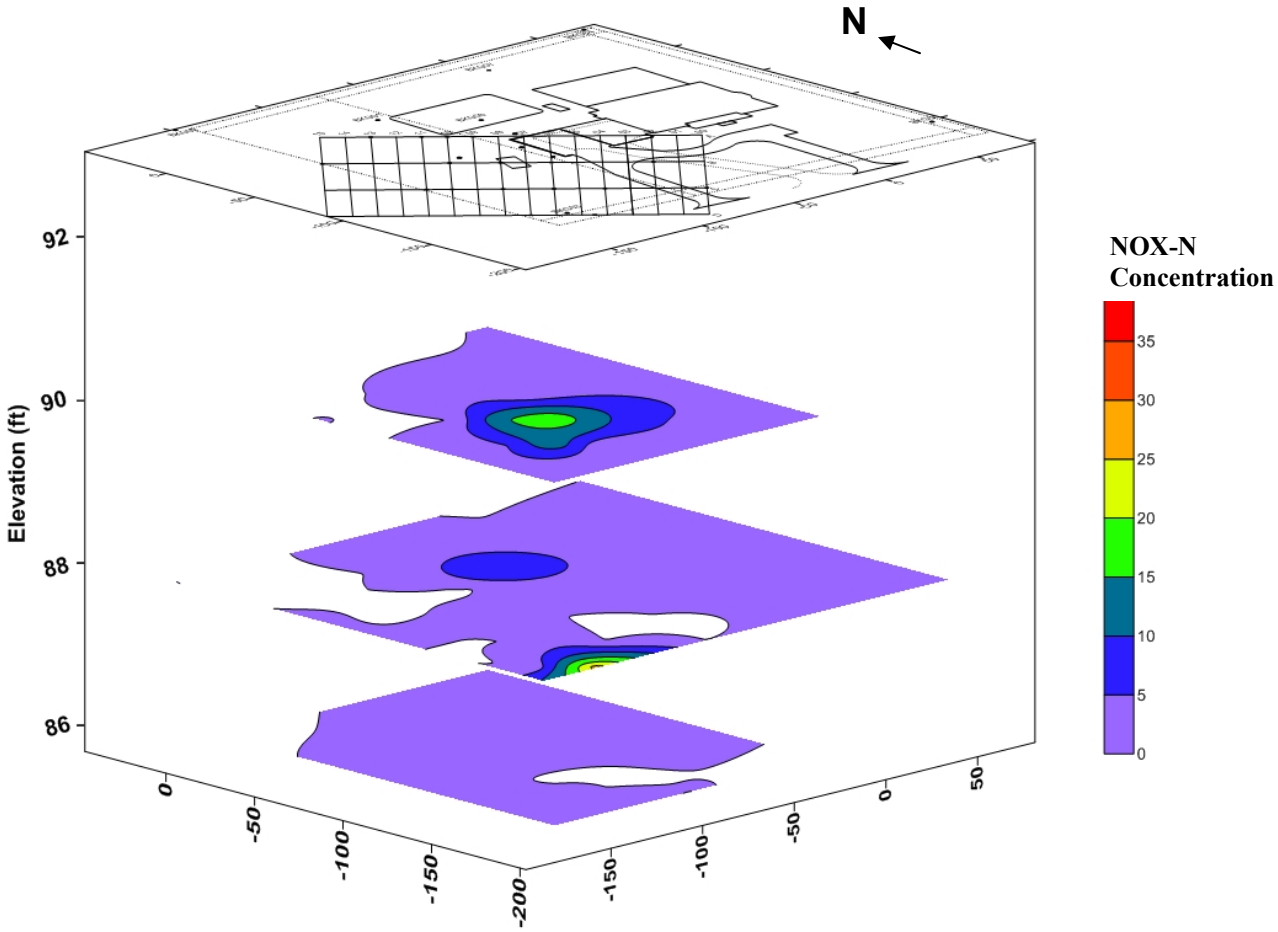

Figure 9

A layered schematic (using Surfer) illustrating NOX Concentrations (mg-N/L) in the subsurface at three different elevation intervals (based on Nov 2011 sampling event).

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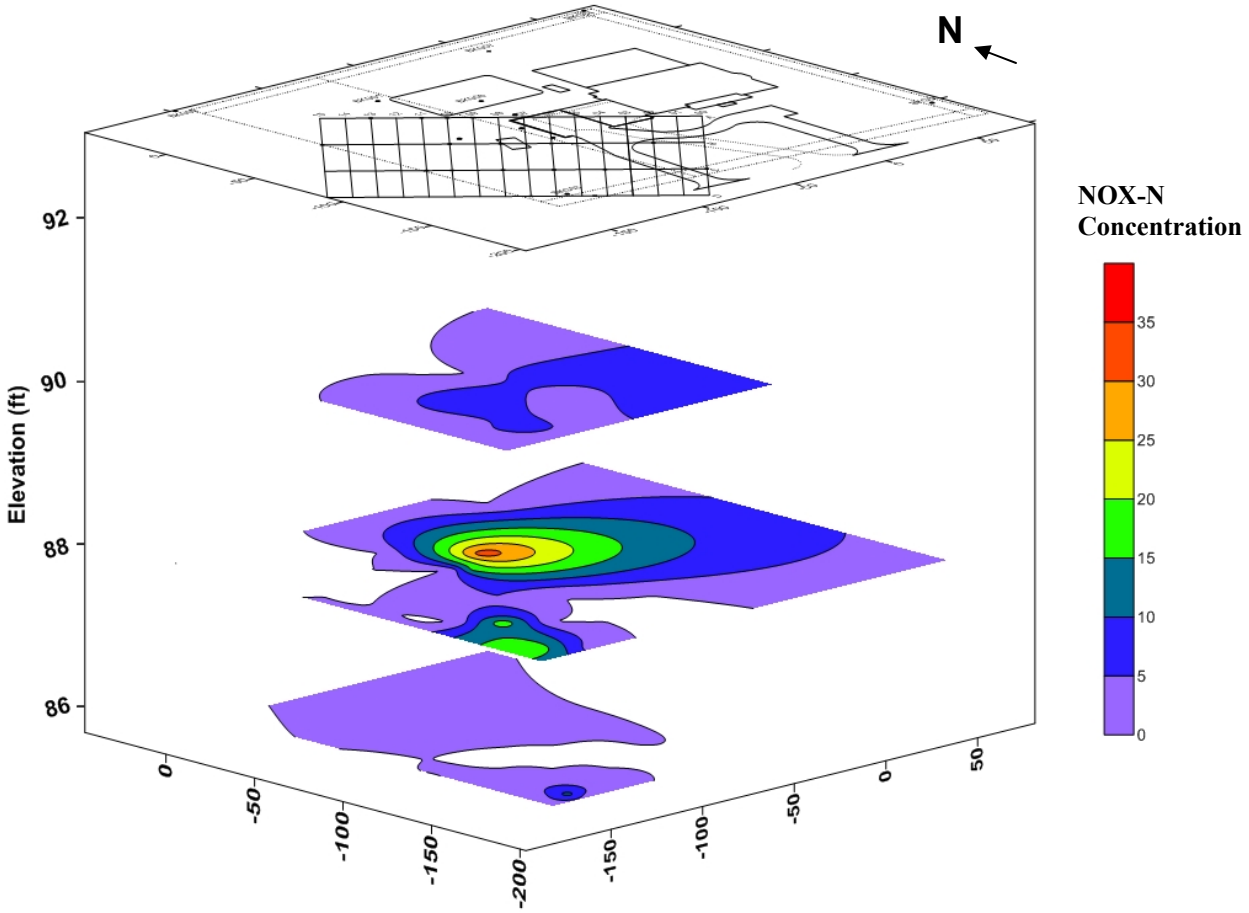

Figure 10
A layered schematic (using Surfer) illustrating NOX Concentrations (mg-N/L) in the subsurface at three different elevation intervals (based on March 2012 sampling event).

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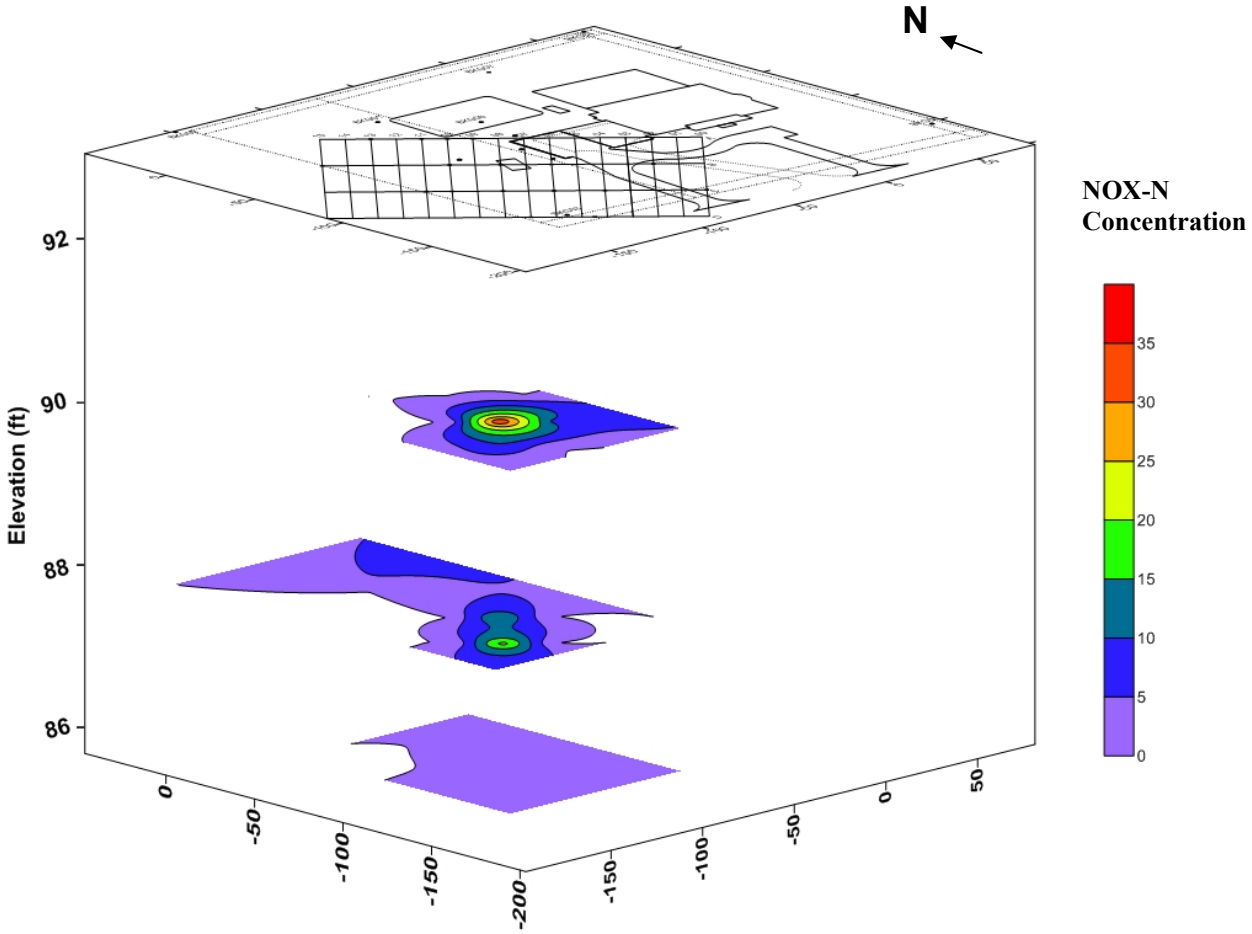

Figure 11
A layered schematic (using Surfer) illustrating NOX Concentrations (mg-N/L) in the subsurface at three different elevation intervals (based on July 2012 sampling event).

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5.0 C-HS2 Data Summary Report No. 4: Summary and Recommendations

5.1 Summary

The results of the data collected to date have allowed for estimations of groundwater flow, gradient and velocity, and provided additional insights into the general trend of the NOX plume. Results of Sample Event No. 4 indicate that:

- Although the groundwater levels fluctuate, the direction of flow remains relatively constant.
- There are small variations in field parameters over the site with no clear correlations between field parameters and NOX concentrations identified.
- The nitrogen plume appears to be flowing in a southwesterly direction and similar to the groundwater contours.
- Little seasonal variation in groundwater flow direction was observed.

5.2 Conclusions

Sample Event 4 was the last funded sample event for the C-HS2 mound monitoring network. Further analysis of the results obtained at this site will occur as Task C results are compiled and summarized for use in Task D. The insight gained from monitoring the C-HS2 mound plume will provide information needed for the development of the groundwater model in Task D.

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Appendix A: C-HS2 Sample Identification

Table A.1

C-HS2 Sample Identification

	Sample ID	Type of Monitoring Point	Original Survey		Re-measured Survey March 2012	
			Surface Elev (ft)	Bottom Elev (ft)	Surface Elev (ft)	Bottom Elev (ft)
1	STE	Waste Water	N/A	N/A	N/A	N/A
2	C-HS2-SW-6 inch	Storm sewer catch basin southwest of home	N/A	N/A	N/A	N/A
3	C-HS2-SW-M	Storm sewer catch basin southwest of home	N/A	N/A	N/A	N/A
4	C-HS2-PZ01-7	3/4" Standpipe Piezometer, 5' screen	96.11	88.93	96.13	88.95
5	C-HS2-PZ02-6	3/4" Standpipe Piezometer, 5' screen	94.48	88.20	94.48	88.20
6	C-HS2-PZ03-7	3/4" Standpipe Piezometer, 5' screen	93.52	86.56	NR	NR
7	C-HS2-PZ04-7	3/4" Standpipe Piezometer, 5' screen	96.00	88.94	NR	NR
8	C-HS2-PZ05-8	3/4" Standpipe Piezometer, 5' screen	95.21	87.26	NR	NR
9	C-HS2-PZ06-12	3/4" Standpipe Piezometer, 5' screen	99.55	87.93	NR	NR
10	C-HS2-A07-6	3/4" Standpipe Piezometer, 2' screen	97.33	91.67	97.33	91.67
11	C-HS2-A07-8	3/4" Standpipe Piezometer, 1' screen	97.34	89.69	97.29	89.64
12	C-HS2-A07-11	3/4" Standpipe Piezometer, 1' screen	97.33	86.78	97.34	86.79
13	C-HS2-A09-7	3/4" Standpipe Piezometer, 2' screen	98.23	91.34	98.23	91.34
14	C-HS2-A09-9	3/4" Standpipe Piezometer, 1' screen	98.22	89.01	98.23	89.02
15	C-HS2-A09-12	3/4" Standpipe Piezometer, 1' screen	98.22	86.47	98.22	86.47
16	C-HS2-A10-7	3/4" Standpipe Piezometer, 2' screen	97.63	90.76	97.63	90.76
17	C-HS2-A10-9	3/4" Standpipe Piezometer, 1' screen	97.65	88.84	97.65	88.84
18	C-HS2-A10-12	3/4" Standpipe Piezometer, 1' screen	97.65	85.65	97.65	85.65
19	C-HS2-A11-5	3/4" Standpipe Piezometer, 2' screen	96.45	91.46	96.46	91.47
20	C-HS2-A11-7	3/4" Standpipe Piezometer, 1' screen	96.45	89.63	96.45	89.63
21	C-HS2-A11-10	3/4" Standpipe Piezometer, 1' screen	96.45	86.59	96.46	86.60
22	C-HS2-A13-5	3/4" Standpipe Piezometer, 2' screen	95.76	90.77	95.76	90.77
23	C-HS2-A13-7	3/4" Standpipe Piezometer, 1' screen	95.76	88.78	95.76	88.78
24	C-HS2-A13-10	3/4" Standpipe Piezometer, 1' screen	95.77	86.03	95.76	86.02

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Table A.1

C-HS2 Sample Identification

	Sample ID	Type of Monitoring Point	Original Survey		Re-measured Survey March 2012	
			Surface Elev (ft)	Bottom Elev (ft)	Surface Elev (ft)	Bottom Elev (ft)
25	C-HS2-B02-6	3/4" Standpipe Piezometer, 2' screen	95.85	90.29	NR	NR
26	C-HS2-B02-8	3/4" Standpipe Piezometer, 1' screen	95.85	88.06	NR	NR
27	C-HS2-B02-11	3/4" Standpipe Piezometer, 1' screen	95.85	85.12	NR	NR
28	C-HS2-B06-6	3/4" Standpipe Piezometer, 2' screen	95.85	90.17	95.82	90.14
29	C-HS2-B06-8	3/4" Standpipe Piezometer, 1' screen	95.85	88.03	95.77	87.95
30	C-HS2-B06-11	3/4" Standpipe Piezometer, 1' screen	95.84	85.08	95.79	85.03
31	C-HS2-B08-5	3/4" Standpipe Piezometer, 2' screen	95.38	90.41	95.38	90.41
32	C-HS2-B08-7	3/4" Standpipe Piezometer, 1' screen	95.40	88.62	95.39	88.61
33	C-HS2-B08-10	3/4" Standpipe Piezometer, 1' screen	95.42	85.52	95.39	85.49
34	C-HS2-B09-15	2" Standpipe Piezometer, 5' screen	95.37	80.20	NR	NR
35	C-HS2-B10-5	3/4" Standpipe Piezometer, 2' screen	95.40	90.42	95.30	90.32
36	C-HS2-B10-7	3/4" Standpipe Piezometer, 1' screen	95.40	88.60	95.31	88.51
37	C-HS2-B10-10	3/4" Standpipe Piezometer, 1' screen	95.40	85.55	95.30	85.45
38	C-HS2-B13-15	2" Standpipe Piezometer, 5' screen	95.34	80.12	NR	NR
39	C-HS2-B15-5	3/4" Standpipe Piezometer, 2' screen	95.28	90.43	95.26	90.41
40	C-HS2-B15-7	3/4" Standpipe Piezometer, 1' screen	95.28	88.78	95.25	88.75
41	C-HS2-B15-10	3/4" Standpipe Piezometer, 1' screen	95.26	85.60	95.25	85.59
42	C-HS2-C00-5	3/4" Standpipe Piezometer, 2' screen	94.50	89.81	NR	NR
43	C-HS2-C00-7	3/4" Standpipe Piezometer, 1' screen	94.50	87.69	NR	NR
44	C-HS2-C00-10	3/4" Standpipe Piezometer, 1' screen	94.51	84.66	NR	NR
45	C-HS2-C04-5	3/4" Standpipe Piezometer, 2' screen	94.61	89.91	94.62	89.92
46	C-HS2-C04-7	3/4" Standpipe Piezometer, 1' screen	94.60	87.79	94.61	87.80
47	C-HS2-C04-10	3/4" Standpipe Piezometer, 1' screen	94.61	84.76	94.62	84.77
48	C-HS2-C06-5	3/4" Standpipe Piezometer, 2' screen	94.53	89.55	94.53	89.55
49	C-HS2-C06-7	3/4" Standpipe Piezometer, 1' screen	94.53	87.74	94.52	87.73
50	C-HS2-C06-10	3/4" Standpipe Piezometer, 1' screen	94.53	84.68	94.52	84.67
51	C-HS2-C08-5	3/4" Standpipe Piezometer, 2' screen	95.18	90.21	95.17	90.20
52	C-HS2-C08-7	3/4" Standpipe Piezometer, 1' screen	95.25	88.47	95.17	88.39

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Table A.1

C-HS2 Sample Identification

	Sample ID	Type of Monitoring Point	Original Survey		Re-measured Survey March 2012	
			Surface Elev (ft)	Bottom Elev (ft)	Surface Elev (ft)	Bottom Elev (ft)
53	C-HS2-C08-10	3/4" Standpipe Piezometer, 1' screen	95.20	85.33	95.17	85.30
54	C-HS2-C10-6	3/4" Standpipe Piezometer, 2' screen	95.77	90.12	95.76	90.11
55	C-HS2-C10-8	3/4" Standpipe Piezometer, 1' screen	95.78	88.00	95.76	87.98
56	C-HS2-C10-12	3/4" Standpipe Piezometer, 1' screen	95.78	84.01	95.77	84.00
57	C-HS2-C11-5	3/4" Standpipe Piezometer, 2' screen	95.30	90.63	95.29	90.62
58	C-HS2-C11-7	3/4" Standpipe Piezometer, 1' screen	95.30	88.51	95.29	88.50
59	C-HS2-C11-10	3/4" Standpipe Piezometer, 1' screen	95.31	85.46	95.30	85.45
60	C-HS2-D04-5	3/4" Standpipe Piezometer, 2' screen	93.98	89.09	93.92	89.03
61	C-HS2-D04-7	3/4" Standpipe Piezometer, 1' screen	93.98	87.14	93.89	87.05
62	C-HS2-D04-10	3/4" Standpipe Piezometer, 1' screen	94.00	84.31	93.90	84.21
63	C-HS2-D07-6	3/4" Standpipe Piezometer, 2' screen	95.41	89.43	95.39	89.41
64	C-HS2-D07-8	3/4" Standpipe Piezometer, 1' screen	95.39	87.53	95.37	87.51
65	C-HS2-D07-11	3/4" Standpipe Piezometer, 1' screen	95.43	84.59	95.40	84.56
66	C-HS2-PZ-BKG07-5	3/4" Standpipe Piezometer, 2' screen	96.01	91.36	96.02	91.37
67	C-HS2-PZ-BKG07-7	3/4" Standpipe Piezometer, 1' screen	96.01	89.43	96.01	89.43
68	C-HS2-PZ-BKG07-10	3/4" Standpipe Piezometer, 1' screen	96.01	86.40	96.01	86.40

NR = no reading

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Appendix B: Soil Sample

Table B.1
Site C-HS2 Descriptions[1]

Sample ID#	Location	Depth (ft bgs)	Munsell Soil Color	Description
1	A11	0-2.0	10YR 3/1	very dark gray fine sand
2		2.0-2.7	10YR 5/2	grayish brown fine sand
3		2.7-4.0	10YR 2/1	black fine sand
4		4.0-5.0	10YR 3/2	dark brown fine sand
5		5-5.9	10YR 3/4	dark yellowish brown fine sand
6		5.9-10	10YR 5/3	brown fine sand
7		10.0-20.0	10YR 3/2	very dark grayish brown fine sand
8		20.0-21.2	10YR 5/2	grayish brown fine sand
		21.2-21.8	10YR 5/2	grayish brown clayey fine sand
		21.8-23.0	10YR 5/1	gray clay
		23.0-30	10YR 6/2	light brownish gray fine sand
9	A09	0-1.0	10YR 5/2	grayish brown fine sand
10		1.0-2.6	10YR 8/2	very pale brown very fine sand
11		2.6-3.1	10YR 6/3	pale brown very fine sand
12		3.1-4.3	10YR 5/1	gray fine sand
13		4.3-5.7	10YR 2/2	very dark brown fine sand
14		5.7-6.9	10YR 3/6	dark yellowish brown fine sand
15		6.9-7.5	10YR 6/4	light yellowish brown fine sand
16		7.5-8.5	10YR 4/4	dark yellowish brown fine sand
17		8.5-15	10YR 3/3	dark brown fine sand w/black intermittent
18		15-21.5	10YR 5/3	brown fine sand
19		21.5-23.9	10YR 5/2	grayish brown clayey fine sand
20		23.9-25.5	10YR 5/1	gray clay
21		25.5-30	10YR 6/2	light brownish gray fine sand
	B08	0-1.1	10YR 4/1	dark gray fine sand
22		1.1-2.3	10YR 2/2	very dark brown fine sand
23		2.3-3.5	10YR 3/6	dark yellowish brown fine sand
24		3.5-7.5	10YR 5/3	brown fine sand
25		7.5-13.7	10YR 3/2	very dark grayish brown fine sand

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Table B.1
Site C-HS2 Descriptions[1]

Sample ID#	Location	Depth (ft bgs)	Munsell Soil Color	Description
26	B08	13.7-19.0	10YR 5/3	brown fine sand
27		19.0-21.5	10YR 5/2	grayish brown clayey fine sand
28		21.5-22.6	10YR 5/1	gray clay
29		22.6-30	10YR 6/2	light brownish gray fine sand
	C10	0-1.2	10YR 4/1	dark gray fine sand
30		1.2-2.0	10YR 5/2	grayish brown fine sand
31		2.0-3.9	10YR 3/2	very dark grayish brown fine sand
32		3.9-4.9	10YR 3/3	dark brown fine sand
33		4.9-6.4	10YR 5/3	brown fine sand
34		6.4-6.9	10YR 2/1	black fine sand
35		6.9-14.3	10YR 4/3	brown fine sand
		14.3-22.2	10YR 5/2	grayish brown clayey fine sand
		22.2-23.5	10YR 5/1	gray clay
		23.5-30	10YR 6/2	light brownish gray fine sand

[1]Soil samples collected from direct push intact soil cores and described in the field using the Munsell tools.

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Table B.2
Site C-HS2 Soil Particle Size Distribution

Particle Size Ditribution (% <2mm)											Textural Class
Sample ID#	Location	Depth (ft)	Sand Fractions (%)					Total (%)			
			Very Coarse	Coarse	Medium	Fine	Very Fine	Sand	Silt	Clay	
			2.0-1.0 mm	1.0-0.5 mm	0.5-0.25 mm	0.25-0.10 mm	0.10-0.05 mm	2.0-0.05	0.05-0.002	<0.002	
1	A11	0-2.0	0.2	4.3	29.9	49.8	2.3	86.8	10.9	2.3	Sand
2	A11	2.0-2.7	0.1	3.3	33.5	56.0	3.2	97.0	1.2	1.8	Sand
2-Dup	A11	2.0-2.7	0.1	4.2	36.9	47.7	2.2	91.5	4.6	3.8	Sand
3	A11	2.7-4.0	0.1	4.3	36.7	50.0	2.5	94.1	2.3	3.5	Sand
3-Dup	A11	2.7-4.0	0.0	4.2	37.3	50.0	2.5	94.8	1.2	4.1	Sand
4	A11	4.0-5.0	0.0	2.9	29.1	58.2	3.8	94.5	1.9	3.6	Sand
5	A11	5-5.9	0.1	5.3	33.9	56.2	2.3	98.0	0.0	2.9	Sand
6	A11	5.9-10	0.1	4.8	34.4	56.7	2.6	99.0	0.0	1.4	Sand
7	A11	10.0-20.0	0.1	3.2	30.8	59.1	2.6	96.3	0.0	5.4	Sand
8	A11	20.0-21.2	0.2	2.9	25.0	57.0	2.3	87.7	0.0	13.3	Loamy Sand
9	A09	0-1.0	0.3	5.9	32.4	55.4	1.9	96.1	0.0	4.4	Sand
10	A09	1.0-2.6	0.0	0.9	13.8	77.3	5.2	97.8	0.0	2.9	Sand
10-Dup	A09	1.0-2.6	0.1	5.4	42.2	44.8	1.9	94.8	3.5	1.7	Sand
11	A09	2.6-3.1	0.0	0.3	9.7	81.1	5.2	96.7	0.6	2.7	Sand
12	A09	3.1-4.3	0.0	3.5	34.5	56.1	3.2	97.7	0.2	2.1	Sand
13	A09	4.3-5.7	0.0	3.7	35.7	52.3	2.6	94.8	0.1	5.1	Sand
13-Dup	A09	4.3-5.7	0.1	4.1	35.5	52.1	2.7	94.9	1.2	4.0	Sand
14	A09	5.7-6.9	0.2	5.1	32.1	47.6	1.6	87.1	10.2	2.7	Sand
15	A09	6.9-7.5	0.1	2.3	18.8	47.8	3.1	72.5	25.6	1.9	Loamy Sand
16	A09	7.5-8.5	0.0	2.5	23.9	38.2	2.0	67.0	31.4	1.6	Sandy Loam
17	A09	8.5-15	0.1	3.3	27.8	53.2	2.4	86.8	10.2	2.9	Sand
18	A09	15-21.5	0.3	3.7	25.9	44.3	1.5	75.9	18.3	5.8	Loamy Sand
19	A09	21.5-23.9	0.1	0.8	12.0	40.2	1.7	55.0	32.9	12.1	Sandy Loam
20	A09	23.9-25.5	0.0	0.6	12.7	48.3	3.9	65.7	11.6	22.7	Sandy Clay Loam
21	A09	25.5-30	0.1	0.6	12.0	47.1	2.7	62.6	27.6	9.8	Sandy Loam
22	B08	1.1-2.3	0.1	2.2	22.4	32.5	0.0	59.1	36.6	4.3	Sandy Loam
23	B08	2.3-3.5	0.0	3.0	22.5	38.0	2.3	70.1	25.1	4.9	Sandy Loam
24	B08	3.5-7.5	0.0	2.6	24.8	37.6	2.2	63.7	33.7	2.6	Sandy Loam
25	B08	7.5-13.7	0.1	2.4	17.0	30.4	1.5	51.6	44.2	4.2	Sandy Loam
26	B08	13.7-19.0	0.0	1.0	10.7	27.5	0.8	40.2	47.3	12.5	Loam
27	B08	19.0-21.5	0.0	1.4	16.2	43.2	1.2	62.3	24.9	12.7	Sandy Loam
28	B08	21.5-22.6	0.0	0.8	13.6	48.9	3.5	67.5	7.5	25.0	Sandy Clay Loam
29	B08	22.6-30	0.0	1.1	19.5	65.3	3.6	89.9	0.8	9.3	Sand
30	C10	1.2-2.0	0.1	5.7	43.0	46.7	2.1	97.9	0.1	1.9	Sand
31	C10	2.0-3.9	0.1	4.6	39.1	43.6	2.6	96.5	0.1	3.4	Sand
32	C10	3.9-4.9	0.1	6.7	43.3	45.6	1.5	97.4	0.1	2.5	Sand
33	C10	4.9-6.4	0.1	5.3	33.7	56.1	2.3	97.8	1.8	0.4	Sand
34	C10	6.4-6.9	0.3	6.6	35.0	53.2	2.1	97.6	0.0	3.0	Sand
35	C10	6.9-14.3	0.1	5.9	38.3	48.2	1.4	94.5	2.4	3.1	Sand

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Table B.3
Site C-HS2 Soil Quality Analytical Results

ID#	Location	Depth (ft)	BufpH	pH	OrgMt	TN	TKN	Organic N	NH3-N	NOx-N	Inorganic N	P	K	Ca	Mg	Na	CEC (calc)
					%	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	
1	A11	0-2.0	7.78	6.50	1.52	358.80	356.26	355.65	0.61	2.54	3.15	68.70	17.04	5.52	-0.06	167.2	9.49
2	A11	2.0-2.7	7.96	6.60	0.25	61.08	58.85	58.61	0.24	2.22	2.46	18.59	8.82	-0.10	-1.59	213.4	9.82
3	A11	2.7-4.0	7.30	5.60	3.34	390.42	387.41	387.03	0.39	3.01	3.40	51.60	15.69	-1.31	-1.35	177.6	13.72
4	A11	4.0-5.0	7.63	6.40	1.84	212.57	212.09	211.64	0.45	0.47	0.93	90.30	13.39	-0.96	-1.94	183.1	11.26
5	A11	5-5.9	7.85	5.40	0.37	57.13	56.79	56.34	0.46	0.33	0.79	33.15	7.51	0.66	3.37	184.6	9.45
6	A11	5.9-10	7.94	6.20	0.17	33.44	33.18	33.16	0.02	0.26	0.28	28.44	11.22	-1.82	-1.21	180.8	8.63
7	A11	10.0-20.0	7.78	5.10	0.57	87.01	86.74	86.55	0.19	0.27	0.46	24.13	6.57	1.40	10.19	139.1	8.07
8	A11	20.0-21.2	7.78	5.00	1.12	77.35	76.57	74.41	2.16	0.78	2.94	33.74	21.01	0.01	18.37	162.4	9.51
9	A09	0-1.0	7.75	6.00	3.75	1594.68	1583.45	1582.10	1.35	11.23	12.58	141.3	35.55	-0.90	0.72	176.5	10.59
10	A09	1.0-2.6	7.93	6.20	0.43	104.83	103.04	102.80	0.24	1.79	2.03	59.30	12.41	-2.87	0.02	147.5	7.29
11	A09	2.6-3.1	7.90	6.10	0.53	131.27	130.02	129.57	0.46	1.25	1.71	60.10	12.95	-2.81	1.29	157.7	8
12	A09	3.1-4.3	7.92	6.20	0.50	97.95	96.85	96.53	0.32	1.10	1.42	19.06	8.95	-0.44	-1.66	218.1	10.35
13	A09	4.3-5.7	7.30	5.30	3.69	399.67	398.45	398.26	0.19	1.22	1.41	49.98	13.77	-2.59	-1.42	182.0	13.87
14	A09	5.7-6.9	7.92	6.30	0.27	45.40	44.48	44.48	-0.00	0.92	0.92	56.00	8.42	-1.52	-0.63	190.5	9.14
15	A09	6.9-7.5	7.96	6.40	0.17	38.45	35.63	35.57	0.06	2.81	2.87	46.79	10.46	-2.69	-0.54	150.3	7.12
16	A09	7.5-8.5	7.75	5.50	0.96	156.71	153.05	152.25	0.80	3.66	4.45	130.2	18.48	-2.04	9.24	141.8	8.72
17	A09	8.5-15	7.70	5.00	0.98	140.47	140.15	139.81	0.34	0.32	0.66	40.32	6.25	1.65	8.70	154.4	9.35
18	A09	15-21.5	7.86	4.50	0.38	47.90	47.51	47.13	0.38	0.39	0.77	7.93	7.49	155.2	65.10	64.50	5.43
19	A09	21.5-23.9	7.78	4.80	0.63	88.90	88.08	86.12	1.96	0.82	2.78	10.54	32.50	334.0	163.0	66.50	8.51
20	A09	23.9-25.5	7.89	7.30	1.68	123.83	122.87	119.57	3.30	0.96	4.26	227.0	164.4	1306	351.7	375.7	30.89
21	A09	25.5-30	7.88	5.80	0.87	61.50	60.69	58.40	2.28	0.81	3.10	14.16	26.71	281.5	129.4	63.00	6.87
22	B08	1.1-2.3	7.38	4.60	3.13	412.81	406.39	405.92	0.48	6.42	6.90	16.07	3.29	504.0	29.90	56.00	10.25
23	B08	2.3-3.5	7.59	5.20	1.29	204.53	201.76	201.19	0.57	2.77	3.34	76.80	5.35	216.6	23.62	55.20	7.1
24	B08	3.5-7.5	7.86	5.70	0.39	61.57	60.81	60.55	0.26	0.76	1.02	31.34	0.95	96.60	10.46	50.80	3.92
25	B08	7.5-13.7	7.71	5.40	0.85	119.18	118.61	118.27	0.34	0.57	0.91	34.02	0.04	49.85	8.48	59.50	5.23
26	B08	13.7-19.0	7.71	4.70	0.95	76.55	76.23	75.13	1.10	0.32	1.42	11.87	12.95	195.1	95.60	66.60	7.32
27	B08	19.0-21.5	7.79	5.90	1.18	83.56	83.11	81.34	1.77	0.45	2.22	364.9	42.63	1159	197.2	115.1	15.22
28	B08	21.5-22.6	7.79	6.40	2.34	119.07	118.33	114.65	3.69	0.74	4.42	55.10	88.70	918.0	359.9	182.7	19.49
29	B08	22.6-30	7.89	6.10	0.82	61.12	60.72	59.89	0.82	0.41	1.23	10.01	21.00	309.8	141.0	54.20	6.5
30	C10	1.2-2.0	7.91	5.70	0.30	85.78	82.62	81.85	0.77	3.16	3.93	3.06	-3.40	136.5	8.39	44.87	3.42
31	C10	2.0-3.9	7.70	5.30	1.10	218.57	210.18	209.27	0.90	8.39	9.30	10.66	2.17	326.9	21.60	52.50	6.55
32	C10	3.9-4.9	7.68	5.20	0.76	104.93	101.77	101.22	0.55	3.17	3.72	68.90	-0.77	91.90	8.77	56.30	5.54
33	C10	4.9-6.4	7.87	5.40	0.28	37.04	36.68	36.24	0.44	0.36	0.80	9.28	-2.96	38.33	5.58	49.50	3.43
34	C10	6.4-6.9	7.75	5.10	0.75	108.37	107.98	107.04	0.95	0.38	1.33	35.49	6.26	42.96	8.15	55.40	4.85
35	C10	6.9-14.3	7.84	5.50	0.40	58.81	58.53	58.28	0.25	0.27	0.53	33.29	-2.45	38.00	5.39	50.50	3.71

Value < MDL Non-detect

Value >= MDL but < PQL

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Appendix C: Weather Station Data

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Table C.1
Monthly Recorded Meteorological Data
Sheffield in the Crossings, Longwood, FL

Period	Temp high (°F)	Temp avg (°F)	Temp low (°F)	Humidity high (%)	Humidity avg (%)	Humidity low (%)	Wind high (mph)	Wind avg (mph)	Rain max (in)	Rain total (in)
Jan-10	65	52	41	90	73	48	18	5	0.61	2.31
Feb-10	64	53	42	92	73	49	19	5	0.94	3.52
Mar-10	72	60	49	93	71	43	20	6	3.43	7.22
Apr-10	84	71	59	95	73	44	17	4	1.45	3.34
May-10	91	78	69	93	76	50	16	4	1.82	3.88
Jun-10	95	82	73	95	79	50	18	3	0.97	5.15
Jul-10	94	82	75	96	80	56	15	3	1.29	4.26
Aug-10	94	84	76	96	80	56	79	3	2.23	4.37
Sep-10	92	80	72	97	81	53	17	3	0.79	3.35
Oct-10	87	72	61	95	72	40	15	3	0.00	0.00
Nov-10	77	64	54	94	78	53	15	3	1.10	2.09
Dec-10	63	49	37	89	70	44	18	5	0.47	0.62
Jan-11	68	57	45	92	74	48	19	4	1.27	4.18
Feb-11	76	62	52	95	76	49	17	4	1.27	1.78
Mar-11	80	66	55	94	73	46	16	4	3.61	5.57
Apr-11	88	74	62	95	71	41	17	4	0.55	0.65
May-11	92	77	65	94	68	38	18	3	0.58	1.21
Jun-11	92	80	71	96	77	51	15	2	1.99	6.50
Jul-11	95	86	76	95	68	50	15	2	2.65	3.99
Aug-11	95	84	76	96	78	53	17	3	1.28	6.02
Sep-11	92	80	72	97	80	51	15	2	1.71	7.19

Period	Temp high (°F)	Temp avg (°F)	Temp low (°F)	Humidity high (%)	Humidity avg (%)	Humidity low (%)	Wind high (mph)	Wind avg (mph)	Rain max (in)	Rain total (in)
Oct-11	81	70	62	94	78	54	16	3	5.37	7.90
Nov-11	76	66	57	94	79	57	16	3	0.13	0.27
Dec-11	75	63	54	95	80	57	15	3	0.12	0.37
Jan-12	72	58	46	92	72	44	15	2	0.04	0.13
Feb-12	76	65	56	93	76	51	16	3	0.65	1.33
Mar-12	83	70	60	93	71	45	19	4	0.33	0.96
Apr-12	86	72	61	91	65	36	17	3	0.70	1.43
May-12	89	76	68	94	74	46	17	3	1.06	3.37
Jun-12	88	81	69	94	70	57	15	2	0.48	1.51

Source: www.wunderground.com

Appendix D: Groundwater Elevations

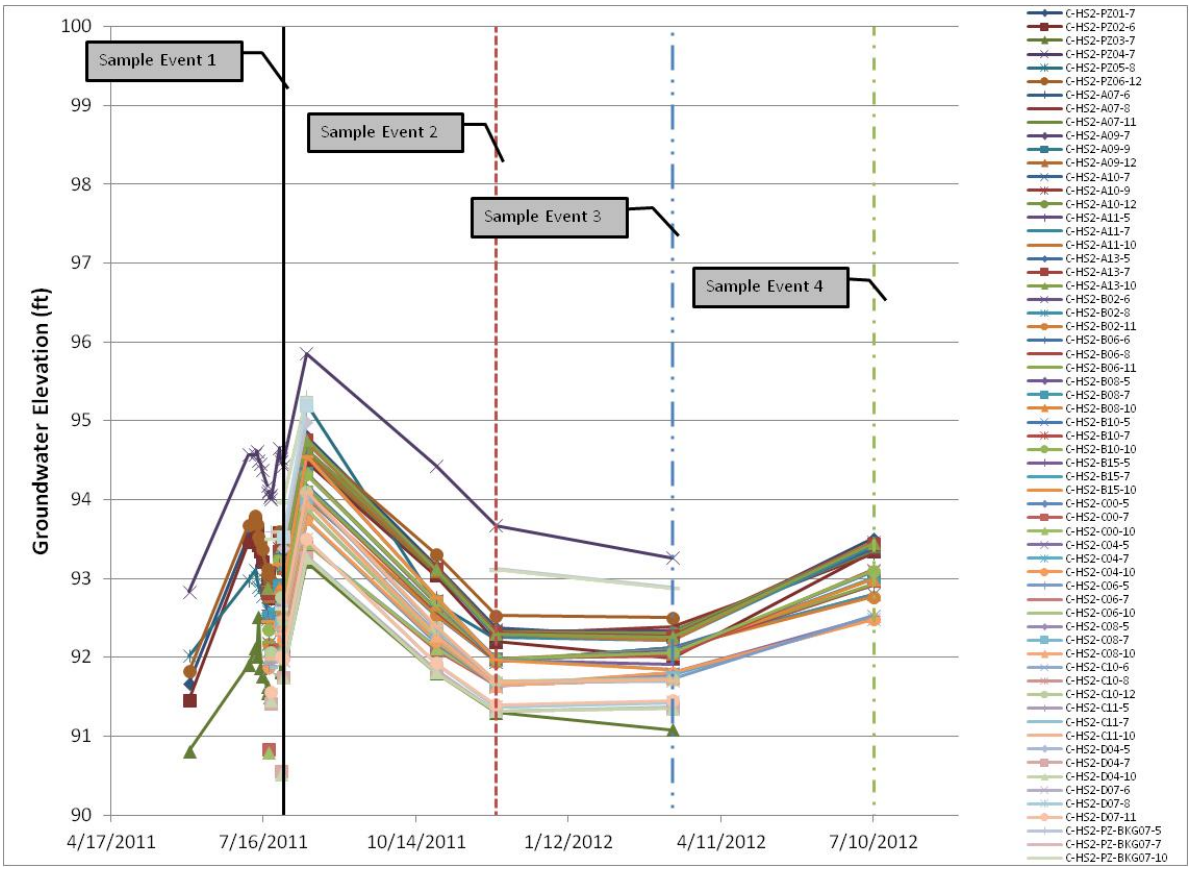

Figure D.1
Groundwater Elevations

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Table D.1
Groundwater Elevations

Date	C-HS2-PZ01-7	C-HS2-PZ02-6	C-HS2-PZ03-7	C-HS2-PZ04-7	C-HS2-PZ05-8	C-HS2-PZ06-12	C-HS2-A07-6	C-HS2-A07-8	C-HS2-A07-11	C-HS2-A09-7	C-HS2-A09-9	C-HS2-A09-12	C-HS2-A10-7	C-HS2-A10-9	C-HS2-A10-12	C-HS2-A11-5	C-HS2-A11-7	C-HS2-A11-10	C-HS2-A13-5	C-HS2-A13-7	C-HS2-A13-10
6/2/2011	91.67	91.46	90.81	92.83	92.02	91.82															
7/7/2011	93.54	93.46	91.90	94.57	92.98	93.68															
7/11/2011	93.74	93.71	92.11	94.57	93.11	93.79															
7/12/2011	93.61	93.60	92.01	94.62	93.01	93.69															
7/13/2011	93.44	93.43	92.51	94.50	92.90	93.53															
7/14/2011	93.37	93.34	91.86	94.45	92.85	93.47															
7/15/2011	93.25	93.21	91.76	94.38	92.78	93.37															
7/18/2011	93.03	92.95	91.63	94.18	92.62	93.12															
7/18/2011	92.90					93.05							92.90	92.85	92.84	92.89	92.84	92.89	92.83	92.81	92.88
7/18/2011	92.90	92.81	91.55	94.09	92.49	93.04															
7/19/2011	92.94	92.88	91.58	94.11	92.58																
7/19/2011							92.81	92.72	92.78	92.77	92.79	92.78									
7/19/2011	92.84	92.76	91.49	94.03	92.46	92.95															
7/20/2011	92.87	92.80	91.53	94.06	92.52	92.97															
7/20/2011		92.75	91.48	94.01																	
7/25/2011	93.52	93.58		94.66		93.60	93.31	93.27	93.32	93.34	93.35	93.32	93.39	93.38	93.35	93.36	93.32	93.33	93.35	93.34	93.35
7/26/2011	93.38	93.35	92.35	94.52	92.86	93.49															
7/26/2011			91.81																		
7/26/2011	93.34	93.30	91.83	94.48	92.80	93.43															
7/27/2011	93.25	93.21	91.78	94.43	92.73	93.37	93.11	93.04	93.09	93.15	93.14	93.14	93.21	93.20	93.19	93.18	93.17	93.18	93.18	93.20	93.18
8/10/2011	94.81	94.48	93.21	95.85	95.21	94.72	94.57	94.51	94.56	94.58	94.58	94.58	94.64	94.64	94.64	94.74	94.72	94.73	94.76	94.76	94.76
10/26/2011	93.16	93.04	91.80	94.43	92.69	93.31	93.08	93.07	93.07	93.10	93.11	93.10	93.15	93.15	93.14	93.12	93.11	93.11	93.12	93.12	93.12
11/30/2011	92.38	92.20	91.30	93.67	92.23	92.53	92.31	92.29	92.31	92.33	92.33	92.32	92.35	92.34	92.32	92.29	92.26	92.29	92.30	92.31	92.30
3/13/2012	92.26	91.99	91.08	93.26		92.50	92.33	92.39	92.34	92.33	92.28	92.27	92.29	92.31	92.31	92.24	92.22	92.22	92.27	92.27	92.26
7/10/2012	93.51	93.34				95.73	93.32	93.31	93.35				93.38	93.47	93.45	93.45	93.42	93.47	93.44	93.44	93.45

Most likely erroneous instrument reading

Table D.1 (con't)
Groundwater Elevations

Date	C-HS2-B02-6	C-HS2-B02-8	C-HS2-B02-11	C-HS2-B06-6	C-HS2-B06-8	C-HS2-B06-11	C-HS2-B08-5	C-HS2-B08-7	C-HS2-B08-10	C-HS2-B10-5	C-HS2-B10-7	C-HS2-B10-10	C-HS2-B15-5	C-HS2-B15-7	C-HS2-B15-10	C-HS2-C00-5	C-HS2-C00-7	C-HS2-C00-10	C-HS2-C04-5	C-HS2-C04-7	C-HS2-C04-10	C-HS2-C06-5
6/2/2011																						
7/7/2011																						
7/11/2011																						
7/12/2011																						
7/13/2011																						
7/14/2011																						
7/15/2011																						
7/18/2011																						
7/18/2011													92.61	92.62	92.46							
7/18/2011																						
7/19/2011																						
7/19/2011	92.18	92.17	92.17	92.21	92.17	92.20	92.46	92.53	92.42	92.45	92.42	92.36				90.83	90.83	90.79	91.87	91.87	91.88	91.91
7/19/2011																						
7/20/2011																						
7/20/2011																						
7/25/2011				93.32	93.29	93.28	92.88	92.91	92.88	93.21	93.19	93.23	93.17	93.13	93.18				92.44	92.40	92.41	
7/26/2011																						
7/26/2011	92.60	92.60	92.61													92.11	92.10	92.12				92.04
7/26/2011																						
7/27/2011	92.52	92.53	92.54	92.62	92.57	92.61	92.70	92.72	92.72	92.71	92.73	92.71	92.90	92.90	92.89	92.06	92.05	92.06	92.20	92.20	92.22	92.28
8/10/2011	94.03	94.03	94.04	94.18	94.14	94.16	94.33	94.34	94.33	94.32	94.33	94.32	94.55	94.55	94.55	93.45	93.44	93.45	93.74	93.73	93.75	93.88
10/26/2011	92.53	92.53	92.54	92.63	92.59	92.61	92.69	92.71	92.69	92.71	92.72	92.72	92.77	92.77	92.77	92.13	92.10	92.12	92.19	92.20	92.21	92.26
11/30/2011	91.95	91.95	91.95	91.95	91.97	91.98	91.96	91.98	91.98	91.97	91.99	91.98	91.97	91.98	91.97	91.67	91.65	91.66	91.63	91.65	91.65	91.65
3/13/2012	92.12	92.12	92.11	92.12	92.07	92.09	92.08	92.06	92.05	92.06	92.02	92.06	91.91	91.85	91.84				91.80	91.78	91.80	91.73
7/10/2012	92.80	92.80	92.77	92.91	92.91	92.93	92.99	93.01	92.99	93.09	93.11	93.10							92.52	92.49	92.48	92.53

Most likely erroneous instrument reading

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Table D.1 (con't)
Groundwater Elevations

Date	C-HS2-C06-7	C-HS2-C06-10	C-HS2-C08-5	C-HS2-C08-7	C-HS2-C08-10	C-HS2-C10-6	C-HS2-C10-8	C-HS2-C10-12	C-HS2-C11-5	C-HS2-C11-7	C-HS2-C11-10	C-HS2-D04-5	C-HS2-D04-7	C-HS2-D04-10	C-HS2-D07-6	C-HS2-D07-8	C-HS2-D07-11	HS2-PZ-BKG07-5	HS2-PZ-BKG07-7	S2-PZ-BKG07-10	C-HS2-B09	C-HS2-B13
6/2/2011																						
7/7/2011																						
7/11/2011																						
7/12/2011																						
7/13/2011																						
7/14/2011																						
7/15/2011																						
7/18/2011																						
7/18/2011																						
7/18/2011																						
7/19/2011																						
7/19/2011	91.96	92.01																				
7/19/2011																						
7/20/2011																						
7/20/2011			92.06	92.01	92.06	92.01	91.96	92.06	91.91	91.88	91.99	91.41	91.41	91.45	91.54	91.53	91.56	93.60	93.60	93.50		
7/25/2011																						
7/26/2011																						
7/26/2011	91.78	91.78	92.68	92.43	92.43	92.75	92.74	92.77	92.28	92.27	92.30	90.54	90.55	90.51	92.01	92.03	92.01	92.64	92.67	92.62		
7/26/2011																						
7/27/2011	92.28	92.32	92.35	92.36	92.35	92.45	92.46	92.47	92.48	92.48	92.50	91.77	91.75	91.75	91.96	91.97	91.99	93.97	93.96	93.96	93.38	93.53
8/10/2011	93.87	93.88	93.97	93.97	93.97	94.09	94.09	94.10	94.09	94.10	94.10	93.28	93.26	93.27	93.50	93.50	93.50	95.31	95.29	95.29	94.99	95.20
10/26/2011	92.25	92.26	92.31	92.30	92.28	92.37	92.37	92.38	92.39	92.39	92.40	91.84	91.83	91.81	91.93	91.92	91.93					
11/30/2011	91.64	91.65	91.65	91.64	91.64	91.68	91.68	91.70	91.69	91.69	91.69	91.32	91.32	91.32	91.37	91.37	91.40	93.13	93.12	93.11		
3/13/2012	91.72	91.72	91.77	91.74	91.73	91.74	91.71	91.72	91.70	91.70	91.71	91.37	91.36	91.35	91.44	91.42	91.45	92.89	92.88	92.88		
7/10/2012	92.48	92.44	92.42	92.39	92.37	92.64	92.61	92.58	92.69	92.37	92.35											

Most likely errorneous instrument reading

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Appendix E: Water Quality Analytical Results

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Table E.1
Water Quality Analytical Results
(July 10 and 11, 2012)

Sample ID	Sample Date/Time	Sample Type	Temp (°C)	pH	Total Alkalinity	DO (mg/L)	Specific Conductance	TDS (mg/L)	TS (% by wt)	TSS (mg/L)	$CBOD_5$ (mg/L)	COD (mg/L)	TN (mg/L N)[1]	TKN (mg/L N)	Organic N (mg/L	NH3-N (mg/L N)	NOx (mg/L N)	TIN (mg/L N)[3]	TP (mg/L)	Fecal (Ct/100	TOC (mg/L)	DOC (mg/L)	Anions						Cations						
																							F^-	Cl^-	NO_3-N^-	NO_2-N^-	PO_4-P^-	SO_4^-	B	Ca	Fe	Mg	Mn	K	Na
STE Sample																																			
C-HS2-STE	7/11/12 9:15	G	28.4	7.0	490	1.04	1276				100		110.06	110	25	85	0.06	85.06		62000			2.8	63	0.02	0.01	7.5	26	0.054	43	0.087	13	0.033	22	60
C-HS2-STE-DUP	7/11/12 9:20	G	28.4	7.0	490	1.04	1276				110		100.07	100	18	82	0.07	82.07		58000			3.1	63	0.01	0.01	7.7	26	0.062	40	0.082	12	0.03	21	60
Standpipe Piezometers																																			
C-HS2-PZ01-7	7/11/12 8:41	G	25.7	5.8	24	0.28	347.9					71	8.1	2.6	2.44	0.16	5.5	5.66						37											
C-HS2-PZ02-6	7/11/12 8:20	G	24.4	6.0	43	0.14	245.3					55	1.43	1.4	0.81	0.59	0.03	0.62						44											
C-HS2-PZ06-12	7/11/12 9:05	G	25.4	5.8	43	0.86	681					48	8.5	2.9	2.852	0.048	5.6	5.648						55											
C-HS2-A07-6	7/10/12 14:40	G	26.3	5.9	97	0.23	242					200	2.86	2.7	2.628	0.072	0.16	0.232						5.7											
C-HS2-A07-8	7/10/12 15:10	G	25.5	6.0	65	0.17	466					130	28.9	4.9	4.868	0.032	24	24.032			54	53	0.24	22	20	0.07	2	30	0.075	45	0.26	11		23	30
C-HS2-A07-11	7/10/12 15:35	G	25.0	4.8	2	0.32	179.4					15	2.14	0.94	0.73	0.21	1.2	1.41						24											
C-HS2-A10-7	7/10/12 13:25	G	29.5	6.7	430	0.41	950					63	12.02	12	4.4	7.6	0.02	7.62						27											
C-HS2-A10-9	7/10/12 13:50	G	27.7	6.4	230	0.3	717					73	14.6	11	4.3	6.7	3.6	10.3						44											
C-HS2-A10-9-DUP	7/10/12 13:55	G	27.7	6.4	230	0.3	717					63	14.5	11	3.1	7.9	3.5	11.4						43											
C-HS2-A10-12	7/10/12 14:10	G	26.0	4.8	6.3	0.24	168.2					22	0.78	0.73	0.35	0.38	0.05	0.43						34											
C-HS2-A11-5	7/10/12 11:57	G	29.3	6.5	320	0.25	679					83	9.62	9.6	4.2	5.4	0.02	5.42			38	34	0.12	6.2	0.1	0.01	0.052	9.9	0.05	130	2.6	7.7		12	7
C-HS2-A11-7	7/10/12 12:50	G	26.4	6.1	130	0.35	447					130	12.4	4	3.9	0.1	8.4	8.5						15											
C-HS2-A11-10	7/10/12 13:02	G	26.3	4.9	4.2	0.3	166.4					15	0.75	0.71	0.31	0.4	0.04	0.44						40											
C-HS2-A13-5	7/10/12 13:55	G	28.6	5.4	32	0.26	185.6					94	1.73	1.7	1.56	0.14	0.03	0.17						7.5											
C-HS2-A13-7	7/10/12 16:08	G	27.3	4.7	2	0.14	218.3					34	1.02	1	0.67	0.33	0.02	0.35						44											
C-HS2-A13-10	7/10/12 16:21	G	25.3	4.7	2.1	0.61	160.5					15	0.77	0.75	0.3	0.45	0.02	0.47						42											
C-HS2-B02-6	7/10/12 9:25	G	27.0	6.2	75	0.06	472.5					69	10	3.2	3.09	0.11	6.8	6.91			32	28	0.047	42	5.9	0.06	0.01	37	0.05	54	0.078	6.5		11	27
C-HS2-B02-8	7/10/12 9:38	G	26.5	6.6	110	0.05	516					38	1.22	1.2	0.69	0.51	0.02	0.53						100											
C-HS2-B02-11	7/10/12 9:56	G	25.3	6.1	22	0.23	224.9					24	1.04	1	0.48	0.52	0.04	0.56						53											
C-HS2-B06-6	7/10/12 11:06	G	26.1	5.7	43	0.42	353					40	12.1	2.6	2.47	0.13	9.5	9.63						23											
C-HS2-B06-8	7/10/12 11:20	G	25.6	5.3	13	0.1	219					22	1.16	1.1	0.59	0.51	0.06	0.57						41											
C-HS2-B06-11	7/10/12 11:35	G	24.7	5.0	11	0.26	153.9					18	1.04	1	0.43	0.57	0.04	0.61						38											
C-HS2-B08-5	7/10/12 10:00	G	25.9	5.6	32	0.55	579					81	39.7	4.7	4.674	0.026	35	35.026			43	37	0.057	34	28	0.1	0.49	48	0.062	62	0.12	10		14	32
C-HS2-B08-5-DUP	7/10/12 10:05	G	25.9	5.6	32	0.55	579					81	39.3	4.3	4.266	0.034	35	35.034			43	35	0.052	33	30	0.09	0.52	45	0.063	61	0.13	10		14	32
C-HS2-B08-7	7/10/12 10:25	G	24.9	5.9	43	0.73	442					36	17.5	2.5	2.12	0.38	15	15.38						44											
C-HS2-B08-10	7/10/12 10:45	G	24.4	4.8	11	0.17	144					13	0.75	0.68	0.28	0.4	0.07	0.47						38											
C-HS2-B10-5	7/10/12 9:05	G	26.4	6.2	180	0.17	649					100	4.2	3.4	2.3	1.1	0.8	1.9						55											
C-HS2-B10-7	7/10/12 9:20	G	25.5	5.9	86	0.16	419					53	9.93	9.9	3.5	6.4	0.03	6.43						38											
C-HS2-B10-10	7/10/12 9:45	G	24.4	4.4	11	0.25	141.7					28	0.58	0.55	0.18	0.37	0.03	0.4						34											
C-HS2-C04-5	7/10/12 10:14	G	25.4	6.1	32	0.08	330.2					94	2.64	2.6	2.07	0.53	0.04	0.57						43											
C-HS2-C04-7	7/10/12 10:26	G	24.9	6.0	11	0.1	209.3					55	1.72	1.7	0.81	0.89	0.02	0.91						48											
C-HS2-C04-10	7/10/12 10:44	G	24.3	5.7	5.4	0.12	153.5					18	1.14	1.1	0.55	0.55	0.04	0.59						40											
C-HS2-C06-5	7/10/12 11:21	G	25.5	6.1	43	0.01	423.1					75	2.57	2	1.907	0.093	0.57	0.663						46											
C-HS2-C06-7	7/10/12 11:38	G	24.8	6.3	22	0.19	225.2					34	1.51	1.5	0.82	0.68	0.01	0.69						39											
C-HS2-C06-10	7/10/12 11:55	G	24.0	5.7	5.4	0.14	145.7					15	1.31	1.2	0.79	0.41	0.11	0.52						37											
C-HS2-C06-10-DUP	7/10/12 12:00	G	24.0	5.7	5.4	0.14	145.7					15	1.31	1.2	0.75	0.45	0.11	0.56						37											
C-HS2-C08-5	7/10/12 13:04	G	27.2	6.3	43	0.19	319.4					94	13.3	4.4	4.363	0.037	8.9	8.937						13											
C-HS2-C08-5-DUP	7/10/12 13:09	G	27.2	6.3	43	0.19	319.4					94	12.6	4.1	4.066	0.034	8.5	8.534						14											
C-HS2-C08-7	7/10/12 13:22	G	25.8	6.5	43	0.21	499					48	24.6	2.6	2.583	0.017	22	22.017			26	23	0.033	55	18	0.13	0.42	33	0.052	44	0.055	8		11	36
C-HS2-C08-10	7/10/12 13:43	G	25.0	5.9	11	0.12	157.6					15	0.93	0.83	0.38	0.45	0.1	0.55						53											
C-HS2-C10-6	7/10/12 14:16	G	27.0	6.0	22	0.23	200.7					100	7.6	3.8	2.7	1.1	3.8	4.9						15											
C-HS2-C10-8	7/10/12 14:27	G	25.7	5.8	22	0.16	233.6					34	1.82	1.8	0.6	1.2	0.02	1.22						40											
C-HS2-C10-12	7/10/12 14:48	G	25.1	5.5	11	0.13	142.4					15	0.79	0.7	0.05	0.65	0.09	0.74						37											
C-HS2-C11-5	7/10/12 16:08	G	27.9	5.4	5.4	0.17	167					86	3.02	2.2	2.128	0.072	0.82	0.892						13											
C-HS2-C11-7	7/11/12 7:35	G	25.0	5.0	5.4	0.22	222.5					40	1.09	0.98	0.5	0.48	0.11	0.59						44											
C-HS2-C11-10	7/11/12 7:53	G	24.3	4.7	11	0.18	152.3					24	0.82	0.77	0.24	0.53	0.05	0.58						38											
Storm Water Sample																																			
C-HS2-SW-6 inch	7/10/12 8:30	G	27.8	6.5	54	3.4	318.9					81	2.07	1.5	1.13	0.37	0.57	0.94						38											
C-HS2-SW-M	7/10/12 8:25	G	26.9	6.8	75	3.31	352.2					36	2.7	1.7	1.4	0.3	1	1.3						36											
Blanks																																			
FB-Tap	7/10/12 7:45	G	24.8	7.2	86	1.28	215.9					10	0.09	0.08	0.064	0.016	0.01	0.026						5.6											
FB-DI	7/10/12 7:35	G	24.4	7.9	2	2.35	2.9					10	0.06	0.05	0.041	0.009	0.01	0.019						0.05											
EB	7/10/12 7:40	G	24.4	7.9	2	2.35	2.9					10	0.06	0.05	0.041	0.009	0.01	0.019						0.05											

Notes:

[1]Total Nitrogen (TN) is a calculated value equal to the sum of TKN and NO_x

[2]Organic Nitrogen (ON) is a calculated value equal to the difference of TKN and NH_3

[3]Total Inorganic Nitrogen (TIN) is a calculated value equal to the sum of NH_3 and NO_x

D.O. - Dissolved oxygen

G - Grab sample

Gray-shaded data points indicate values below method detection level (mdl), mdl value used for statistical analyses.

Yellow-shaded data points indicate the reported value is between the laboratory method detection limit and the laboratory practical quantitation limit, value used for statistical analysis.

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Appendix F: Summary of Water Quality Data

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Table F.1
Summary of Water Quality Data

Sample ID	Statistical Parameter	Temp (°C)	pH	Total Alkalinity (mg/L)	DO (mg/L)	Specific Conductance (µS)	TDS (mg/L)	TS (% by wt)	TSS (mg/L)	$CBOD_5$ (mg/L)	COD (mg/L)	TN (mg/L N)[1]	TKN (mg/L N)	Organic N (mg/L N)[2]	NH3-N (mg/L N)	NOx (mg/L N)	TIN (mg/L N)[3]	TP (mg/L)	Fecal (Ct/100 mL)	TOC (mg/L)	DOC (mg/L)	Anions						Cations						
																						F^-	Cl^-	NO_3-N$^-$	NO_2-N$^-$	PO_4-P$^-$	SO_4^-	B	Ca	Fe	Mg	Mn	K	Na
STE Sample																																			
C-HS2-STE	n	4	4	4	4	4	0	2	2	3	0	4	4	4	4	4	4	2	2	0	0	2	3	2	1	2	2	2	2	2	2	2	2	2
	MEAN	25.9		412.5	1.1	1099.5		260.0	34.0	76.7		84.8	84.8	20.3	64.5	0.1	64.6	8.7				3.0	58.0	0.0	0.0	6.8	13.4	0.1	41.5	0.1	14.0	0.0	20.5	57.0
	STD. DEV.	3.8		79.3	0.1	164.9		367.7	19.8	68.1		18.4	18.4	19.4	24.0	0.0	23.9	0.5					5.0											
	MIN	21.3	6.9	330.0	0.9	906.0		0.1	20.0	0.0		66.0	66.0	0.0	35.0	0.03	35.1	8.3	36,400			2.8	53.0	0.01	0.01	6.1	0.8	0.05	40.0	0.09	13.0	0.0	19.0	54.0
	MAX	29.6	7.4	490.0	1.2	1276.0		520.0	48.0	130.0		110.1	110.0	45.0	85.0	0.10	85.1	9.0	62,000			3.2	63.0	0.02	0.01	7.5	26.0	0.06	43.0	0.14	15.0	0.0	22.0	60.0
Standpipe																																			
C-HS2-PZ01-7	n	4	4	4	4	4	0	0	0	0	3	4	4	4	4	4	4	2	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0
	MEAN	24.1		16.0	0.4	271.2					74.0	3.2	1.5	1.3	0.2	1.72	1.9	0.06					44.7											
	STD. DEV.	2.3		6.7	0.3	54.3					10.8	3.3	0.8	0.8	0.1	2.57	2.5	0.03					6.8											
	MIN	21.9	4.9	9.9	0.3	222.0					65.0	1.0	1.0	0.7	0.2	0.01	0.3	0.04					37.0											
	MAX	26.5	5.8	24.0	0.8	347.9					86.0	8.1	2.6	2.4	0.3	5.50	5.7	0.08					50.0											
C-HS2-PZ02-6	n	4	4	4	4	4	0	0	0	0	3	4	4	4	4	4	4	2	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.4		102.0	0.6	339.1					63.0	1.3	1.3	0.6	0.7	0.04	0.8	0.04					37.0											
	STD. DEV.	2.3		58.5	0.5	105.5					10.6	0.2	0.2	0.3	0.1	0.04	0.2	0.01					6.1											
	MIN	21.1	6.0	43.0	0.1	245.3					55.0	1.2	1.1	0.2	0.6	0.01	0.6	0.04					33.0											
	MAX	26.1	7.3	170.0	1.2	442.0					75.0	1.5	1.5	0.8	0.9	0.10	1.0	0.05					44.0											
C-HS2-PZ03-7	n	3	3	3	3	3	0	0	0	0	2	3	3	3	3	3	3	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
	MEAN	24.7		36.7	0.2	408.3					74.0	10.1	3.0	2.9	0.05	7.2	7.2	0.04					36.5											
	STD. DEV.	2.5		9.9	0.2	54.1					12.7	4.9	0.6	0.6	0.02	4.6	4.6	0.01					2.1											
	MIN	22.6	5.7	30.0	0.1	346.0					65.0	5.9	2.4	2.3	0.03	2.9	2.9	0.03					35.0											
	MAX	27.5	5.9	48.0	0.4	443.0					83.0	15.5	3.5	3.5	0.06	12.0	12.0	0.04					38.0											
C-HS2-PZ04-7	n	3	3	3	3	3	0	0	0	0	2	3	3	3	3	3	3	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.1		10.2	0.7	214.3					87.5	1.4	1.3	1.0	0.4	0.03	0.4	0.11					51.0											
	STD. DEV.	2.8		0.7	0.6	52.5					46.0	0.3	0.3	0.3	0.1	0.02	0.1	0.04					19.8											
	MIN	21.4	5.2	9.6	0.1	163.0					55.0	1.0	1.0	0.6	0.3	0.01	0.3	0.08					37.0											
	MAX	26.3	5.4	11.0	1.2	268.0					120.0	1.6	1.6	1.2	0.4	0.04	0.4	0.13					65.0											
C-HS2-PZ05	n																																	
	MEAN																																	
	STD. DEV.																																	
	MIN																																	
	MAX																																	
C-HS2-PZ06-12	n	4	4	4	4	4	0	0	0	0	3	4	4	4	4	4	4	2	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0
	MEAN	24.4		48.5	0.8	535.3					57.3	16.1	2.6	2.5	0.13	13.4	13.6	1.5					45.0											
	STD. DEV.	2.0		7.1	0.4	142.3					8.1	13.6	0.6	0.8	0.15	13.2	13.1	0.2					13.2											
	MIN	22.4	5.8	43.0	0.3	402.0					48.0	7.7	1.8	1.5	0.04	5.6	5.6	1.3					30.0											
	MAX	26.7	6.4	58.0	1.3	681.0					63.0	36.3	3.3	3.3	0.35	33.0	33.0	1.6					55.0											
C-HS2-PZ-BKG07-5	n	3	3	3	3	3	0	0	0	0	2	3	3	3	3	3	3	2	0	1	1	1	2	1	0	1	1	1	1	1	1	1	1	1
	MEAN	22.9		2.7	0.3	238.7					91.5	1.2	1.2	0.8	0.3	0.1	0.4	0.14		36.0	23.0	0.3	62.0	0.5		0.01	3.9	0.05	2.5	1.1	2.3	0.01	1.9	26.0
	STD. DEV.	3.0		1.3	0.4	83.4					54.4	0.2	0.2	0.2	0.0	0.0	0.0	0.13					25.5											
	MIN	21.1	4.4	2.0	0.1	189.0					53.0	1.1	1.0	0.6	0.3	0.1	0.4	0.04		36.0	23.0	0.3	44.0	0.5		0.01	3.9	0.05	2.5	1.1	2.3	0.01	1.9	26.0
	MAX	26.4	5.7	4.2	0.8	335.0					130.0	1.5	1.4	1.1	0.4	0.1	0.4	0.23		36.0	23.0	0.3	80.0	0.5		0.01	3.9	0.05	2.5	1.1	2.3	0.01	1.9	26.0
C-HS2-PZ-BKG07-7	n	3	3	3	3	3	0	0	0	0	2	3	3	3	3	3	3	2	0	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1
	MEAN	22.7		16.1	0.3	194.0					37.5	1.1	1.0	0.7	0.3	0.06	0.4	0.13		16.0	13.0	0.0	39.5	0.0	0.0	0.1	0.4	0.1	4.8	0.1	1.7	0.0	1.4	22.0
	STD. DEV.	2.4		11.3	0.3	10.4					9.2	0.7	0.7	0.6	0.1	0.06	0.1	0.04					4.9											
	MIN	20.9	5.7	8.3	0.1	182.0					31.0	0.6	0.6	0.4	0.2	0.02	0.3	0.10		16.0	13.0	0.03	36.0	0.01	0.01	0.1	0.36	0.05	4.8	0.1	1.7	0.01	1.4	22.0
	MAX	25.4	5.9	29.0	0.7	201.0					44.0	1.9	1.8	1.4	0.4	0.13	0.5	0.15		16.0	13.0	0.03	43.0	0.01	0.01	0.1	0.36	0.05	4.8	0.1	1.7	0.01	1.4	22.0
C-HS2-PZ-BKG07-10	n	3	3	3	3	3	0	0	0	0	2	3	3	3	3	3	3	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
	MEAN	22.9		3.2	0.5	157.7					22.5	0.7	0.7	0.3	0.4	0.02	0.4	0.07					42.5											
	STD. DEV.	2.1		1.9	0.7	25.1					6.4	0.3	0.3	0.2	0.1	0.01	0.1	0.04					0.7											
	MIN	21.2	5.0	2.0	0.1	130.0					18.0	0.6	0.5	0.2	0.3	0.01	0.3	0.05					42.0											
	MAX	25.2	5.2	5.4	1.3	179.0					27.0	1.0	1.0	0.6	0.5	0.03	0.5	0.10					43.0											
C-HS2-A07-6	n	4	4	4	4	4	0	0	0	0	3	4	4	4	4	4	4	2	0	1	1	1	3	1	0	1	1	1	1	1	1	1	1	1
	MEAN	22.7		74.8	3.0	403.8					186.7	9.2	3.2	3.0	0.2	6.1	6.2	0.6		120.0	110.0	0.2	18.2	0.4		1.0	27.0	0.08	28.0	1.0	6.4	0.01	24.0	17.0
	STD. DEV.	4.1		16.4	2.8	211.6					15.3	8.3	0.4	0.3	0.1	8.0	8.0	0.5					12.7											
	MIN	18.5	5.9	58.0	0.2	242.0					170.0	2.9	2.7	2.6	0.1	0.1	0.2	0.3		120.0	110.0	0.2	5.7	0.4		1.0	27.0	0.08	28.0	1.0	6.4	0.01	24.0	17.0
	MAX	26.3	6.3	97.0	5.5	701.0					200.0	20.6	3.6	3.3	0.4	17.0	17.3	1.0		120.0	110.0	0.2	31.0	0.4		1.0	27.0	0.08	28.0	1.0	6.4	0.01	24.0	17.0

Table F.1 (con't)
Summary of Water Quality Data

Sample ID	Statistical Parameter	Temp (°C)	pH	Total Alkalinity (mg/L)	DO (mg/L)	Specific Conductance (µS)	TDS (mg/L)	TS (% by wt)	TSS (mg/L)	$CBOD_5$ (mg/L)	COD (mg/L)	TN (mg/L N)[1]	TKN (mg/L N)	Organic N (mg/L N)[2]	NH3-N (mg/L N)	NOx (mg/L N)	TIN (mg/L N)[3]	TP (mg/L)	Fecal (Ct/100 mL)	TOC (mg/L)	DOC (mg/L)	Anions						Cations						
																						F^-	Cl^-	NO_3-N^-	NO_2-N^-	PO_4-P^-	SO_4^-	B	Ca	Fe	Mg	Mn	K	Na
C-HS2-A07-8	n	4	4	4	4	4	0	0	0	0	3	4	4	4	4	4	4	2	0	2	2	2	3	2	2	2	2	2	2	2	2	1	2	2
	MEAN	23.6		34.0	0.7	554.0					70.7	28.2	3.7	2.6	1.08	24.5	25.6	5.0		35.5	35.0	0.2	33.7	21.5	0.0	3.0	31.0	0.1	43.5	0.2	10.1	0.0	18.0	35.5
	STD. DEV.	2.7		21.0	0.7	99.6					51.6	9.2	1.4	1.7	2.02	9.5	9.4	0.4					10.1											
	MIN	20.0	5.6	20.0	0.2	466.0					36.0	16.8	2.2	0.7	0.01	14.0	14.2	4.7		17.0	17.0	0.2	22.0	20.0	0.01	2.0	30.0	0.07	42.0	0.10	9.1	0.01	13.0	30.0
	MAX	25.8	6.3	65.0	1.6	695.0					130.0	39.2	4.9	4.9	4.10	37.0	37.0	5.3		54.0	53.0	0.2	40.0	23.0	0.07	4.0	32.0	0.08	45.0	0.26	11.0	0.01	23.0	41.0
C-HS2-A07-11	n	4	4	4	4	4	0	0	0	0	3	4	4	4	4	4	4	2	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.2		6.2	0.5	165.9					27.0	1.2	0.8	0.3	0.5	0.37	0.9	0.09					33.7											
	STD. DEV.	2.3		4.9	0.4	18.1					13.7	0.7	0.1	0.3	0.3	0.55	0.4	0.07					8.4											
	MIN	20.0	4.8	2.0	0.2	140.0					15.0	0.7	0.6	-0.1	0.2	0.02	0.4	0.04					24.0											
	MAX	25.0	5.8	11.0	1.0	179.4					42.0	2.1	0.9	0.7	0.8	1.20	1.4	0.14					39.0											
C-HS2-A09-7	n	3	3	3	3	3	0	0	0	0	2	3	3	3	3	3	3	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.9		70.0	0.4	537.3					75.0	6.5	2.4	2.4	0.05	4.1	4.1	0.4					33.0											
	STD. DEV.	4.7		16.5	0.3	181.4					49.5	4.3	0.3	0.2	0.03	4.1	4.1	0.0					15.6											
	MIN	20.3	6.1	54.0	0.1	390.0					40.0	2.5	2.2	2.1	0.02	0.10	0.1	0.3					22.0											
	MAX	29.2	6.4	87.0	0.6	740.0					110.0	11.0	2.7	2.6	0.06	8.3	8.4	0.4					44.0											
C-HS2-A09-9	n	3	3	3	3	3	0	0	0	0	2	3	3	3	3	3	3	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.6		54.3	0.9	336.7					64.0	6.7	1.3	1.1	0.14	5.47	5.6	0.2					38.0											
	STD. DEV.	3.7		18.3	0.9	157.2					4.2	10.1	1.0	1.1	0.10	9.12	9.0	0.0					4.2											
	MIN	20.5	6.1	40.0	0.1	238.0					61.0	0.8	0.6	0.4	0.02	0.02	0.2	0.2					35.0											
	MAX	27.7	6.5	75.0	1.8	518.0					67.0	18.4	2.4	2.4	0.21	16.00	16.0	0.2					41.0											
C-HS2-A09-12	n	3	3	3	3	3	0	0	0	0	2	3	3	3	3	3	3	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.3		10.2	0.9	139.3					32.0	0.7	0.6	0.14	0.5	0.03	0.5	0.10					33.5											
	STD. DEV.	2.8		0.7	1.0	13.1					5.7	0.2	0.1	0.13	0.0	0.02	0.0	0.08					3.5											
	MIN	20.8	5.2	9.6	0.1	129.0					28.0	0.6	0.5	0.06	0.5	0.01	0.5	0.04					31.0											
	MAX	26.4	6.4	11.0	2.0	154.0					36.0	0.8	0.8	0.29	0.5	0.05	0.6	0.16					36.0											
C-HS2-A10-7	n	3	3	3	3	3	0	0	0	0	3	3	3	3	3	3	3	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
	MEAN	25.9		386.7	1.8	857.0					94.3	12.7	12.7	3.1	9.5	0.03	9.6	0.2					29											
	STD. DEV.	5.3		40.4	2.6	80.6					28.9	2.1	2.1	1.9	1.7	0.03	1.8	0.0																
	MIN	19.8	6.7	350.0	0.3	809.0					63.0	11.0	11.0	1.0	7.6	0.01	7.6	0.1					27											
	MAX	29.5	7.0	430.0	4.8	950.0					120.0	15.1	15.0	4.4	11.0	0.06	11.1	0.2					31											
C-HS2-A10-9	n	5	5	5	5	5	0	0	0	0	4	5	5	5	5	5	5	2	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0
	MEAN	25.2		218.0	0.5	628.6					96.5	11.5	10.1	2.3	7.7	1.43	9.2	0.6					36.5											
	STD. DEV.	3.1		21.7	0.3	86.9					38.9	3.3	2.0	1.5	1.4	1.93	2.1	0.3					8.2											
	MIN	21.2	6.4	180.0	0.3	539.0					63.0	6.9	6.9	0.7	5.9	0.01	5.9	0.5					28.0											
	MAX	27.7	7.4	230.0	1.0	717.0					150.0	14.6	12.0	4.3	9.4	3.60	11.4	0.8					44.0											
C-HS2-A10-12	n	4	4	4	4	4	0	0	0	0	3	4	4	4	4	4	4	2	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0
	MEAN	24.1		21.6	0.4	149.1					26.0	0.7	0.7	0.3	0.4	0.03	0.4	0.1					35.7											
	STD. DEV.	2.2		15.7	0.2	14.3					6.9	0.1	0.1	0.1	0.0	0.01	0.0	0.0					1.5											
	MIN	21.5	4.8	6.3	0.2	134.0					22.0	0.6	0.6	0.2	0.4	0.02	0.4	0.1					34.0											
	MAX	26.0	7.1	40.0	0.7	168.2					34.0	0.8	0.8	0.4	0.4	0.05	0.5	0.1					37.0											
C-HS2-A11-5	n	3	3	3	3	3	0	0	0	0	3	3	3	3	3	3	3	2	0	1	1	1	2	1	1	1	1	1	1	1	1	0	1	1
	MEAN	26.0		256.7	1.9	698.0					97.7	12.5	10.0	2.5	7.5	2.48	10.0	0.3		38	34	0.1	16.1	0.1	0.01	0.1	9.9	0.05	130.0	2.6	7.7		12.0	7.0
	STD. DEV.	5.8		101.2	2.5	16.5					19.7	4.8	7.8	1.6	8.6	4.26	6.2	0.3					14.0											
	MIN	19.3	6.3	140.0	0.3	679.0					83.0	9.6	2.5	1.0	0.2	0.02	5.4	0.1		38	34	0.1	6.2	0.1	0.01	0.1	9.9	0.05	130.0	2.6	7.7		12.0	7.0
	MAX	29.3	6.8	320.0	4.7	709.0					120.0	18.0	18.0	4.2	17.0	7.40	17.0	0.5		38	34	0.1	26.0	0.1	0.01	0.1	9.9	0.05	130.0	2.6	7.7		12.0	7.0
C-HS2-A11-7	n	4	4	4	4	4	0	0	0	0	3	4	4	4	4	4	4	2	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0
	MEAN	24.6		137.3	0.3	391.8					97.7	7.1	4.0	2.1	1.9	3.13	5.0	0.1					31.7											
	STD. DEV.	3.1		128.4	0.0	111.0					32.5	5.6	3.3	1.3	3.3	3.68	4.6	0.0																
	MIN	21.0	5.9	32.0	0.3	254.0					65.0	1.4	1.4	0.9	0.1	0.02	0.5	0.1					15.0											
	MAX	27.8	6.3	320.0	0.4	509.0					130.0	12.4	8.7	3.9	6.8	8.40	9.5	0.1					45.0											
C-HS2-A11-10	n	4	4	4	4	4	0	0	0	0	3	4	4	4	4	4	4	2	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0
	MEAN	24.6		7.5	0.3	145.6					21.0	0.6	0.6	0.2	0.4	0.04	0.4	0.1					36.3											
	STD. DEV.	2.5		3.4	0.1	15.7					7.9	0.2	0.1	0.1	0.0	0.01	0.0	0.0					4.0											
	MIN	21.5	4.9	4.2	0.1	132.0					15.0	0.4	0.4	0.0	0.3	0.03	0.4	0.1					32.0											
	MAX	26.9	6.2	11.0	0.4	166.4					30.0	0.8	0.7	0.3	0.4	0.05	0.4	0.1					40.0											
C-HS2-A13-5	n	4	4	4	4	4	0	0	0	0	3	4	4	4	4	4	4	2	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0
	MEAN	24.9		45.3	0.6	246.9					102.0	1.6	1.6	1.4	0.2	0.10	0.3	0.1					28.5											
	STD. DEV.	5.1		24.9	0.9	48.9					15.6	0.3	0.2	0.3	0.1	0.12	0.1	0.0					18.6											
	MIN	18.8	5.4	22.0	0.1	185.6					92.0	1.3	1.3	1.0	0.1	0.03	0.2	0.1					7.5											
	MAX	29.6	5.8	79.0	2.0	305.0					120.0	2.0	1.7	1.6	0.3	0.28	0.4	0.1					43.0											

Table F.1 (con't)
Summary of Water Quality Data

Sample ID	Statistical Parameter	Temp (°C)	pH	Total Alkalinity (mg/L)	DO (mg/L)	Specific Conductance (µS)	TDS (mg/L)	TS (% by wt)	TSS (mg/L)	$CBOD_5$ (mg/L)	COD (mg/L)	TN (mg/L N)[1]	TKN (mg/L N)	Organic N (mg/L N)[2]	NH3-N (mg/L N)	NOx (mg/L N)	TIN (mg/L N)[3]	TP (mg/L)	Fecal (Ct/100 mL)	TOC (mg/L)	DOC (mg/L)	Anions						Cations						
																						F^-	Cl^-	NO_2-N^-	NO_3-N^-	PO_4-P^-	SO_4^-	B	Ca	Fe	Mg	Mn	K	Na
C-HS2-A13-7	n	4	4	4	4	4	0	0	0	0	3	4	4	4	4	4	4	2	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0
	MEAN	24.7		5.9	0.3	183.3					34.0	0.8	0.8	0.4	0.4	0.03	0.4	0.05					42.3											
	STD. DEV.	4.1		4.5	0.3	25.8					2.0	0.2	0.2	0.2	0.1	0.02	0.1	0.01					2.1											
	MIN	19.7	4.6	2.0	0.1	159.0					32.0	0.7	0.6	0.3	0.3	0.01	0.3	0.05					40.0											
	MAX	28.7	5.5	9.9	0.7	218.3					36.0	1.0	1.0	0.7	0.5	0.05	0.6	0.06					44.0											
C-HS2-A13-10	n	4	4	4	4	4	0	0	0	0	3	4	4	4	4	4	4	2	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0
	MEAN	24.3		4.7	0.3	143.4					21.0	0.7	0.6	0.2	0.4	0.02	0.4	0.03					37.0											
	STD. DEV.	3.1		3.6	0.2	16.7					5.6	0.1	0.1	0.1	0.0	0.01	0.0	0.01					5.0											
	MIN	20.6	4.7	2.0	0.1	125.0					15.0	0.5	0.5	0.2	0.4	0.01	0.4	0.02					32.0											
	MAX	27.9	4.8	9.6	0.6	160.5					26.0	0.8	0.8	0.3	0.5	0.03	0.5	0.04					42.0											
C-HS2-B02-6	n	4	4	4	4	4	0	0	0	0	3	4	4	4	4	4	4	2	0	1	1	1	3	1	1	1	1	1	1	1	1	0	1	1
	MEAN	24.8		68.8	0.2	436.1					68.3	7.6	2.2	2.0	0.2	5.4	5.6	0.1		32.0	28.0	0.0	34.7	5.9	0.1	0.01	37.0	0.05	54.0	0.08	6.5		11.0	27.0
	STD. DEV.	3.1		10.4	0.2	55.8					1.2	3.8	0.9	0.9	0.2	3.1	3.1	0.0					9.5											
	MIN	21.7	5.6	54.0	0.1	385.0					67.0	2.1	1.1	0.9	0.1	1.0	1.2	0.1		32.0	28.0	0.0	24.0	5.9	0.1	0.01	37.0	0.05	54.0	0.08	6.5		11.0	27.0
	MAX	27.8	6.2	77.0	0.5	495.0					69.0	10.4	3.2	3.1	0.5	8.0	8.2	0.1		32.0	28.0	0.0	42.0	5.9	0.1	0.01	37.0	0.05	54.0	0.08	6.5		11.0	27.0
C-HS2-B02-8	n	4	4	4	4	4	0	0	0	0	3	4	4	4	4	4	4	2	0	1	1	1	3	1	1	1	1	1	1	1	1	1	1	1
	MEAN	24.4		145.0	0.2	583.5					39.3	1.8	1.8	0.9	0.9	0.04	0.9	0.05		16.0	16.0	0.0	81.3	0.1	0.0	0.0	12.0	0.1	65.0	0.1	3.1	0.0	3.4	34.0
	STD. DEV.	2.7		41.2	0.1	61.1					2.3	0.9	0.9	0.8	0.4	0.05	0.4	0.00					18.5											
	MIN	21.6	6.4	110.0	0.1	516.0					38.0	1.2	1.2	0.2	0.5	0.02	0.5	0.05		16.0	16.0	0.03	63.0	0.1	0.01	0.02	12.0	0.05	65.0	0.10	3.1	0.01	3.4	34.0
	MAX	26.9	6.7	190.0	0.3	654.0					42.0	3.1	3.1	2.1	1.3	0.11	1.4	0.05		16.0	16.0	0.03	100.0	0.1	0.01	0.02	12.0	0.05	65.0	0.10	3.1	0.01	3.4	34.0
C-HS2-B02-11	n	4	4	4	4	4	0	0	0	0	3	4	4	4	4	4	4	2	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0
	MEAN	24.1		25.8	0.2	220.7					27.3	0.8	0.8	0.3	0.5	0.03	0.5	0.06					44.7											
	STD. DEV.	1.9		4.3	0.0	28.9					3.1	0.2	0.2	0.1	0.1	0.02	0.1	0.04					7.4											
	MIN	21.9	5.9	22.0	0.2	198.0					24.0	0.7	0.6	0.2	0.4	0.02	0.4	0.03					39.0											
	MAX	26.1	6.6	30.0	0.3	260.0					30.0	1.0	1.0	0.5	0.6	0.05	0.6	0.09					53.0											
C-HS2-B06-6	n	4	4	4	4	4	0	0	0	0	3	4	4	4	4	4	4	2	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0
	MEAN	24.3		36.3	0.3	386.0					80.0	9.3	1.8	1.7	0.10	7.4	7.5	1.6					34.7											
	STD. DEV.	1.7		7.8	0.2	167.0					36.1	9.7	0.9	1.0	0.06	8.8	8.8	0.1					16.1											
	MIN	22.4	5.6	29.0	0.1	275.0					40.0	1.0	1.0	0.9	0.02	0.0	0.1	1.5					23.0											
	MAX	26.1	6.0	43.0	0.4	631.0					110.0	21.7	2.7	2.7	0.16	19.0	19.0	1.6					53.0											
C-HS2-B06-8	n	4	4	4	4	4	0	0	0	0	3	4	4	4	4	4	4	2	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0
	MEAN	24.2		13.2	0.3	180.3					47.0	1.2	1.2	0.6	0.6	0.08	0.7	0.2					39.3											
	STD. DEV.	1.3		4.1	0.2	30.8					32.0	0.2	0.2	0.1	0.1	0.04	0.1	0.2					3.8											
	MIN	22.6	5.3	9.9	0.1	144.0					22.0	1.0	1.0	0.4	0.5	0.03	0.6	0.1					35.0											
	MAX	25.6	5.8	19.0	0.6	219.0					83.0	1.5	1.4	0.7	0.7	0.12	0.8	0.3					42.0											
C-HS2-B06-11	n	4	4	4	4	4	0	0	0	0	3	4	4	4	4	4	4	2	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.8		10.4	0.2	147.0					31.3	1.0	0.9	0.4	0.6	0.06	0.6	0.1					35.7											
	STD. DEV.	0.9		0.7	0.1	12.1					13.0	0.2	0.2	0.2	0.0	0.03	0.0	0.0					2.5											
	MIN	22.6	4.6	9.6	0.1	130.0					18.0	0.8	0.8	0.2	0.5	0.04	0.6	0.1					33.0											
	MAX	24.7	5.7	11.0	0.4	157.0					44.0	1.2	1.2	0.6	0.6	0.10	0.7	0.1					38.0											
C-HS2-B08-5	n	4	4	4	4	4	0	0	0	0	3	4	4	4	4	4	4	2	0	3	3	3	3	3	2	3	3	3	3	3	3	2	3	3
	MEAN	23.9		46.3	0.3	489.5					103.7	26.9	3.6	3.5	0.07	23.3	23.3	0.7		46.0	43.0	0.1	28.7	17.7		0.7	43.3	0.07	50.0	0.3	8.3	0.01	13.0	30.7
	STD. DEV.	2.6		23.3	0.2	68.4					24.7	13.3	0.8	0.8	0.04	13.1	13.1	0.9		7.0	9.5	0.0	5.5	9.3		0.3	4.2	0.01	10.4	0.1	1.5	0.00	1.0	1.2
	MIN	21.1	5.5	21.0	0.1	428.0					81.0	13.3	2.8	2.7	0.03	10.0	10.1	0.1		41.0	37.0	0.03	23.0	10.0		0.5	40.0	0.06	43.0	0.1	7.4	0.01	12.0	30.0
	MAX	26.4	6.0	67.0	0.6	579.0					130.0	39.7	4.7	4.7	0.13	35.0	35.0	1.4		54.0	54.0	0.12	34.0	28.0		1.0	48.0	0.08	62.0	0.4	10.0	0.01	14.0	32.0
C-HS2-B08-7	n	4	4	4	4	4	0	0	0	0	3	4	4	4	4	4	4	2	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.9		48.3	0.4	396.0					57.3	10.0	2.2	2.1	0.12	7.9	8.0	0.5					31.0											
	STD. DEV.	2.3		9.3	0.3	104.7					28.7	5.8	0.4	0.4	0.17	5.5	5.6	0.4					12.1											
	MIN	21.4	5.9	38.0	0.1	282.0					36.0	4.0	1.6	1.5	0.01	2.4	2.5	0.2					20.0											
	MAX	26.5	6.1	58.0	0.7	518.0					90.0	17.5	2.5	2.4	0.38	15.0	15.4	0.8					44.0											
C-HS2-B08-10	n	4	4	4	4	4	0	0	0	0	3	4	4	4	4	4	4	2	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.9		9.0	0.3	143.5					19.7	0.9	0.8	0.4	0.5	0.1	0.5	0.1					35.7											
	STD. DEV.	2.4		3.2	0.2	10.9					6.5	0.2	0.2	0.2	0.1	0.0	0.1	0.0					3.2											
	MIN	21.6	4.8	4.2	0.2	132.0					13.0	0.8	0.7	0.2	0.4	0.1	0.5	0.1					32.0											
	MAX	27.0	6.2	11.0	0.6	158.0					26.0	1.2	1.1	0.7	0.5	0.1	0.7	0.1					38.0											
C-HS2-B10-5	n	4	4	4	4	4	0	0	0	0	3	4	4	4	4	4	4	2	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0
	MEAN	24.3		187.5	0.1	585.3					91.7	9.0	6.2	3.6	2.6	2.8	5.4	0.1					36.7											
	STD. DEV.	3.2		78.0	0.1	122.5					9.7	3.3	3.8	3.4	2.8	3.6	3.8	0.0					16.1											
	MIN	20.6	6.2	130.0	0.1	452.0					81.0	4.2	2.9	0.9	0.3	0.1	1.9	0.1					25.0											
	MAX	27.4	6.6	300.0	0.2	722.0					100.0	11.1	11.0	8.6	6.6	8.0	9.1	0.1					55.0											

Table F.1 (con't)
Summary of Water Quality Data

Sample ID	Statistical Parameter	Temp (°C)	pH	Total Alkalinity (mg/L)	DO (mg/L)	Specific Conductance (µS)	TDS (mg/L)	TS (% by wt)	TSS (mg/L)	$CBOD_5$ (mg/L)	COD (mg/L)	TN (mg/L N)[1]	TKN (mg/L N)	Organic N (mg/L N)[2]	NH3-N (mg/L N)	NOx (mg/L N)	TIN (mg/L N)[3]	TP (mg/L)	Fecal (Ct/100 mL)	TOC (mg/L)	DOC (mg/L)	Anions						Cations						
																						F^-	Cl^-	NO_3-N^-	NO_2-N^-	PO_4-P^-	SO_4^-	B	Ca	Fe	Mg	Mn	K	Na
C-HS2-B10-7	n	4	4	4	4	4	0	0	0	0	3	4	4	4	4	4	4	2	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	24.2		52.8	0.4	288.0					43.7	4.3	3.4	1.4	2.1	0.8	2.9	0.07					36.7												
	STD. DEV.	2.9		28.4	0.3	118.0					8.1	4.1	4.3	1.5	2.9	1.4	2.6	0.03					1.5												
	MIN	20.8	5.9	22.0	0.2	173.0					38.0	1.0	0.9	0.2	0.4	0.03	0.8	0.05					35.0												
	MAX	27.4	6.6	86.0	0.8	419.0					53.0	9.9	9.9	3.5	6.4	3.0	6.4	0.10					38.0												
C-HS2-B10-10	n	4	4	4	4	4	0	0	0	0	3	4	4	4	4	4	4	2	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.8		6.2	0.3	136.4					27.3	0.7	0.7	0.3	0.4	0.1	0.4	0.1					34.0												
	STD. DEV.	2.4		4.8	0.3	9.4					5.0	0.4	0.3	0.3	0.0	0.0	0.1	0.0					1.0												
	MIN	21.0	4.4	2.0	0.1	123.0					22.0	0.5	0.4	0.0	0.4	0.03	0.4	0.1					33.0												
	MAX	26.7	5.9	11.0	0.7	144.0					32.0	1.3	1.2	0.7	0.5	0.1	0.5	0.1					35.0												
C-HS2-B15-5	n	3	3	3	3	3	0	0	0	0	2	3	3	3	3	3	3	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.6		7.2	0.3	166.0					67.0	1.2	1.2	0.8	0.3	0.06	0.4	0.05					31.5												
	STD. DEV.	3.7		4.5	0.2	29.5					11.3	0.5	0.5	0.5	0.0	0.06	0.1	0.02					14.8												
	MIN	20.4	4.6	2.0	0.1	132.0					59.0	0.8	0.8	0.5	0.3	0.02	0.3	0.04					21.0												
	MAX	27.7	5.4	10.0	0.4	184.0					75.0	1.8	1.7	1.3	0.4	0.13	0.5	0.07					42.0												
C-HS2-B15-7	n	3	3	3	3	3	0	0	0	0	2	3	3	3	3	3	3	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.5		10.2	0.3	152.0					37.0	1.2	1.1	0.5	0.6	0.07	0.6	0.1					38.5												
	STD. DEV.	3.2		0.7	0.2	13.7					1.4	0.7	0.7	0.5	0.2	0.06	0.2	0.0					3.5												
	MIN	20.6	4.8	9.6	0.1	140.0					36.0	0.7	0.7	0.2	0.5	0.02	0.5	0.1					36.0												
	MAX	26.9	5.5	11.0	0.5	167.0					38.0	2.0	1.9	1.1	0.8	0.13	0.9	0.1					41.0												
C-HS2-B15-10	n	3	3	3	3	3	0	0	0	0	2	3	3	3	3	3	3	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.8		21.5	0.5	131.7					15.0	0.6	0.6	0.3	0.3	0.02	0.4	0.03					31.5												
	STD. DEV.	3.1		27.5	0.3	10.7					7.1	0.2	0.2	0.2	0.0	0.01	0.0	0.02					4.9												
	MIN	20.9	4.6	2.0	0.2	125.0					10.0	0.5	0.5	0.1	0.3	0.01	0.3	0.02					28.0												
	MAX	27.0	5.1	53.0	0.7	144.0					20.0	0.8	0.8	0.5	0.4	0.03	0.4	0.05					35.0												
C-HS2-C00-5	n	2	2	2	2	2	0	0	0	0	1	2	2	2	2	2	2	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	26.2		39.5	0.1	305.5					77.0	3.1	1.6	1.4	0.2	1.5	1.7	0.1					25.0												
	STD. DEV.	2.1		12.0	0.0	20.5						2.8	0.8	0.8	0.0	2.1	2.1																		
	MIN	24.7	4.4	31.0	0.1	291.0					77.0	1.1	1.0	0.8	0.2	0.1	0.3	0.1					25.0												
	MAX	27.6	6.0	48.0	0.1	320.0					77.0	5.1	2.1	1.9	0.2	3.0	3.2	0.1					25.0												
C-HS2-C00-7	n	2	2	2	2	2	0	0	0	0	1	2	2	2	2	2	2	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	25.9		28.0	0.1	368.5					18.0	1.2	1.1	0.5	0.6	0.06	0.7	0.05					86.0												
	STD. DEV.	1.5		14.1	0.0	92.6						0.7	0.8	0.6	0.2	0.06	0.2																		
	MIN	24.8	5.5	18.0	0.1	303.0					18.0	0.7	0.6	0.1	0.5	0.02	0.6	0.05					86.0												
	MAX	26.9	5.5	38.0	0.1	434.0					18.0	1.7	1.7	0.9	0.8	0.10	0.8	0.05					86.0												
C-HS2-C00-10	n	2	2	2	2	2	0	0	0	0	1	2	2	2	2	2	2	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	25.5		9.0	0.1	167.0					120.0	0.9	0.9	0.4	0.5	0.04	0.6	0.1					43.0												
	STD. DEV.	0.8		0.9	0.0	7.1						0.4	0.4	0.4	0.0	0.04	0.0																		
	MIN	24.9	5.3	8.3	0.1	162.0					120.0	0.7	0.6	0.1	0.5	0.01	0.6	0.1					43.0												
	MAX	26.1	5.7	9.6	0.1	172.0					120.0	1.2	1.2	0.7	0.6	0.06	0.6	0.1					43.0												
C-HS2-C04-5	n	4	4	4	4	4	0	0	0	0	3	4	4	4	4	4	4	2	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	24.0		31.6	0.3	374.8					101.0	4.8	2.4	1.9	0.5	2.39	2.9	0.2					27.3												
	STD. DEV.	2.2		21.5	0.3	112.9					36.0	3.1	0.5	0.3	0.2	2.80	2.9	0.2					13.6												
	MIN	21.6	5.7	5.4	0.1	289.0					69.0	1.8	1.8	1.4	0.3	0.01	0.4	0.1					19.0												
	MAX	26.3	6.1	58.0	0.8	541.0					140.0	8.4	2.9	2.2	0.7	5.50	6.2	0.3					43.0												
C-HS2-C04-7	n	4	4	4	4	4	0	0	0	0	3	4	4	4	4	4	4	2	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.9		7.3	0.5	176.6					108.3	1.6	1.4	0.4	1.0	0.15	1.1	0.49					41.3												
	STD. DEV.	1.9		3.7	0.6	30.3					114.7	0.4	0.3	0.4	0.3	0.27	0.6	0.64					8.3												
	MIN	21.7	5.1	3.1	0.1	142.0					30.0	1.1	1.1	0.1	0.7	0.01	0.7	0.04					32.0												
	MAX	25.9	6.0	11.0	1.3	209.3					240.0	2.1	1.7	0.8	1.4	0.56	2.0	0.94					48.0												
C-HS2-C04-10	n	4	4	4	4	4	0	0	0	0	3	4	4	4	4	4	4	2	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.5		5.9	0.4	145.1					44.3	1.1	1.0	0.5	0.5	0.10	0.6	0.5					40												
	STD. DEV.	1.5		2.7	0.4	8.4					42.2	0.3	0.4	0.3	0.1	0.13	0.1	0.2					4												
	MIN	21.7	4.9	3.1	0.1	136.0					18.0	0.8	0.6	0.1	0.5	0.01	0.5	0.3					37												
	MAX	25.0	5.7	9.6	1.0	153.5					93.0	1.5	1.4	0.8	0.7	0.29	0.7	0.6					44												
C-HS2-C06-5	n	4	4	4	4	4	0	0	0	0	3	4	4	4	4	4	4	2	0	1	1	1	3	1	0	1	1	1	1	1	1	1	1	1
	MEAN	23.6	5.9	40.8	0.4	491.5					80.3	15.2	3.0	2.9	0.08	12.1	12.2	2.4		31.0	22.0	0.01	35.7	21.0		2.1	56.0	0.10	37.0	0.3	8.8	0.0	9.4	58.0
	STD. DEV.	3.0	0.2	8.2	0.5	138.7					47.2	12.8	1.1	1.1	0.06	13.0	12.9	0.7					14.6												
	MIN	20.5	5.7	29.0	0.0	332.0					36.0	2.6	2.0	1.9	0.02	0.6	0.7	1.9		31.0	22.0	0.01	19.0	21.0		2.1	56.0	0.10	37.0	0.3	8.8	0.0	9.4	58.0
	MAX	26.8	6.1	48.0	1.1	634.0					130.0	32.6	4.6	4.4	0.16	30.0	30.0	2.9		31.0	22.0	0.01	46.0	21.0		2.1	56.0	0.10	37.0	0.3	8.8	0.0	9.4	58.0

Table F.1 (con't)
Summary of Water Quality Data

Sample ID	Statistical Parameter	Temp (°C)	pH	Total Alkalinity (mg/L)	DO (mg/L)	Specific Conductance (µS)	TDS (mg/L)	TS (% by wt)	TSS (mg/L)	$CBOD_5$ (mg/L)	COD (mg/L)	TN (mg/L N)[1]	TKN (mg/L N)	Organic N (mg/L N)[2]	NH3-N (mg/L N)	NOx (mg/L N)	TIN (mg/L N)[3]	TP (mg/L)	Fecal (Ct/100 mL)	TOC (mg/L)	DOC (mg/L)	Anions						Cations						
																						F^-	Cl^-	NO_3-N^-	NO_2-N^-	PO_4-P^-	SO_4^-	B	Ca	Fe	Mg	Mn	K	Na
C-HS2-C06-7	n	4	4	4	4	4	0	0	0	0	3	4	4	4	4	4	4	2	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.2	6.0	31.8	0.3	283.6					54.0	3.0	1.5	1.1	0.4	1.51	1.9	1.3					40.0											
	STD. DEV.	2.4		6.9	0.1	62.3					18.0	2.1	0.3	0.5	0.2	1.84	1.6	0.3					1.0											
	MIN	20.6		22.0	0.2	225.2					34.0	1.1	1.1	0.7	0.1	0.01	0.5	1.1					39.0											
	MAX	25.7	6.3	38.0	0.5	361.0					69.0	5.6	1.8	1.7	0.7	3.80	3.9	1.5					41.0											
C-HS2-C06-10	n	4	4	4	4	4	0	0	0	0	3	4	4	4	4	4	4	2	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.1		7.6	0.2	140.2					27.0	0.9	0.8	0.4	0.4	0.07	0.5	0.07					33.7											
	STD. DEV.	1.6		3.3	0.0	7.1					12.5	0.3	0.3	0.4	0.1	0.03	0.1	0.06					4.2											
	MIN	21.1	5.1	4.2	0.1	130.0					15.0	0.5	0.5	-0.1	0.3	0.03	0.4	0.03					29.0											
	MAX	24.7	5.7	11.0	0.2	145.7					40.0	1.3	1.2	0.8	0.5	0.11	0.6	0.11					37.0											
C-HS2-C08-5	n	4	4	4	4	4	0	0	0	0	3	4	4	4	4	4	4	2	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0
	MEAN	24.7		55.5	0.6	439.1					97.3	10.2	3.8	3.7	0.13	6.4	6.5	0.2					19.0											
	STD. DEV.	2.9		15.0	0.6	120.3					3.1	2.3	0.7	0.7	0.19	1.9	1.8	0.1					7.9											
	MIN	21.6	5.8	43.0	0.1	319.4					94.0	8.0	2.8	2.8	0.02	4.2	4.6	0.1					13.0											
	MAX	27.2	6.3	77.0	1.4	558.0					100.0	13.3	4.4	4.4	0.41	8.9	8.9	0.4					28.0											
C-HS2-C08-7	n	4	4	4	4	4	0	0	0	0	3	4	4	4	4	4	4	2	0	2	2	2	3	2	2	2	2	2	2	2	2	1	2	2
	MEAN	24.3		52.8	0.5	478.8					56.0	13.5	2.2	2.0	0.17	11.3	11.5	0.1		26.5	24.5	0.0	41.0	18.0	0.1	0.3	47.0	0.1	45.5	0.1	8.9	0.0	10.3	39.0
	STD. DEV.	2.2		9.5	0.4	154.1					7.0	10.7	0.4	0.6	0.29	10.4	10.1	0.0					12.5											
	MIN	22.1	6.0	43.0	0.1	255.0					48.0	1.8	1.7	1.1	0.01	0.1	0.7	0.1		26.0	23.0	0.03	31.0	18.0	0.1	0.1	33.0	0.05	44.0	0.06	8.0	0.01	9.6	36.0
	MAX	26.6	6.5	65.0	1.1	585.0					61.0	24.6	2.6	2.6	0.60	22.0	22.0	0.2		27.0	26.0	0.03	55.0	18.0	0.1	0.4	61.0	0.08	47.0	0.08	9.7	0.01	11.0	42.0
C-HS2-C08-10	n	4	4	4	4	4	0	0	0	0	3	4	4	4	4	4	4	2	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0
	MEAN	24.0		7.6	0.4	147.2					26.3	0.9	0.8	0.4	0.5	0.07	0.5	0.1					39.7											
	STD. DEV.	1.7		3.3	0.4	23.0					10.6	0.1	0.1	0.1	0.0	0.03	0.0	0.0					11.6											
	MIN	22.4	5.0	4.2	0.1	123.0					15.0	0.8	0.7	0.3	0.4	0.03	0.5	0.1					32.0											
	MAX	25.9	6.0	11.0	0.9	174.0					36.0	1.0	1.0	0.5	0.5	0.10	0.6	0.1					53.0											
C-HS2-C10-6	n	4	4	4	4	4	0	0	0	0	3	4	4	4	4	4	4	2	0	1	1	1	3	1	0	1	1	1	1	1	1	1	1	1
	MEAN	25.0		41.5	0.5	272.4					104.7	6.6	3.1	2.3	0.8	3.5	4.3	0.1		61.0	44.0	0.4	26.0	1.1		0.01	13.0	0.05	21.0	0.4	2.7	0.0	4.0	17.0
	STD. DEV.	2.3		45.8	0.6	99.1					13.6	4.1	0.5	0.5	0.5	4.1	3.9	0.0					9.5											
	MIN	22.8	5.1	15.0	0.1	200.7					94.0	3.0	2.7	1.5	0.3	0.1	1.3	0.1		61.0	44.0	0.4	15.0	1.1		0.01	13.0	0.05	21.0	0.4	2.7	0.0	4.0	17.0
	MAX	27.0	6.0	110.0	1.4	415.0					120.0	11.9	3.8	2.7	1.4	9.2	9.5	0.1		61.0	44.0	0.4	32.0	1.1		0.01	13.0	0.05	21.0	0.4	2.7	0.0	4.0	17.0
C-HS2-C10-8	n	4	4	4	4	4	0	0	0	0	3	4	4	4	4	4	4	2	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0
	MEAN	24.6		13.2	0.4	179.9					41.7	1.4	1.3	0.4	0.9	0.04	0.9	0.08					37.7											
	STD. DEV.	1.7		5.9	0.6	40.5					8.6	0.5	0.5	0.1	0.5	0.02	0.5	0.06					4.0											
	MIN	23.1	5.1	9.6	0.1	140.0					34.0	0.9	0.9	0.3	0.4	0.02	0.5	0.04					33.0											
	MAX	26.3	5.8	22.0	1.4	233.6					51.0	1.8	1.8	0.6	1.4	0.07	1.4	0.12					40.0											
C-HS2-C10-12	n	4	4	4	4	4	0	0	0	0	3	4	4	4	4	4	4	2	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0
	MEAN	24.6		6.4	0.7	134.6					45.0	1.0	0.9	0.4	0.5	0.08	0.6	0.2					34.0											
	STD. DEV.	1.0		4.5	0.8	9.1					27.5	0.5	0.5	0.4	0.1	0.06	0.2	0.2					3.0											
	MIN	23.5	4.7	2.0	0.1	124.0					15.0	0.6	0.6	0.0	0.3	0.01	0.3	0.1					31.0											
	MAX	25.7	5.5	11.0	1.8	142.4					69.0	1.8	1.6	1.0	0.7	0.16	0.8	0.3					37.0											
C-HS2-C11-5	n	4	4	4	4	4	0	0	0	0	3	4	4	4	4	4	4	2	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0
	MEAN	24.9		9.9	0.4	213.0					96.3	4.5	2.1	1.9	0.2	2.4	2.6	0.4					17.2											
	STD. DEV.	3.0		6.8	0.3	77.5					49.3	3.2	0.7	0.7	0.1	3.6	3.6	0.5					14.1											
	MIN	21.8	4.8	4.2	0.2	133.0					53.0	2.0	1.3	1.1	0.1	0.2	0.4	0.1					5.7											
	MAX	27.9	5.4	19.0	0.7	304.0					150.0	9.1	2.9	2.8	0.2	7.8	8.0	0.7					33.0											
C-HS2-C11-7	n	4	4	4	4	4	0	0	0	0	3	4	4	4	4	4	4	2	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0
	MEAN	24.0		6.7	0.4	209.4					52.7	1.4	1.3	0.8	0.5	0.16	0.6	0.1					42.0											
	STD. DEV.	1.8		2.0	0.3	22.3					17.0	0.8	0.8	0.6	0.2	0.11	0.2	0.0					1.7											
	MIN	22.4	5.0	5.4	0.1	190.0					40.0	0.8	0.8	0.5	0.3	0.03	0.4	0.1					41.0											
	MAX	26.1	5.3	9.6	0.7	234.0					72.0	2.6	2.4	1.7	0.7	0.25	0.9	0.1					44.0											
C-HS2-C11-10	n	4	4	4	4	4	0	0	0	0	3	4	4	4	4	4	4	2	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.7		4.3	0.3	139.6					28.7	0.7	0.7	0.4	0.34	0.03	0.4	0.05					34.0											
	STD. DEV.	1.2		4.5	0.3	12.8					5.0	0.2	0.2	0.2	0.22	0.02	0.2	0.01					5.3											
	MIN	22.7	4.7	2.0	0.1	125.0					24.0	0.6	0.5	0.2	0.03	0.02	0.1	0.05					28.0											
	MAX	25.2	5.2	11.0	0.8	152.3					34.0	1.0	1.0	0.5	0.53	0.05	0.6	0.06					38.0											

Table F.1 (con't)
Summary of Water Quality Data

Sample ID	Statistical Parameter	Temp (°C)	pH	Total Alkalinity (mg/L)	DO (mg/L)	Specific Conductance (µS)	TDS (mg/L)	TS (% by wt)	TSS (mg/L)	$CBOD_5$ (mg/L)	COD (mg/L)	TN (mg/L N)[1]	TKN (mg/L N)	Organic N (mg/L N)[2]	NH3-N (mg/L N)	NOx (mg/L N)	TIN (mg/L N)[3]	TP (mg/L)	Fecal (Ct/100 mL)	TOC (mg/L)	DOC (mg/L)	Anions						Cations						
																						F^-	Cl^-	NO_3-N^-	NO_2-N^-	PO_4-P^-	SO_4^-	B	Ca	Fe	Mg	Mn	K	Na
C-HS2-D04-5	n	3	3	3	3	3	0	0	0	0	2	3	3	3	3	3	3	2	0	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2
	MEAN	24.0		38.3	0.1	494.0					106.5	14.4	2.5	2.5	0.07	11.9	11.9	1.4		38.0	32.0	0.01	33.0	15.8	0.0	1.5	51.5	0.08	39.5	0.2	9.2	0.01	10.9	38.5
	STD. DEV.	2.3		13.7	0.1	154.6					19.1	13.9	0.6	0.6	0.05	13.4	13.4	0.7		15.6	18.4	0.00	7.1	20.1		0.2	17.7	0.02	16.3	0.2	4.0	0.00	5.9	12.0
	MIN	22.2	5.7	29.0	0.1	348.0					93.0	3.6	2.0	2.0	0.03	1.6	1.7	0.9		27.0	19.0	0.01	28.0	1.6	0.01	1.3	39.0	0.06	28.0	0.1	6.4	0.01	6.7	30.0
	MAX	26.6	5.9	54.0	0.2	656.0					120.0	30.1	3.1	3.1	0.12	27.0	27.0	1.9		49.0	45.0	0.01	38.0	30.0	0.01	1.6	64.0	0.09	51.0	0.4	12.0	0.01	15.0	47.0
C-HS2-D04-7	n	3	3	3	3	3	0	0	0	0	2	3	3	3	3	3	3	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
	MEAN	24.0		36.3	0.2	315.0					80.0	5.4	1.4	1.3	0.08	3.97	4.05	0.2					34.5											
	STD. DEV.	1.7		7.6	0.2	62.6					24.0	4.5	0.7	0.7	0.11	3.80	3.82	0.1					0.7											
	MIN	22.7	5.9	28.0	0.1	254.0					63.0	0.7	0.7	0.7	0.01	0.02	0.03	0.1					34.0											
	MAX	25.9	6.1	43.0	0.5	379.0					97.0	9.7	2.1	2.1	0.21	7.60	7.62	0.3					35.0											
C-HS2-D04-10	n	3	3	3	3	3	0	0	0	0	2	3	3	3	3	3	3	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.5		13.3	0.3	157.3					77.5	0.8	0.7	0.6	0.13	0.10	0.2	0.3					33.0											
	STD. DEV.	1.6		4.9	0.2	12.6					9.2	0.1	0.1	0.1	0.05	0.10	0.1	0.0					1.4											
	MIN	22.2	5.7	10.0	0.1	144.0					71.0	0.8	0.6	0.5	0.08	0.04	0.2	0.3					32.0											
	MAX	25.3	5.8	19.0	0.5	169.0					84.0	0.9	0.9	0.7	0.18	0.22	0.3	0.3					34.0											
C-HS2-D07-6	n	3	3	3	3	3	0	0	0	0	2	3	3	3	3	3	3	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.8		89.3	0.2	491.0					110.5	10.9	2.4	2.1	0.23	8.5	8.7	0.2					40.0											
	STD. DEV.	2.9		45.2	0.1	110.8					41.7	10.2	0.7	0.5	0.35	10.2	10.0	0.1					0.0											
	MIN	21.8	5.9	53.0	0.1	364.0					81.0	3.5	1.6	1.6	0.02	0.5	1.1	0.1					40.0											
	MAX	27.1	6.2	140.0	0.3	568.0					140.0	22.5	3.0	2.5	0.63	20.0	20.0	0.2					40.0											
C-HS2-D07-8	n	3	3	3	3	3	0	0	0	0	2	3	3	3	3	3	3	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.7		53.7	0.2	314.3					76.0	2.1	1.4	0.9	0.5	0.77	1.2	0.2					32.5											
	STD. DEV.	2.2		29.5	0.2	21.6					48.1	1.2	0.2	0.3	0.2	1.07	0.8	0.0					4.9											
	MIN	22.0	5.8	31.0	0.1	294.0					42.0	1.4	1.2	0.6	0.2	0.03	0.7	0.2					29.0											
	MAX	26.2	6.1	87.0	0.4	337.0					110.0	3.5	1.5	1.3	0.6	2.00	2.2	0.2					36.0											
C-HS2-D07-11	n	3	3	3	3	3	0	0	0	0	2	3	3	3	3	3	3	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.8		10.0	0.3	137.0					95.5	1.6	1.4	0.9	0.6	0.1	0.7	0.7					31.0											
	STD. DEV.	1.8		4.8	0.2	8.9					62.9	0.7	0.5	0.4	0.2	0.1	0.3	0.9					2.8											
	MIN	22.2	5.7	5.4	0.1	130.0					51.0	1.0	1.0	0.6	0.4	0.1	0.4	0.1					29.0											
	MAX	25.8	6.2	15.0	0.5	147.0					140.0	2.3	2.0	1.3	0.7	0.3	1.0	1.3					33.0											
Storm Water																																		
C-HS2-SW-6 inch	n	4	4	4	4	4	0	0	0	0	3	4	4	4	4	4	4	2	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0
	MEAN	24.9		49.0	4.0	320.0					55.0	2.4	1.7	1.2	0.5	0.7	1.2	0.04					44.3											
	STD. DEV.	3.6		6.6	1.1	38.1					22.6	0.4	0.7	0.7	0.1	0.4	0.4	0.01					6.0											
	MIN	21.1	5.9	40.0	3.4	284.0					40.0	2.1	1.0	0.6	0.4	0.4	0.8	0.03					38.0											
	MAX	28.0	6.5	54.0	5.6	373.0					81.0	3.0	2.6	2.1	0.5	1.2	1.7	0.04					50.0											
C-HS2-SW-M	n	4	4	4	4	4	0	0	0	0	3	4	4	4	4	4	4	2	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0
	MEAN	24.8		97.8	5.3	361.1					29.3	2.0	1.1	0.8	0.3	0.9	1.2	0.1					33.0											
	STD. DEV.	3.8		16.5	1.5	19.4					6.1	0.6	0.4	0.4	0.1	0.5	0.6	0.0					2.6											
	MIN	19.8	6.8	75.0	3.3	345.0					24.0	1.3	0.7	0.4	0.2	0.4	0.6	0.1					31.0											
	MAX	28.4	7.1	110.0	6.6	389.0					36.0	2.7	1.7	1.4	0.4	1.6	2.0	0.1					36.0											

Table F.1 (con't)
Summary of Water Quality Data

Sample ID	Statistical Parameter	Temp (°C)	pH	Total Alkalinity (mg/L)	DO (mg/L)	Specific Conductance (µS)	TDS (mg/L)	TS (% by wt)	TSS (mg/L)	$CBOD_5$ (mg/L)	COD (mg/L)	TN (mg/L N)[1]	TKN (mg/L N)	Organic N (mg/L N)[2]	NH3-N (mg/L N)	NOx (mg/L N)	TIN (mg/L N)[3]	TP (mg/L)	Fecal (Ct/100 mL)	TOC (mg/L)	DOC (mg/L)	Anions						Cations						
																						F^-	Cl^-	NO_3-N^-	NO_2-N^-	PO_4-P^-	SO_4^{--}	B	Ca	Fe	Mg	Mn	K	Na
Blanks																																			
EB	n	4	4	4	4	4	0	0	0	0	3	4	4	4	4	4	4	2	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	25.4		2.0	3.4	3.0					10.0	0.1	0.05	0.04	0.01	0.01	0.02	0.03					0.05												
	STD. DEV.	8.9		0.0	1.5	0.8					0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.03					0.00												
	MIN	13.2	6.0	2.0	2.0	2.0					10.0	0.1	0.05	0.04	0.01	0.01	0.02	0.01					0.05												
	MAX	33.2	7.9	2.0	5.2	4.0					10.0	0.1	0.05	0.05	0.01	0.01	0.02	0.06					0.05												
FB-DI	n	4	4	4	4	4	0	0	0	0	3	4	4	4	4	4	4	2	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	25.0		2.0	4.3	3.0					10.0	0.1	0.05	0.04	0.01	0.01	0.02	0.19					0.05												
	STD. DEV.	7.0		0.0	3.0	0.8					0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.25					0.00												
	MIN	16.2	6.0	2.0	2.0	2.0					10.0	0.1	0.05	0.04	0.01	0.01	0.02	0.01					0.05												
	MAX	33.2	8.9	2.0	8.5	4.0					10.0	0.1	0.05	0.04	0.01	0.01	0.02	0.37					0.05												
FB-Tap	n	4	4	4	4	4	0	0	0	0	3	4	4	4	4	4	4	2	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	24.2		109.0	3.8	273.5					10.0	0.1	0.06	0.04	0.02	0.01	0.03	0.18					10.4												
	STD. DEV.	4.2		16.0	1.8	61.9					0.0	0.0	0.02	0.02	0.01	0.01	0.02	0.17					8.3												
	MIN	20.4	6.9	86.0	1.3	215.9					10.0	0.1	0.05	0.02	0.01	0.01	0.02	0.05					5.6												
	MAX	29.9	8.2	120.0	5.2	329.0					10.0	0.1	0.08	0.06	0.03	0.02	0.05	0.30					20.0												

Notes:
[1]Total Nitrogen (TN) is a calculated value equal to the sum of TKN and NO_x
[2]Organic Nitrogen (ON) is a calculated value equal to the difference of TKN and NH_3
[3]Total Inorganic Nitrogen (TIN) is a calculated value equal to the sum of NH_3 and NO_x
EC: expanded clay, CL: clinoptilolite, PS: polystyrene, SU: elemental sulfur, LS: lignocellulosic, GL: glycerol, OS: oyster shell, NS: sodium sesquicarbonate, GR: gravel
D.O. - Dissolved oxygen
Gray-shaded data points indicate values below method detection level (mdl), mdl value used for statistical analyses.
Yellow-shaded data points indicate the reported value is between the laboratory method detection limit and the laboratory practical quantitation limit, value used for statistical analysis.

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Appendix G: Laboratory Report

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SOUTHERN ANALYTICAL LABORATORIES, INC.
110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 FAX 813-855-2218

Hazen and Sawyer
10002 Princess Palm Ave, Suite 200
Tampa, FL 33619

August 15, 2012
Work Order: 1206553

Laboratory Report

Project Name **Seminole County C-HS2**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**C-HS2-STE**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-01**						
Date/Time Collected		**07/11/12 09:15**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Field Parameters								
pH	SU	7.0	DEP FT1100	0.1	0.1		07/11/12 09:15	SAS
Water Temperature	°C	28.4	DEP FT1400	0.1	0.1		07/11/12 09:15	SAS
Specific conductance	umhos/cm	1,276	DEP FT1200	0.1	0.1		07/11/12 09:15	SAS
Dissolved Oxygen	mg/L	1.0	DEP FT1500	0.1	0.1		07/11/12 09:15	SAS
Inorganics								
Ammonia as N	mg/L	85	EPA 350.1	4.0	0.95		07/16/12 17:01	MMF
Carbonaceous BOD	mg/L	100	SM 5210B	2	2	07/11/12 16:00	07/16/12 13:54	MEJ
Chloride	mg/L	63	EPA 300.0	0.20	0.050		07/14/12 02:15	JAG
Fluoride	mg/L	2.8	EPA 300.0	0.040	0.010		07/12/12 11:50	JAG
Nitrate (as N)	mg/L	0.02 I	EPA 300.0	0.04	0.01	07/11/12 11:55	07/12/12 11:50	JAG
Nitrate+Nitrite (N)	mg/L	0.06	EPA 353.2	0.04	0.01		07/18/12 11:50	MMF
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01	07/11/12 11:55	07/12/12 11:50	JAG
Orthophosphate as P	mg/L	7.5	EPA 300.0	0.040	0.010	07/11/12 11:55	07/12/12 11:50	JAG
Sulfate	mg/L	26	EPA 300.0	0.60	0.20	07/11/12 11:55	07/12/12 11:50	JAG
Total Alkalinity	mg/L	490	SM 2320B	8.0	2.0		07/13/12 16:34	MBC
Total Kjeldahl Nitrogen	mg/L	110	EPA 351.2	0.20	0.05	07/17/12 08:42	07/18/12 10:46	MMF
Metals								
Boron	mg/L	0.054 I	EPA 200.7	0.10	0.050	07/12/12 10:35	07/13/12 11:27	VWC
Calcium	mg/L	43	EPA 200.7	0.50	0.042	07/12/12 10:35	07/13/12 11:27	VWC
Iron	mg/L	0.087 I	EPA 200.7	0.10	0.020	07/12/12 10:35	07/13/12 11:27	VWC
Magnesium	mg/L	13	EPA 200.7	0.50	0.020	07/12/12 10:35	07/13/12 11:27	VWC
Manganese	mg/L	0.033	EPA 200.7	0.010	0.0010	07/12/12 10:35	07/13/12 11:27	VWC
Potassium	mg/L	22	EPA 200.7	0.050	0.010	07/12/12 10:35	07/13/12 11:27	VWC
Sodium	mg/L	60	EPA 200.7	0.50	0.13	07/12/12 10:35	07/13/12 11:27	VWC
Microbiology								
Fecal Coliforms	CFU/100 ml	62,000	SM 9222D	1	1	07/11/12 14:18	07/12/12 12:36	HKG
Sample Description		**C-HS2-STE-Dup**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-02**						
Date/Time Collected		**07/11/12 09:20**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Field Parameters								
pH	SU	7.0	DEP FT1100	0.1	0.1		07/11/12 09:20	SAS
Water Temperature	°C	28.4	DEP FT1400	0.1	0.1		07/11/12 09:20	SAS
Specific conductance	umhos/cm	1,276	DEP FT1200	0.1	0.1		07/11/12 09:20	SAS

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10002 Princess Palm Ave, Suite 200
Tampa, FL 33619

August 15, 2012
Work Order: 1206553

Laboratory Report

Project Name **Seminole County C-HS2**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**C-HS2-STE-Dup**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-02**						
Date/Time Collected		**07/11/12 09:20**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Dissolved Oxygen	mg/L	1.0	DEP FT1500	0.1	0.1		07/11/12 09:20	SAS
Inorganics								
Ammonia as N	mg/L	82	EPA 350.1	4.0	0.95		07/16/12 17:03	MMF
Carbonaceous BOD	mg/L	110	SM 5210B	2	2	07/11/12 16:00	07/16/12 13:54	MEJ
Chloride	mg/L	63	EPA 300.0	0.20	0.050		07/14/12 02:15	JAG
Fluoride	mg/L	3.1	EPA 300.0	0.040	0.010	07/11/12 11:55	07/12/12 11:50	JAG
Nitrate (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01	07/11/12 11:55	07/12/12 11:50	JAG
Nitrate+Nitrite (N)	mg/L	0.07	EPA 353.2	0.04	0.01		07/18/12 11:53	MMF
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01	07/11/12 11:55	07/12/12 11:50	JAG
Orthophosphate as P	mg/L	7.7	EPA 300.0	0.040	0.010	07/11/12 11:55	07/12/12 11:50	JAG
Sulfate	mg/L	26	EPA 300.0	0.60	0.20	07/11/12 11:55	07/12/12 11:50	JAG
Total Alkalinity	mg/L	490	SM 2320B	8.0	2.0		07/13/12 16:34	MBC
Total Kjeldahl Nitrogen	mg/L	100	EPA 351.2	0.20	0.05	07/17/12 08:42	07/18/12 10:48	MMF
Metals								
Boron	mg/L	0.062 I	EPA 200.7	0.10	0.050	08/03/12 08:24	08/06/12 14:39	VWC
Calcium	mg/L	40	EPA 200.7	0.50	0.042	08/03/12 08:24	08/06/12 14:39	VWC
Iron	mg/L	0.082 I	EPA 200.7	0.10	0.020	08/03/12 08:24	08/06/12 14:39	VWC
Magnesium	mg/L	12	EPA 200.7	0.50	0.020	08/03/12 08:24	08/06/12 14:39	VWC
Manganese	mg/L	0.030	EPA 200.7	0.010	0.0010	08/03/12 08:24	08/06/12 14:39	VWC
Potassium	mg/L	21	EPA 200.7	0.050	0.010	08/03/12 08:24	08/06/12 14:39	VWC
Sodium	mg/L	60	EPA 200.7	0.50	0.13	08/03/12 08:24	08/06/12 14:39	VWC
Microbiology								
Fecal Coliforms	CFU/100 ml	58,000	SM 9222D	1	1	07/11/12 14:18	07/12/12 12:36	HKG
Sample Description		**C-HS2-SW-6 inch**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-03**						
Date/Time Collected		**07/10/12 08:30**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Field Parameters								
pH	SU	6.5	DEP FT1100	0.1	0.1		07/10/12 08:30	SAS
Water Temperature	°C	27.8	DEP FT1400	0.1	0.1		07/10/12 08:30	SAS
Specific conductance	umhos/cm	319	DEP FT1200	0.1	0.1		07/10/12 08:30	SAS
Dissolved Oxygen	mg/L	3.4	DEP FT1500	0.1	0.1		07/10/12 08:30	SAS
Inorganics								
Ammonia as N	mg/L	0.37	EPA 350.1	0.040	0.009		07/16/12 15:33	MMF
Chemical Oxygen Demand	mg/L	81	EPA 410.4	25	10	07/12/12 09:15	07/12/12 12:15	CDB

FDOH Laboratory No.E84129
NELAP Accredited

Francis I. Daniels, Laboratory Director
Leslie C. Boardman, Q.A. Manager

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Tampa, FL 33619

August 15, 2012
Work Order: 1206553

Laboratory Report

Project Name **Seminole County C-HS2**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**C-HS2-SW-6 inch**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-03**						
Date/Time Collected		**07/10/12 08:30**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Chloride	mg/L	38	EPA 300.0	0.20	0.050		07/14/12 02:15	JAG
Nitrate+Nitrite (N)	mg/L	0.57	EPA 353.2	0.04	0.01		07/18/12 11:55	MMF
Total Alkalinity	mg/L	54	SM 2320B	8.0	2.0		07/13/12 16:34	MBC
Total Kjeldahl Nitrogen	mg/L	1.5	EPA 351.2	0.20	0.05	07/17/12 08:42	07/18/12 10:50	MMF
Sample Description		**C-HS2-SW-M**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-04**						
Date/Time Collected		**07/10/12 08:25**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Field Parameters								
pH	SU	6.8	DEP FT1100	0.1	0.1		07/10/12 08:25	SAS
Water Temperature	°C	26.9	DEP FT1400	0.1	0.1		07/10/12 08:25	SAS
Specific conductance	umhos/cm	352	DEP FT1200	0.1	0.1		07/10/12 08:25	SAS
Dissolved Oxygen	mg/L	3.3	DEP FT1500	0.1	0.1		07/10/12 08:25	SAS
Inorganics								
Ammonia as N	mg/L	0.30	EPA 350.1	0.040	0.009		07/16/12 15:35	MMF
Chemical Oxygen Demand	mg/L	36	EPA 410.4	25	10	07/12/12 09:15	07/12/12 12:15	CDB
Chloride	mg/L	36	EPA 300.0	0.20	0.050		07/14/12 02:15	JAG
Nitrate+Nitrite (N)	mg/L	1.0	EPA 353.2	0.04	0.01		07/18/12 11:57	MMF
Total Alkalinity	mg/L	75	SM 2320B	8.0	2.0		07/13/12 16:34	MBC
Total Kjeldahl Nitrogen	mg/L	1.7	EPA 351.2	0.20	0.05	07/13/12 16:37	07/17/12 15:20	MMF
Sample Description		**C-HS2-BKG01-7**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-05**						
Date/Time Collected		**07/11/12 08:41**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Field Parameters								
pH	SU	5.8	DEP FT1100	0.1	0.1		07/11/12 08:41	SAS
Water Temperature	°C	25.7	DEP FT1400	0.1	0.1		07/11/12 08:41	SAS
Specific conductance	umhos/cm	348	DEP FT1200	0.1	0.1		07/11/12 08:41	SAS
Dissolved Oxygen	mg/L	0.3	DEP FT1500	0.1	0.1		07/11/12 08:41	SAS
Inorganics								
Ammonia as N	mg/L	0.16	EPA 350.1	0.040	0.009		07/16/12 15:37	MMF

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Sample Description		**C-HS2-BKG01-7**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-05**						
Date/Time Collected		**07/11/12 08:41**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Chemical Oxygen Demand	mg/L	71	EPA 410.4	25	10	07/12/12 09:15	07/12/12 12:15	CDB
Chloride	mg/L	37	EPA 300.0	0.20	0.050		07/14/12 02:15	JAG
Nitrate+Nitrite (N)	mg/L	5.5	EPA 353.2	0.20	0.05		07/18/12 12:46	MMF
Total Alkalinity	mg/L	24	SM 2320B	8.0	2.0		07/13/12 16:34	MBC
Total Kjeldahl Nitrogen	mg/L	2.6	EPA 351.2	0.20	0.05	07/13/12 16:37	07/17/12 15:22	MMF
Sample Description		**C-HS2-BKG02-6**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-06**						
Date/Time Collected		**07/11/12 08:20**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Field Parameters								
pH	SU	6.0	DEP FT1100	0.1	0.1		07/11/12 08:41	SAS
Water Temperature	°C	24.4	DEP FT1400	0.1	0.1		07/11/12 08:41	SAS
Specific conductance	umhos/cm	245	DEP FT1200	0.1	0.1		07/11/12 08:41	SAS
Dissolved Oxygen	mg/L	0.1	DEP FT1500	0.1	0.1		07/11/12 08:41	SAS
Inorganics								
Ammonia as N	mg/L	0.59	EPA 350.1	0.040	0.009		07/16/12 15:39	MMF
Chemical Oxygen Demand	mg/L	55	EPA 410.4	25	10	07/12/12 09:15	07/12/12 12:15	CDB
Chloride	mg/L	44	EPA 300.0	0.20	0.050		07/14/12 02:15	JAG
Nitrate+Nitrite (N)	mg/L	0.03 I	EPA 353.2	0.04	0.01		07/18/12 12:01	MMF
Total Alkalinity	mg/L	43	SM 2320B	8.0	2.0		07/13/12 16:34	MBC
Total Kjeldahl Nitrogen	mg/L	1.4	EPA 351.2	0.20	0.05	07/13/12 16:37	07/17/12 15:24	MMF
Sample Description		**C-HS2-BKG06-12**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-09**						
Date/Time Collected		**07/11/12 09:05**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Field Parameters								
pH	SU	5.8	DEP FT1100	0.1	0.1		07/11/12 09:05	SAS
Water Temperature	°C	25.4	DEP FT1400	0.1	0.1		07/11/12 09:05	SAS
Specific conductance	umhos/cm	681	DEP FT1200	0.1	0.1		07/11/12 09:05	SAS
Dissolved Oxygen	mg/L	0.9	DEP FT1500	0.1	0.1		07/11/12 09:05	SAS
Inorganics								

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Sample Description		**C-HS2-BKG06-12**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-09**						
Date/Time Collected		**07/11/12 09:05**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Ammonia as N	mg/L	0.048	EPA 350.1	0.040	0.009		07/16/12 15:41	MMF
Chemical Oxygen Demand	mg/L	48	EPA 410.4	25	10	07/12/12 09:15	07/12/12 12:15	CDB
Chloride	mg/L	55	EPA 300.0	0.20	0.050		07/14/12 02:15	JAG
Nitrate+Nitrite (N)	mg/L	5.6	EPA 353.2	0.80	0.20		07/18/12 13:20	MMF
Total Alkalinity	mg/L	43	SM 2320B	8.0	2.0		07/13/12 16:34	MBC
Total Kjeldahl Nitrogen	mg/L	2.9	EPA 351.2	0.20	0.05	07/13/12 16:37	07/17/12 15:25	MMF
Sample Description		**C-HS2-A07-6**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-13**						
Date/Time Collected		**07/10/12 14:40**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Field Parameters								
pH	SU	5.9	DEP FT1100	0.1	0.1		07/10/12 14:40	RJS
Water Temperature	°C	26.3	DEP FT1400	0.1	0.1		07/10/12 14:40	RJS
Specific conductance	umhos/cm	242	DEP FT1200	0.1	0.1		07/10/12 14:40	RJS
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		07/10/12 14:40	RJS
Inorganics								
Ammonia as N	mg/L	0.072	EPA 350.1	0.040	0.009		07/16/12 15:43	MMF
Chemical Oxygen Demand	mg/L	200	EPA 410.4	25	10	07/13/12 09:00	07/13/12 16:25	CDB
Chloride	mg/L	5.7	EPA 300.0	0.20	0.050		07/14/12 02:15	JAG
Nitrate+Nitrite (N)	mg/L	0.16	EPA 353.2	0.04	0.01		07/18/12 12:06	MMF
Total Alkalinity	mg/L	97	SM 2320B	8.0	2.0		07/13/12 16:34	MBC
Total Kjeldahl Nitrogen	mg/L	2.7	EPA 351.2	0.20	0.05	07/13/12 16:37	07/17/12 15:27	MMF
Sample Description		**C-HS2-A07-8**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-14**						
Date/Time Collected		**07/10/12 15:10**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Field Parameters								
pH	SU	6.0	DEP FT1100	0.1	0.1		07/10/12 15:10	RJS
Water Temperature	°C	25.5	DEP FT1400	0.1	0.1		07/10/12 15:10	RJS
Specific conductance	umhos/cm	466	DEP FT1200	0.1	0.1		07/10/12 15:10	RJS
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		07/10/12 15:10	RJS

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Sample Description		**C-HS2-A07-8**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-14**						
Date/Time Collected		**07/10/12 15:10**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Inorganics								
Ammonia as N	mg/L	0.032 I	EPA 350.1	0.040	0.009		07/16/12 15:45	MMF
Chemical Oxygen Demand	mg/L	130	EPA 410.4	25	10	07/13/12 09:00	07/13/12 16:25	CDB
Chloride	mg/L	22	EPA 300.0	0.20	0.050		07/12/12 11:50	JAG
Fluoride	mg/L	0.24	EPA 300.0	0.040	0.010	07/11/12 11:55	07/12/12 11:50	JAG
Nitrate (as N)	mg/L	20	EPA 300.0	0.04	0.01	07/11/12 11:55	07/12/12 11:50	JAG
Nitrate+Nitrite (N)	mg/L	24	EPA 353.2	0.80	0.20		07/18/12 13:22	MMF
Nitrite (as N)	mg/L	0.07	EPA 300.0	0.04	0.01	07/11/12 11:55	07/12/12 11:50	JAG
Orthophosphate as P	mg/L	2.0	EPA 300.0	0.040	0.010	07/11/12 11:55	07/12/12 11:50	JAG
Sulfate	mg/L	30	EPA 300.0	0.60	0.20	07/11/12 11:55	07/12/12 11:50	JAG
Total Alkalinity	mg/L	65	SM 2320B	8.0	2.0		07/13/12 16:34	MBC
Total Kjeldahl Nitrogen	mg/L	4.9	EPA 351.2	0.20	0.05	07/13/12 16:37	07/17/12 15:29	MMF
Total Organic Carbon	mg/L	54	SM 5310B	1.0	0.50		07/18/12 13:14	MEJ
Magnesium Hardness as CaCO3	mg/L	43	SM2340B	2.1	0.082	07/12/12 10:35	07/13/12 11:37	VWC
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	53	SM 5310B	1.0	0.50		07/12/12 09:40	ARP
Metals								
Boron	mg/L	0.075 I	EPA 200.7	0.10	0.050	07/12/12 10:35	07/13/12 11:37	VWC
Calcium	mg/L	45	EPA 200.7	0.50	0.042	07/12/12 10:35	07/13/12 11:37	VWC
Iron	mg/L	0.26	EPA 200.7	0.10	0.020	07/12/12 10:35	07/13/12 11:37	VWC
Magnesium	mg/L	11	EPA 200.7	0.50	0.020	07/12/12 10:35	07/13/12 11:37	VWC
Potassium	mg/L	23	EPA 200.7	0.050	0.010	07/12/12 10:35	07/13/12 11:37	VWC
Sodium	mg/L	30	EPA 200.7	0.50	0.13	07/12/12 10:35	07/13/12 11:37	VWC
Sample Description		**C-HS2-A07-11**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-15**						
Date/Time Collected		**07/10/12 15:35**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Field Parameters								
pH	SU	4.8	DEP FT1100	0.1	0.1		07/10/12 15:35	RJS
Water Temperature	°C	25.0	DEP FT1400	0.1	0.1		07/10/12 15:35	RJS
Specific conductance	umhos/cm	179	DEP FT1200	0.1	0.1		07/10/12 15:35	RJS
Dissolved Oxygen	mg/L	0.3	DEP FT1500	0.1	0.1		07/10/12 15:35	RJS
Inorganics								
Ammonia as N	mg/L	0.21	EPA 350.1	0.040	0.009		07/16/12 15:47	MMF

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Sample Description		**C-HS2-A07-11**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-15**						
Date/Time Collected		**07/10/12 15:35**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Chemical Oxygen Demand	mg/L	15 I	EPA 410.4	25	10	07/12/12 09:15	07/12/12 12:15	CDB
Chloride	mg/L	24	EPA 300.0	0.20	0.050		07/14/12 02:15	JAG
Nitrate+Nitrite (N)	mg/L	1.2	EPA 353.2	0.04	0.01		07/18/12 12:10	MMF
Total Alkalinity	mg/L	2.0 U	SM 2320B	8.0	2.0		07/13/12 16:34	MBC
Total Kjeldahl Nitrogen	mg/L	0.94	EPA 351.2	0.20	0.05	07/13/12 16:37	07/17/12 15:30	MMF
Sample Description		**C-HS2-A10-7**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-19**						
Date/Time Collected		**07/10/12 13:25**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Field Parameters								
pH	SU	6.7	DEP FT1100	0.1	0.1		07/10/12 13:25	RJS
Water Temperature	°C	29.5	DEP FT1400	0.1	0.1		07/10/12 13:25	RJS
Specific conductance	umhos/cm	950	DEP FT1200	0.1	0.1		07/10/12 13:25	RJS
Dissolved Oxygen	mg/L	0.4	DEP FT1500	0.1	0.1		07/10/12 13:25	RJS
Inorganics								
Ammonia as N	mg/L	7.6	EPA 350.1	0.40	0.095		07/16/12 17:06	MMF
Chemical Oxygen Demand	mg/L	63	EPA 410.4	25	10	07/12/12 09:15	07/12/12 12:15	CDB
Chloride	mg/L	27	EPA 300.0	0.20	0.050		07/14/12 02:15	JAG
Nitrate+Nitrite (N)	mg/L	0.02 I	EPA 353.2	0.04	0.01		07/18/12 12:12	MMF
Total Alkalinity	mg/L	430	SM 2320B	8.0	2.0		07/13/12 16:34	MBC
Total Kjeldahl Nitrogen	mg/L	12	EPA 351.2	0.20	0.05	07/13/12 16:37	07/17/12 16:14	MMF
Sample Description		**C-HS2-A10-9-Dup**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-20**						
Date/Time Collected		**07/10/12 13:55**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Field Parameters								
pH	SU	6.4	DEP FT1100	0.1	0.1		07/10/12 13:55	RJS
Water Temperature	°C	27.7	DEP FT1400	0.1	0.1		07/10/12 13:55	RJS
Specific conductance	umhos/cm	717	DEP FT1200	0.1	0.1		07/10/12 13:55	RJS
Dissolved Oxygen	mg/L	0.3	DEP FT1500	0.1	0.1		07/10/12 13:55	RJS
Inorganics								

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Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**C-HS2-A10-9-Dup**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-20**						
Date/Time Collected		**07/10/12 13:55**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Ammonia as N	mg/L	7.9	EPA 350.1	0.40	0.095		07/16/12 17:08	MMF
Chemical Oxygen Demand	mg/L	63	EPA 410.4	25	10	07/12/12 09:15	07/12/12 12:15	CDB
Chloride	mg/L	43	EPA 300.0	0.20	0.050		07/14/12 02:15	JAG
Nitrate+Nitrite (N)	mg/L	3.5	EPA 353.2	0.20	0.05		07/18/12 13:35	MMF
Total Alkalinity	mg/L	230	SM 2320B	8.0	2.0		07/13/12 16:34	MBC
Total Kjeldahl Nitrogen	mg/L	11	EPA 351.2	0.20	0.05	07/13/12 16:37	07/17/12 16:15	MMF
Sample Description		**C-HS2-A10-9**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-21**						
Date/Time Collected		**07/10/12 13:50**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Field Parameters								
pH	SU	6.4	DEP FT1100	0.1	0.1		07/10/12 13:50	RJS
Water Temperature	°C	27.7	DEP FT1400	0.1	0.1		07/10/12 13:50	RJS
Specific conductance	umhos/cm	717	DEP FT1200	0.1	0.1		07/10/12 13:50	RJS
Dissolved Oxygen	mg/L	0.3	DEP FT1500	0.1	0.1		07/10/12 13:50	RJS
Inorganics								
Ammonia as N	mg/L	6.7	EPA 350.1	0.40	0.095		07/16/12 17:10	MMF
Chemical Oxygen Demand	mg/L	73	EPA 410.4	25	10	07/12/12 09:15	07/12/12 12:15	CDB
Chloride	mg/L	44	EPA 300.0	0.20	0.050		07/14/12 02:15	JAG
Nitrate+Nitrite (N)	mg/L	3.6	EPA 353.2	0.20	0.05		07/18/12 13:36	MMF
Total Alkalinity	mg/L	230	SM 2320B	8.0	2.0		07/13/12 16:34	MBC
Total Kjeldahl Nitrogen	mg/L	11	EPA 351.2	0.20	0.05	07/13/12 16:37	07/17/12 16:17	MMF
Sample Description		**C-HS2-A10-12**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-22**						
Date/Time Collected		**07/10/12 14:10**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Field Parameters								
pH	SU	4.8	DEP FT1100	0.1	0.1		07/10/12 14:10	RJS
Water Temperature	°C	26.0	DEP FT1400	0.1	0.1		07/10/12 14:10	RJS
Specific conductance	umhos/cm	168	DEP FT1200	0.1	0.1		07/10/12 14:10	RJS
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		07/10/12 14:10	RJS

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Sample Description		**C-HS2-A10-12**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-22**						
Date/Time Collected		**07/10/12 14:10**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Inorganics								
Ammonia as N	mg/L	0.38	EPA 350.1	0.040	0.009		07/16/12 16:00	MMF
Chemical Oxygen Demand	mg/L	22 I	EPA 410.4	25	10	07/12/12 09:15	07/12/12 12:15	CDB
Chloride	mg/L	34	EPA 300.0	0.20	0.050		07/14/12 02:15	JAG
Nitrate+Nitrite (N)	mg/L	0.05	EPA 353.2	0.04	0.01		07/18/12 12:23	MMF
Total Alkalinity	mg/L	6.3 I	SM 2320B	8.0	2.0		07/13/12 16:34	MBC
Total Kjeldahl Nitrogen	mg/L	0.73	EPA 351.2	0.20	0.05	07/13/12 16:37	07/17/12 15:40	MMF
Sample Description		**C-HS2-A11-5**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-23**						
Date/Time Collected		**07/10/12 11:57**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Field Parameters								
pH	SU	6.5	DEP FT1100	0.1	0.1		07/10/12 11:57	RJS
Water Temperature	°C	29.3	DEP FT1400	0.1	0.1		07/10/12 11:57	RJS
Specific conductance	umhos/cm	679	DEP FT1200	0.1	0.1		07/10/12 11:57	RJS
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		07/10/12 11:57	RJS
Inorganics								
Ammonia as N	mg/L	5.4	EPA 350.1	0.40	0.095		07/16/12 17:11	MMF
Chemical Oxygen Demand	mg/L	83	EPA 410.4	25	10	07/12/12 09:15	07/12/12 12:15	CDB
Chloride	mg/L	6.2	EPA 300.0	0.20	0.050		07/12/12 11:50	JAG
Fluoride	mg/L	0.12	EPA 300.0	0.040	0.010	07/11/12 11:55	07/12/12 11:50	JAG
Nitrate (as N)	mg/L	0.10	EPA 300.0	0.04	0.01	07/11/12 11:55	07/12/12 11:50	JAG
Nitrate+Nitrite (N)	mg/L	0.02 I	EPA 353.2	0.04	0.01		07/18/12 12:26	MMF
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01	07/11/12 11:55	07/12/12 11:50	JAG
Orthophosphate as P	mg/L	0.052	EPA 300.0	0.040	0.010	07/11/12 11:55	07/12/12 11:50	JAG
Sulfate	mg/L	9.9	EPA 300.0	0.60	0.20	07/11/12 11:55	07/12/12 11:50	JAG
Total Alkalinity	mg/L	320	SM 2320B	8.0	2.0		07/13/12 16:34	MBC
Total Kjeldahl Nitrogen	mg/L	9.6	EPA 351.2	0.20	0.05	07/13/12 16:37	07/17/12 16:18	MMF
Total Organic Carbon	mg/L	38	SM 5310B	1.0	0.50		07/18/12 13:14	MEJ
Magnesium Hardness as CaCO3	mg/L	32	SM2340B	2.1	0.082	07/12/12 10:35	07/13/12 11:40	VWC
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	34	SM 5310B	1.0	0.50		07/12/12 09:40	ARP
Metals								
Boron	mg/L	0.050 U	EPA 200.7	0.10	0.050	07/12/12 10:35	07/13/12 11:40	VWC

FDOH Laboratory No.E84129
NELAP Accredited

Francis I. Daniels, Laboratory Director
Leslie C. Boardman, Q.A. Manager

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Laboratory Report

Project Name **Seminole County C-HS2**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**C-HS2-A11-5**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-23**						
Date/Time Collected		**07/10/12 11:57**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Calcium	mg/L	130	EPA 200.7	0.50	0.042	07/12/12 10:35	07/13/12 11:40	VWC
Iron	mg/L	2.6	EPA 200.7	0.10	0.020	07/12/12 10:35	07/13/12 11:40	VWC
Magnesium	mg/L	7.9	EPA 200.7	0.50	0.020	07/12/12 10:35	07/13/12 11:40	VWC
Potassium	mg/L	12	EPA 200.7	0.050	0.010	07/12/12 10:35	07/13/12 11:40	VWC
Sodium	mg/L	7.0	EPA 200.7	0.50	0.13	07/12/12 10:35	07/13/12 11:40	VWC
Sample Description		**C-HS2-A11-7**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-24**						
Date/Time Collected		**07/10/12 12:50**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Field Parameters								
pH	SU	6.1	DEP FT1100	0.1	0.1		07/10/12 12:50	RJS
Water Temperature	°C	26.4	DEP FT1400	0.1	0.1		07/10/12 12:50	RJS
Specific conductance	umhos/cm	447	DEP FT1200	0.1	0.1		07/10/12 12:50	RJS
Dissolved Oxygen	mg/L	0.4	DEP FT1500	0.1	0.1		07/10/12 12:50	RJS
Inorganics								
Ammonia as N	mg/L	0.10	EPA 350.1	0.040	0.009		07/16/12 16:04	MMF
Chemical Oxygen Demand	mg/L	130	EPA 410.4	25	10	07/13/12 09:00	07/13/12 16:25	CDB
Chloride	mg/L	15	EPA 300.0	0.20	0.050		07/14/12 10:28	JAG
Nitrate+Nitrite (N)	mg/L	8.4	EPA 353.2	0.20	0.05		07/18/12 12:54	MMF
Total Alkalinity	mg/L	130	SM 2320B	8.0	2.0		07/13/12 16:34	MBC
Total Kjeldahl Nitrogen	mg/L	4.0	EPA 351.2	0.20	0.05	07/13/12 16:37	07/17/12 15:42	MMF
Sample Description		**C-HS2-A11-10**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-25**						
Date/Time Collected		**07/10/12 13:02**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Field Parameters								
pH	SU	4.9	DEP FT1100	0.1	0.1		07/10/12 13:02	RJS
Water Temperature	°C	26.3	DEP FT1400	0.1	0.1		07/10/12 13:02	RJS
Specific conductance	umhos/cm	166	DEP FT1200	0.1	0.1		07/10/12 13:02	RJS
Dissolved Oxygen	mg/L	0.3	DEP FT1500	0.1	0.1		07/10/12 13:02	RJS
Inorganics								

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Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**C-HS2-A11-10**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-25**						
Date/Time Collected		**07/10/12 13:02**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Ammonia as N	mg/L	0.40	EPA 350.1	0.040	0.009		07/16/12 16:06	MMF
Chemical Oxygen Demand	mg/L	15 I	EPA 410.4	25	10	07/12/12 09:15	07/12/12 12:15	CDB
Chloride	mg/L	40	EPA 300.0	0.20	0.050		07/14/12 10:28	JAG
Nitrate+Nitrite (N)	mg/L	0.04	EPA 353.2	0.04	0.01		07/18/12 12:30	MMF
Total Alkalinity	mg/L	4.2 I	SM 2320B	8.0	2.0		07/13/12 16:34	MBC
Total Kjeldahl Nitrogen	mg/L	0.71	EPA 351.2	0.20	0.05	07/13/12 16:37	07/17/12 15:44	MMF
Sample Description		**C-HS2-A13-5**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-26**						
Date/Time Collected		**07/10/12 15:55**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Field Parameters								
pH	SU	5.4	DEP FT1100	0.1	0.1		07/10/12 13:55	RJS
Water Temperature	°C	28.6	DEP FT1400	0.1	0.1		07/10/12 13:55	RJS
Specific conductance	umhos/cm	186	DEP FT1200	0.1	0.1		07/10/12 13:55	RJS
Dissolved Oxygen	mg/L	0.3	DEP FT1500	0.1	0.1		07/10/12 13:55	RJS
Inorganics								
Ammonia as N	mg/L	0.14	EPA 350.1	0.040	0.009		07/16/12 16:08	MMF
Chemical Oxygen Demand	mg/L	94	EPA 410.4	25	10	07/12/12 09:15	07/12/12 12:15	CDB
Chloride	mg/L	7.5	EPA 300.0	0.20	0.050		07/14/12 10:28	JAG
Nitrate+Nitrite (N)	mg/L	0.03 I	EPA 353.2	0.04	0.01		07/18/12 12:32	MMF
Total Alkalinity	mg/L	32	SM 2320B	8.0	2.0		07/13/12 16:34	MBC
Total Kjeldahl Nitrogen	mg/L	1.7	EPA 351.2	0.20	0.05	07/13/12 16:37	07/17/12 15:45	MMF
Sample Description		**C-HS2-A13-7**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-27**						
Date/Time Collected		**07/10/12 16:08**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Field Parameters								
pH	SU	4.7	DEP FT1100	0.1	0.1		07/10/12 16:08	RJS
Water Temperature	°C	27.3	DEP FT1400	0.1	0.1		07/10/12 16:08	RJS
Specific conductance	umhos/cm	218	DEP FT1200	0.1	0.1		07/10/12 16:08	RJS
Dissolved Oxygen	mg/L	0.1	DEP FT1500	0.1	0.1		07/10/12 16:08	RJS

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Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**C-HS2-A13-7**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-27**						
Date/Time Collected		**07/10/12 16:08**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Inorganics								
Ammonia as N	mg/L	0.33	EPA 350.1	0.040	0.009		07/16/12 16:10	MMF
Chemical Oxygen Demand	mg/L	34	EPA 410.4	25	10	07/12/12 09:15	07/12/12 12:15	CDB
Chloride	mg/L	44	EPA 300.0	0.20	0.050		07/14/12 10:28	JAG
Nitrate+Nitrite (N)	mg/L	0.02 I	EPA 353.2	0.04	0.01		07/18/12 12:34	MMF
Total Alkalinity	mg/L	2.0 U	SM 2320B	8.0	2.0		07/13/12 16:34	MBC
Total Kjeldahl Nitrogen	mg/L	1.0	EPA 351.2	0.20	0.05	07/13/12 16:37	07/17/12 15:46	MMF
Sample Description		**C-HS2-A13-10**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-28**						
Date/Time Collected		**07/10/12 16:21**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Field Parameters								
pH	SU	4.7	DEP FT1100	0.1	0.1		07/10/12 16:21	SAS
Water Temperature	°C	25.3	DEP FT1400	0.1	0.1		07/10/12 16:21	SAS
Specific conductance	umhos/cm	160	DEP FT1200	0.1	0.1		07/10/12 16:21	SAS
Dissolved Oxygen	mg/L	0.6	DEP FT1500	0.1	0.1		07/10/12 16:21	SAS
Inorganics								
Ammonia as N	mg/L	0.45	EPA 350.1	0.040	0.009		07/16/12 16:12	MMF
Chemical Oxygen Demand	mg/L	15 I	EPA 410.4	25	10	07/12/12 09:15	07/12/12 12:15	CDB
Chloride	mg/L	42	EPA 300.0	0.20	0.050		07/14/12 10:28	JAG
Nitrate+Nitrite (N)	mg/L	0.02 I	EPA 353.2	0.04	0.01		07/18/12 12:37	MMF
Total Alkalinity	mg/L	2.1 I	SM 2320B	8.0	2.0		07/13/12 16:34	MBC
Total Kjeldahl Nitrogen	mg/L	0.75	EPA 351.2	0.20	0.05	07/13/12 16:36	07/17/12 14:34	MMF
Sample Description		**C-HS2-B02-6**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-29**						
Date/Time Collected		**07/10/12 09:25**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Field Parameters								
pH	SU	6.2	DEP FT1100	0.1	0.1		07/10/12 09:25	SAS
Water Temperature	°C	27.0	DEP FT1400	0.1	0.1		07/10/12 09:25	SAS
Specific conductance	umhos/cm	472	DEP FT1200	0.1	0.1		07/10/12 09:25	SAS

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Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**C-HS2-B02-6**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-29**						
Date/Time Collected		**07/10/12 09:25**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Dissolved Oxygen	mg/L	0.1 U	DEP FT1500	0.1	0.1		07/10/12 09:25	SAS
Inorganics								
Ammonia as N	mg/L	0.11	EPA 350.1	0.040	0.009		07/16/12 16:25	MMF
Chemical Oxygen Demand	mg/L	69	EPA 410.4	25	10	07/12/12 09:15	07/12/12 12:15	CDB
Chloride	mg/L	42	EPA 300.0	0.20	0.050		07/14/12 10:28	JAG
Fluoride	mg/L	0.047	EPA 300.0	0.040	0.010	07/11/12 11:55	07/12/12 09:00	JAG
Nitrate (as N)	mg/L	5.9	EPA 300.0	0.04	0.01	07/11/12 11:55	07/12/12 09:00	JAG
Nitrate+Nitrite (N)	mg/L	6.8	EPA 353.2	0.20	0.05		07/18/12 15:02	MMF
Nitrite (as N)	mg/L	0.06	EPA 300.0	0.04	0.01	07/11/12 11:55	07/12/12 09:00	JAG
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010	07/11/12 11:55	07/12/12 09:00	JAG
Sulfate	mg/L	37	EPA 300.0	0.60	0.20	07/11/12 11:55	07/12/12 09:00	JAG
Total Alkalinity	mg/L	75	SM 2320B	8.0	2.0		07/13/12 16:34	MBC
Total Kjeldahl Nitrogen	mg/L	3.2	EPA 351.2	0.20	0.05	07/13/12 16:36	07/17/12 14:35	MMF
Total Organic Carbon	mg/L	32	SM 5310B	1.0	0.50		07/18/12 13:14	MEJ
Magnesium Hardness as CaCO3	mg/L	27	SM2340B	2.1	0.082	07/12/12 10:35	07/13/12 11:43	VWC
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	28	SM 5310B	1.0	0.50		07/12/12 09:40	ARP
Metals								
Boron	mg/L	0.050 U	EPA 200.7	0.10	0.050	07/12/12 10:35	07/13/12 11:43	VWC
Calcium	mg/L	54	EPA 200.7	0.50	0.042	07/12/12 10:35	07/13/12 11:43	VWC
Iron	mg/L	0.078 I	EPA 200.7	0.10	0.020	07/12/12 10:35	07/13/12 11:43	VWC
Magnesium	mg/L	6.5	EPA 200.7	0.50	0.020	07/12/12 10:35	07/13/12 11:43	VWC
Potassium	mg/L	11	EPA 200.7	0.050	0.010	07/12/12 10:35	07/13/12 11:43	VWC
Sodium	mg/L	27	EPA 200.7	0.50	0.13	07/12/12 10:35	07/13/12 11:43	VWC
Sample Description		**C-HS2-B02-8**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-30**						
Date/Time Collected		**07/10/12 09:38**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Field Parameters								
pH	SU	6.6	DEP FT1100	0.1	0.1		07/10/12 09:38	SAS
Water Temperature	°C	26.5	DEP FT1400	0.1	0.1		07/10/12 09:38	SAS
Specific conductance	umhos/cm	516	DEP FT1200	0.1	0.1		07/10/12 09:38	SAS
Dissolved Oxygen	mg/L	0.1 U	DEP FT1500	0.1	0.1		07/10/12 09:38	SAS
Inorganics								

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Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**C-HS2-B02-8**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-30**						
Date/Time Collected		**07/10/12 09:38**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Ammonia as N	mg/L	0.51	EPA 350.1	0.040	0.009		07/16/12 16:27	MMF
Chemical Oxygen Demand	mg/L	38	EPA 410.4	25	10	07/12/12 13:20	07/12/12 16:20	CDB
Chloride	mg/L	100	EPA 300.0	0.20	0.050		07/16/12 16:31	JAG
Nitrate+Nitrite (N)	mg/L	0.02 I	EPA 353.2	0.04	0.01	07/16/12 10:50	07/16/12 13:53	MMF
Total Alkalinity	mg/L	110	SM 2320B	8.0	2.0		07/13/12 16:34	MBC
Total Kjeldahl Nitrogen	mg/L	1.2	EPA 351.2	0.20	0.05	07/13/12 16:36	07/17/12 14:37	MMF
Sample Description		**C-HS2-B02-11**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-31**						
Date/Time Collected		**07/10/12 09:56**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Field Parameters								
pH	SU	6.1	DEP FT1100	0.1	0.1		07/10/12 09:56	SAS
Water Temperature	°C	25.3	DEP FT1400	0.1	0.1		07/10/12 09:56	SAS
Specific conductance	umhos/cm	225	DEP FT1200	0.1	0.1		07/10/12 09:56	SAS
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		07/10/12 09:56	SAS
Inorganics								
Ammonia as N	mg/L	0.52	EPA 350.1	0.040	0.009		07/16/12 16:29	MMF
Chemical Oxygen Demand	mg/L	24 I	EPA 410.4	25	10	07/12/12 13:20	07/12/12 16:20	CDB
Chloride	mg/L	53	EPA 300.0	0.20	0.050		07/16/12 16:31	JAG
Nitrate+Nitrite (N)	mg/L	0.04	EPA 353.2	0.04	0.01	07/16/12 10:50	07/16/12 13:56	MMF
Total Alkalinity	mg/L	22	SM 2320B	8.0	2.0		07/13/12 16:34	MBC
Total Kjeldahl Nitrogen	mg/L	1.0	EPA 351.2	0.20	0.05	07/13/12 16:36	07/17/12 14:39	MMF
Sample Description		**C-HS2-B06-6**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-32**						
Date/Time Collected		**07/10/12 11:06**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Field Parameters								
pH	SU	5.7	DEP FT1100	0.1	0.1		07/10/12 11:06	RJS
Water Temperature	°C	26.1	DEP FT1400	0.1	0.1		07/10/12 11:06	RJS
Specific conductance	umhos/cm	353	DEP FT1200	0.1	0.1		07/10/12 11:06	RJS
Dissolved Oxygen	mg/L	0.4	DEP FT1500	0.1	0.1		07/10/12 11:06	RJS

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Sample Description		**C-HS2-B06-6**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-32**						
Date/Time Collected		**07/10/12 11:06**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Inorganics								
Ammonia as N	mg/L	0.13	EPA 350.1	0.040	0.009		07/16/12 16:30	MMF
Chemical Oxygen Demand	mg/L	40	EPA 410.4	25	10	07/12/12 13:20	07/12/12 16:20	CDB
Chloride	mg/L	23	EPA 300.0	0.20	0.050		07/16/12 16:31	JAG
Nitrate+Nitrite (N)	mg/L	9.5	EPA 353.2	0.20	0.05	07/16/12 10:50	07/16/12 14:49	MMF
Total Alkalinity	mg/L	43	SM 2320B	8.0	2.0		07/13/12 16:34	MBC
Total Kjeldahl Nitrogen	mg/L	2.6	EPA 351.2	0.20	0.05	07/13/12 16:36	07/17/12 14:40	MMF
Sample Description		**C-HS2-B06-8**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-33**						
Date/Time Collected		**07/10/12 11:20**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Field Parameters								
pH	SU	5.3	DEP FT1100	0.1	0.1		07/10/12 11:20	RJS
Water Temperature	°C	25.6	DEP FT1400	0.1	0.1		07/10/12 11:20	RJS
Specific conductance	umhos/cm	219	DEP FT1200	0.1	0.1		07/10/12 11:20	RJS
Dissolved Oxygen	mg/L	0.1 U	DEP FT1500	0.1	0.1		07/10/12 11:20	RJS
Inorganics								
Ammonia as N	mg/L	0.51	EPA 350.1	0.040	0.009		07/16/12 10:24	MMF
Chemical Oxygen Demand	mg/L	22 I	EPA 410.4	25	10	07/12/12 13:20	07/12/12 16:20	CDB
Chloride	mg/L	41	EPA 300.0	0.20	0.050		07/14/12 10:28	JAG
Nitrate+Nitrite (N)	mg/L	0.06	EPA 353.2	0.04	0.01	07/16/12 10:50	07/16/12 14:00	MMF
Total Alkalinity	mg/L	13	SM 2320B	8.0	2.0		07/13/12 16:34	MBC
Total Kjeldahl Nitrogen	mg/L	1.1	EPA 351.2	0.20	0.05	07/13/12 16:36	07/17/12 14:42	MMF
Sample Description		**C-HS2-B06-11**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-34**						
Date/Time Collected		**07/10/12 11:35**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Field Parameters								
pH	SU	5.0	DEP FT1100	0.1	0.1		07/10/12 11:35	RJS
Water Temperature	°C	24.7	DEP FT1400	0.1	0.1		07/10/12 11:35	RJS
Specific conductance	umhos/cm	154	DEP FT1200	0.1	0.1		07/10/12 11:35	RJS

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Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**C-HS2-B06-11**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-34**						
Date/Time Collected		**07/10/12 11:35**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Dissolved Oxygen	mg/L	0.3	DEP FT1500	0.1	0.1		07/10/12 11:35	RJS
Inorganics								
Ammonia as N	mg/L	0.57	EPA 350.1	0.040	0.009		07/16/12 10:26	MMF
Chemical Oxygen Demand	mg/L	18 I	EPA 410.4	25	10	07/12/12 13:20	07/12/12 16:20	CDB
Chloride	mg/L	38	EPA 300.0	0.20	0.050		07/16/12 16:31	JAG
Nitrate+Nitrite (N)	mg/L	0.04	EPA 353.2	0.04	0.01	07/16/12 10:50	07/16/12 14:02	MMF
Total Alkalinity	mg/L	11	SM 2320B	8.0	2.0	07/17/12 09:00	07/17/12 16:56	AES
Total Kjeldahl Nitrogen	mg/L	1.0	EPA 351.2	0.20	0.05	07/13/12 16:36	07/17/12 14:44	MMF
Sample Description		**C-HS2-B08-5**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-35**						
Date/Time Collected		**07/10/12 10:00**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Field Parameters								
pH	SU	5.6	DEP FT1100	0.1	0.1		07/10/12 10:00	RJS
Water Temperature	°C	25.9	DEP FT1400	0.1	0.1		07/10/12 10:00	RJS
Specific conductance	umhos/cm	579	DEP FT1200	0.1	0.1		07/10/12 10:00	RJS
Dissolved Oxygen	mg/L	0.6	DEP FT1500	0.1	0.1		07/10/12 10:00	RJS
Inorganics								
Ammonia as N	mg/L	0.026 I	EPA 350.1	0.040	0.009		07/16/12 14:30	MMF
Chemical Oxygen Demand	mg/L	81	EPA 410.4	25	10	07/12/12 13:20	07/12/12 16:20	CDB
Chloride	mg/L	34	EPA 300.0	0.20	0.050		07/12/12 09:00	JAG
Fluoride	mg/L	0.057	EPA 300.0	0.040	0.010	07/11/12 11:55	07/12/12 09:00	JAG
Nitrate (as N)	mg/L	28	EPA 300.0	0.04	0.01	07/11/12 11:55	07/12/12 09:00	JAG
Nitrate+Nitrite (N)	mg/L	35	EPA 353.2	1.0	0.25	07/16/12 10:50	07/16/12 15:00	MMF
Nitrite (as N)	mg/L	0.10	EPA 300.0	0.04	0.01	07/11/12 11:55	07/12/12 09:00	JAG
Orthophosphate as P	mg/L	0.49	EPA 300.0	0.040	0.010	07/11/12 11:55	07/12/12 09:00	JAG
Sulfate	mg/L	48	EPA 300.0	0.60	0.20	07/11/12 11:55	07/12/12 09:00	JAG
Total Alkalinity	mg/L	32	SM 2320B	8.0	2.0	07/17/12 09:00	07/17/12 16:56	AES
Total Kjeldahl Nitrogen	mg/L	4.7	EPA 351.2	0.20	0.05	07/13/12 16:36	07/17/12 14:45	MMF
Total Organic Carbon	mg/L	43	SM 5310B	1.0	0.50		07/18/12 13:14	MEJ
Magnesium Hardness as CaCO3	mg/L	42	SM2340B	2.1	0.082	07/12/12 10:35	07/13/12 11:55	VWC
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	37	SM 5310B	1.0	0.50		07/12/12 09:40	ARP
Metals								

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Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**C-HS2-B08-5**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-35**						
Date/Time Collected		**07/10/12 10:00**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Boron	mg/L	0.062 I	EPA 200.7	0.10	0.050	07/12/12 10:35	07/13/12 11:55	VWC
Calcium	mg/L	62	EPA 200.7	0.50	0.042	07/12/12 10:35	07/13/12 11:55	VWC
Iron	mg/L	0.12	EPA 200.7	0.10	0.020	07/12/12 10:35	07/13/12 11:55	VWC
Magnesium	mg/L	10	EPA 200.7	0.50	0.020	07/12/12 10:35	07/13/12 11:55	VWC
Potassium	mg/L	14	EPA 200.7	0.050	0.010	07/12/12 10:35	07/13/12 11:55	VWC
Sodium	mg/L	32	EPA 200.7	0.50	0.13	07/12/12 10:35	07/13/12 11:55	VWC
Sample Description		**C-HS2-B08-5-Dup**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-36**						
Date/Time Collected		**07/10/12 10:00**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Field Parameters								
pH	SU	5.6	DEP FT1100	0.1	0.1		07/10/12 10:00	RJS
Water Temperature	°C	25.9	DEP FT1400	0.1	0.1		07/10/12 10:00	RJS
Specific conductance	umhos/cm	579	DEP FT1200	0.1	0.1		07/10/12 10:00	RJS
Dissolved Oxygen	mg/L	0.6	DEP FT1500	0.1	0.1		07/10/12 10:00	RJS
Inorganics								
Ammonia as N	mg/L	0.034 I	EPA 350.1	0.040	0.009		07/16/12 14:48	MMF
Chemical Oxygen Demand	mg/L	81	EPA 410.4	25	10	07/12/12 13:20	07/12/12 16:20	CDB
Chloride	mg/L	33	EPA 300.0	0.20	0.050		07/12/12 09:00	JAG
Fluoride	mg/L	0.052	EPA 300.0	0.040	0.010	07/11/12 11:55	07/12/12 09:00	JAG
Nitrate (as N)	mg/L	30	EPA 300.0	0.04	0.01	07/11/12 11:55	07/12/12 08:25	JAG
Nitrate+Nitrite (N)	mg/L	35	EPA 353.2	1.0	0.25	07/16/12 10:50	07/16/12 15:01	MMF
Nitrite (as N)	mg/L	0.09	EPA 300.0	0.04	0.01	07/11/12 11:55	07/12/12 08:25	JAG
Orthophosphate as P	mg/L	0.52	EPA 300.0	0.040	0.010	07/11/12 11:55	07/12/12 08:25	JAG
Sulfate	mg/L	45	EPA 300.0	0.60	0.20	07/11/12 11:55	07/12/12 09:00	JAG
Total Alkalinity	mg/L	32	SM 2320B	8.0	2.0	07/17/12 09:00	07/17/12 16:56	AES
Total Kjeldahl Nitrogen	mg/L	4.3	EPA 351.2	0.20	0.05	07/13/12 16:36	07/17/12 14:47	MMF
Total Organic Carbon	mg/L	43	SM 5310B	1.0	0.50		07/18/12 13:14	MEJ
Magnesium Hardness as CaCO3	mg/L	43	SM2340B	2.1	0.082	07/12/12 10:35	07/13/12 11:58	VWC
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	35	SM 5310B	1.0	0.50		07/12/12 09:40	ARP
Metals								
Boron	mg/L	0.063 I	EPA 200.7	0.10	0.050	07/12/12 10:35	07/13/12 11:58	VWC
Calcium	mg/L	61	EPA 200.7	0.50	0.042	07/12/12 10:35	07/13/12 11:58	VWC

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Sample Description		**C-HS2-B08-5-Dup**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-36**						
Date/Time Collected		**07/10/12 10:00**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Iron	mg/L	0.13	EPA 200.7	0.10	0.020	07/12/12 10:35	07/13/12 11:58	VWC
Magnesium	mg/L	10	EPA 200.7	0.50	0.020	07/12/12 10:35	07/13/12 11:58	VWC
Potassium	mg/L	14	EPA 200.7	0.050	0.010	07/12/12 10:35	07/13/12 11:58	VWC
Sodium	mg/L	32	EPA 200.7	0.50	0.13	07/12/12 10:35	07/13/12 11:58	VWC
Sample Description		**C-HS2-B08-7**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-37**						
Date/Time Collected		**07/10/12 10:25**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Field Parameters								
pH	SU	5.9	DEP FT1100	0.1	0.1		07/10/12 10:25	RJS
Water Temperature	°C	24.9	DEP FT1400	0.1	0.1		07/10/12 10:25	RJS
Specific conductance	umhos/cm	442	DEP FT1200	0.1	0.1		07/10/12 10:25	RJS
Dissolved Oxygen	mg/L	0.7	DEP FT1500	0.1	0.1		07/10/12 10:25	RJS
Inorganics								
Ammonia as N	mg/L	0.38	EPA 350.1	0.040	0.009		07/16/12 10:32	MMF
Chemical Oxygen Demand	mg/L	36	EPA 410.4	25	10	07/12/12 13:20	07/12/12 16:20	CDB
Chloride	mg/L	44	EPA 300.0	0.20	0.050		07/16/12 16:31	JAG
Nitrate+Nitrite (N)	mg/L	15	EPA 353.2	1.0	0.25	07/16/12 10:50	07/16/12 15:02	MMF
Total Alkalinity	mg/L	43	SM 2320B	8.0	2.0	07/17/12 09:00	07/17/12 16:56	AES
Total Kjeldahl Nitrogen	mg/L	2.5	EPA 351.2	0.20	0.05	07/13/12 16:36	07/17/12 14:49	MMF
Sample Description		**C-HS2-B08-10**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-38**						
Date/Time Collected		**07/10/12 10:45**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Field Parameters								
pH	SU	4.8	DEP FT1100	0.1	0.1		07/10/12 10:45	RJS
Water Temperature	°C	24.4	DEP FT1400	0.1	0.1		07/10/12 10:45	RJS
Specific conductance	umhos/cm	144	DEP FT1200	0.1	0.1		07/10/12 10:45	RJS
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		07/10/12 10:45	RJS
Inorganics								
Ammonia as N	mg/L	0.40	EPA 350.1	0.040	0.009		07/16/12 10:34	MMF

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Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**C-HS2-B08-10**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-38**						
Date/Time Collected		**07/10/12 10:45**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Chemical Oxygen Demand	mg/L	13 I	EPA 410.4	25	10	07/12/12 13:20	07/12/12 16:20	CDB
Chloride	mg/L	38	EPA 300.0	0.20	0.050		07/16/12 16:31	JAG
Nitrate+Nitrite (N)	mg/L	0.07	EPA 353.2	0.04	0.01	07/16/12 10:50	07/16/12 14:11	MMF
Total Alkalinity	mg/L	11	SM 2320B	8.0	2.0	07/17/12 09:00	07/17/12 16:56	AES
Total Kjeldahl Nitrogen	mg/L	0.68	EPA 351.2	0.20	0.05	07/13/12 16:36	07/17/12 14:54	MMF
Sample Description		**C-HS2-B10-5**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-39**						
Date/Time Collected		**07/10/12 09:05**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Field Parameters								
pH	SU	6.2	DEP FT1100	0.1	0.1		07/10/12 09:05	RJS
Water Temperature	°C	26.4	DEP FT1400	0.1	0.1		07/10/12 09:05	RJS
Specific conductance	umhos/cm	649	DEP FT1200	0.1	0.1		07/10/12 09:05	RJS
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		07/10/12 09:05	RJS
Inorganics								
Ammonia as N	mg/L	1.1	EPA 350.1	0.040	0.009		07/16/12 10:36	MMF
Chemical Oxygen Demand	mg/L	100	EPA 410.4	25	10	07/12/12 13:20	07/12/12 16:20	CDB
Chloride	mg/L	55	EPA 300.0	0.20	0.050		07/16/12 16:31	JAG
Nitrate+Nitrite (N)	mg/L	0.80	EPA 353.2	0.04	0.01	07/16/12 10:50	07/16/12 14:13	MMF
Total Alkalinity	mg/L	180	SM 2320B	8.0	2.0	07/17/12 09:00	07/17/12 16:56	AES
Total Kjeldahl Nitrogen	mg/L	3.4	EPA 351.2	0.20	0.05	07/13/12 16:36	07/17/12 14:55	MMF
Sample Description		**C-HS2-B10-7**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-40**						
Date/Time Collected		**07/10/12 09:20**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Field Parameters								
pH	SU	5.9	DEP FT1100	0.1	0.1		07/10/12 09:20	RJS
Water Temperature	°C	25.5	DEP FT1400	0.1	0.1		07/10/12 09:20	RJS
Specific conductance	umhos/cm	419	DEP FT1200	0.1	0.1		07/10/12 09:20	RJS
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		07/10/12 09:20	RJS
Inorganics								

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Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**C-HS2-B10-7**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-40**						
Date/Time Collected		**07/10/12 09:20**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Ammonia as N	mg/L	6.4	EPA 350.1	0.20	0.047		07/16/12 12:20	MMF
Chemical Oxygen Demand	mg/L	53	EPA 410.4	25	10	07/12/12 13:20	07/12/12 16:20	CDB
Chloride	mg/L	38	EPA 300.0	0.20	0.050		07/16/12 16:31	JAG
Nitrate+Nitrite (N)	mg/L	0.03 I	EPA 353.2	0.04	0.01	07/16/12 10:50	07/16/12 14:20	MMF
Total Alkalinity	mg/L	86	SM 2320B	8.0	2.0	07/17/12 09:00	07/17/12 16:56	AES
Total Kjeldahl Nitrogen	mg/L	9.9	EPA 351.2	0.20	0.05	07/13/12 16:36	07/17/12 16:12	MMF
Sample Description		**C-HS2-B10-10**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-41**						
Date/Time Collected		**07/10/12 09:45**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Field Parameters								
pH	SU	4.4	DEP FT1100	0.1	0.1		07/10/12 09:45	RJS
Water Temperature	°C	24.4	DEP FT1400	0.1	0.1		07/10/12 09:45	RJS
Specific conductance	umhos/cm	142	DEP FT1200	0.1	0.1		07/10/12 09:45	RJS
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		07/10/12 09:45	RJS
Inorganics								
Ammonia as N	mg/L	0.37	EPA 350.1	0.040	0.009		07/16/12 10:40	MMF
Chemical Oxygen Demand	mg/L	28	EPA 410.4	25	10	07/12/12 13:20	07/12/12 16:20	CDB
Chloride	mg/L	34	EPA 300.0	0.20	0.050		07/16/12 16:31	JAG
Nitrate+Nitrite (N)	mg/L	0.03 I	EPA 353.2	0.04	0.01	07/16/12 10:50	07/16/12 14:22	MMF
Total Alkalinity	mg/L	11	SM 2320B	8.0	2.0	07/17/12 09:00	07/17/12 16:56	AES
Total Kjeldahl Nitrogen	mg/L	0.55	EPA 351.2	0.20	0.05	07/13/12 16:36	07/17/12 14:59	MMF
Sample Description		**C-HS2-C04-5**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-48**						
Date/Time Collected		**07/10/12 10:14**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Field Parameters								
pH	SU	6.1	DEP FT1100	0.1	0.1		07/10/12 10:14	SAS
Water Temperature	°C	25.4	DEP FT1400	0.1	0.1		07/10/12 10:14	SAS
Specific conductance	umhos/cm	330	DEP FT1200	0.1	0.1		07/10/12 10:14	SAS
Dissolved Oxygen	mg/L	0.1 U	DEP FT1500	0.1	0.1		07/10/12 10:14	SAS

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Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**C-HS2-C04-5**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-48**						
Date/Time Collected		**07/10/12 10:14**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Inorganics								
Ammonia as N	mg/L	0.53	EPA 350.1	0.040	0.009		07/16/12 10:42	MMF
Chemical Oxygen Demand	mg/L	94	EPA 410.4	25	10	07/12/12 13:20	07/12/12 16:20	CDB
Chloride	mg/L	43	EPA 300.0	0.20	0.050		07/16/12 16:31	JAG
Nitrate+Nitrite (N)	mg/L	0.04	EPA 353.2	0.04	0.01	07/16/12 10:50	07/16/12 14:24	MMF
Total Alkalinity	mg/L	32	SM 2320B	8.0	2.0	07/17/12 09:00	07/17/12 16:56	AES
Total Kjeldahl Nitrogen	mg/L	2.6	EPA 351.2	0.20	0.05	07/13/12 16:36	07/17/12 15:00	MMF
Sample Description		**C-HS2-C04-7**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-49**						
Date/Time Collected		**07/10/12 10:26**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Field Parameters								
pH	SU	6.0	DEP FT1100	0.1	0.1		07/10/12 10:26	SAS
Water Temperature	°C	24.9	DEP FT1400	0.1	0.1		07/10/12 10:26	SAS
Specific conductance	umhos/cm	209	DEP FT1200	0.1	0.1		07/10/12 10:26	SAS
Dissolved Oxygen	mg/L	0.1 U	DEP FT1500	0.1	0.1		07/10/12 10:26	SAS
Inorganics								
Ammonia as N	mg/L	0.89	EPA 350.1	0.040	0.009		07/16/12 10:48	MMF
Chemical Oxygen Demand	mg/L	55	EPA 410.4	25	10	07/12/12 13:20	07/12/12 16:20	CDB
Chloride	mg/L	48	EPA 300.0	0.20	0.050		07/16/12 16:31	JAG
Nitrate+Nitrite (N)	mg/L	0.02 I	EPA 353.2	0.04	0.01	07/16/12 10:50	07/16/12 14:26	MMF
Total Alkalinity	mg/L	11	SM 2320B	8.0	2.0	07/17/12 09:00	07/17/12 16:56	AES
Total Kjeldahl Nitrogen	mg/L	1.7	EPA 351.2	0.20	0.05	07/13/12 16:36	07/17/12 15:02	MMF
Sample Description		**C-HS2-C04-10**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-50**						
Date/Time Collected		**07/10/12 10:44**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Field Parameters								
pH	SU	5.7	DEP FT1100	0.1	0.1		07/10/12 10:44	SAS
Water Temperature	°C	24.3	DEP FT1400	0.1	0.1		07/10/12 10:44	SAS
Specific conductance	umhos/cm	154	DEP FT1200	0.1	0.1		07/10/12 10:44	SAS

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Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**C-HS2-C04-10**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-50**						
Date/Time Collected		**07/10/12 10:44**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Dissolved Oxygen	mg/L	0.1	DEP FT1500	0.1	0.1		07/10/12 10:44	SAS
Inorganics								
Ammonia as N	mg/L	0.55	EPA 350.1	0.040	0.009		07/16/12 10:50	MMF
Chemical Oxygen Demand	mg/L	18 I	EPA 410.4	25	10	07/12/12 13:20	07/12/12 16:20	CDB
Chloride	mg/L	40	EPA 300.0	0.20	0.050		07/16/12 16:31	JAG
Nitrate+Nitrite (N)	mg/L	0.04	EPA 353.2	0.04	0.01	07/16/12 10:50	07/16/12 14:29	MMF
Total Alkalinity	mg/L	5.4 I	SM 2320B	8.0	2.0	07/17/12 09:00	07/17/12 16:56	AES
Total Kjeldahl Nitrogen	mg/L	1.1	EPA 351.2	0.20	0.05	07/13/12 16:36	07/17/12 15:04	MMF
Sample Description		**C-HS2-C06-5**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-51**						
Date/Time Collected		**07/10/12 11:21**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Field Parameters								
pH	SU	6.1	DEP FT1100	0.1	0.1		07/10/12 11:21	SAS
Water Temperature	°C	25.5	DEP FT1400	0.1	0.1		07/10/12 11:21	SAS
Specific conductance	umhos/cm	423	DEP FT1200	0.1	0.1		07/10/12 11:21	SAS
Dissolved Oxygen	mg/L	0.1 U	DEP FT1500	0.1	0.1		07/10/12 11:21	SAS
Inorganics								
Ammonia as N	mg/L	0.093	EPA 350.1	0.040	0.009		07/16/12 10:52	MMF
Chemical Oxygen Demand	mg/L	75	EPA 410.4	25	10	07/12/12 13:20	07/12/12 16:20	CDB
Chloride	mg/L	46	EPA 300.0	0.20	0.050		07/16/12 16:31	JAG
Nitrate+Nitrite (N)	mg/L	0.57	EPA 353.2	0.04	0.01	07/16/12 11:00	07/16/12 11:29	MMF
Total Alkalinity	mg/L	43	SM 2320B	8.0	2.0	07/17/12 09:00	07/17/12 16:56	AES
Total Kjeldahl Nitrogen	mg/L	2.0	EPA 351.2	0.20	0.05	07/13/12 16:36	07/17/12 15:05	MMF
Sample Description		**C-HS2-C06-7**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-52**						
Date/Time Collected		**07/10/12 11:38**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Field Parameters								
pH	SU	6.3	DEP FT1100	0.1	0.1		07/10/12 11:38	SAS
Water Temperature	°C	24.8	DEP FT1400	0.1	0.1		07/10/12 11:38	SAS

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Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**C-HS2-C06-7**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-52**						
Date/Time Collected		**07/10/12 11:38**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Specific conductance	umhos/cm	225	DEP FT1200	0.1	0.1		07/10/12 11:38	SAS
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		07/10/12 11:38	SAS
Inorganics								
Ammonia as N	mg/L	0.68	EPA 350.1	0.040	0.009		07/16/12 10:54	MMF
Chemical Oxygen Demand	mg/L	34	EPA 410.4	25	10	07/12/12 13:20	07/12/12 16:20	CDB
Chloride	mg/L	39	EPA 300.0	0.20	0.050		07/16/12 16:31	JAG
Nitrate+Nitrite (N)	mg/L	0.01 I	EPA 353.2	0.04	0.01	07/16/12 11:00	07/16/12 11:31	MMF
Total Alkalinity	mg/L	22	SM 2320B	8.0	2.0	07/17/12 09:00	07/17/12 16:56	AES
Total Kjeldahl Nitrogen	mg/L	1.5	EPA 351.2	0.20	0.05	07/13/12 16:36	07/17/12 15:07	MMF
Sample Description		**C-HS2-C06-10**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-53**						
Date/Time Collected		**07/10/12 11:55**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Field Parameters								
pH	SU	5.7	DEP FT1100	0.1	0.1		07/10/12 11:55	SAS
Water Temperature	°C	24.0	DEP FT1400	0.1	0.1		07/10/12 11:55	SAS
Specific conductance	umhos/cm	146	DEP FT1200	0.1	0.1		07/10/12 11:55	SAS
Dissolved Oxygen	mg/L	0.1	DEP FT1500	0.1	0.1		07/10/12 11:55	SAS
Inorganics								
Ammonia as N	mg/L	0.41	EPA 350.1	0.040	0.009		07/16/12 12:23	MMF
Chemical Oxygen Demand	mg/L	15 I	EPA 410.4	25	10	07/12/12 13:20	07/12/12 16:20	CDB
Chloride	mg/L	37	EPA 300.0	0.20	0.050		07/16/12 16:31	JAG
Nitrate+Nitrite (N)	mg/L	0.11	EPA 353.2	0.04	0.01	07/16/12 11:00	07/16/12 11:33	MMF
Total Alkalinity	mg/L	5.4 I	SM 2320B	8.0	2.0	07/17/12 09:00	07/17/12 16:56	AES
Total Kjeldahl Nitrogen	mg/L	1.2	EPA 351.2	0.20	0.05	07/13/12 16:36	07/17/12 15:09	MMF
Sample Description		**C-HS2-C06-10-Dup**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-54**						
Date/Time Collected		**07/10/12 12:00**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Field Parameters								
pH	SU	5.7	DEP FT1100	0.1	0.1		07/10/12 12:00	SAS

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Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**C-HS2-C06-10-Dup**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-54**						
Date/Time Collected		**07/10/12 12:00**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Water Temperature	°C	24.0	DEP FT1400	0.1	0.1		07/10/12 12:00	SAS
Specific conductance	umhos/cm	146	DEP FT1200	0.1	0.1		07/10/12 12:00	SAS
Dissolved Oxygen	mg/L	0.1	DEP FT1500	0.1	0.1		07/10/12 12:00	SAS
Inorganics								
Ammonia as N	mg/L	0.45	EPA 350.1	0.040	0.009		07/16/12 12:25	MMF
Chemical Oxygen Demand	mg/L	15 I	EPA 410.4	25	10	07/12/12 13:20	07/12/12 16:20	CDB
Chloride	mg/L	37	EPA 300.0	0.20	0.050		07/16/12 16:31	JAG
Nitrate+Nitrite (N)	mg/L	0.11	EPA 353.2	0.04	0.01	07/16/12 11:00	07/16/12 11:35	MMF
Total Alkalinity	mg/L	5.4 I	SM 2320B	8.0	2.0	07/17/12 09:00	07/17/12 16:56	AES
Total Kjeldahl Nitrogen	mg/L	1.2	EPA 351.2	0.20	0.05	07/13/12 16:33	07/17/12 10:21	MMF
Sample Description		**C-HS2-C08-5**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-55**						
Date/Time Collected		**07/10/12 13:04**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Field Parameters								
pH	SU	6.3	DEP FT1100	0.1	0.1		07/10/12 13:04	SAS
Water Temperature	°C	27.2	DEP FT1400	0.1	0.1		07/10/12 13:04	SAS
Specific conductance	umhos/cm	319	DEP FT1200	0.1	0.1		07/10/12 13:04	SAS
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		07/10/12 13:04	SAS
Inorganics								
Ammonia as N	mg/L	0.037 I	EPA 350.1	0.040	0.009		07/16/12 11:00	MMF
Chemical Oxygen Demand	mg/L	94	EPA 410.4	25	10	07/13/12 09:00	07/13/12 16:25	CDB
Chloride	mg/L	13	EPA 300.0	0.20	0.050		07/16/12 16:31	JAG
Nitrate+Nitrite (N)	mg/L	8.9	EPA 353.2	0.20	0.05	07/16/12 11:00	07/16/12 12:24	MMF
Total Alkalinity	mg/L	43	SM 2320B	8.0	2.0	07/17/12 09:00	07/17/12 16:56	AES
Total Kjeldahl Nitrogen	mg/L	4.4	EPA 351.2	0.20	0.05	07/13/12 16:33	07/17/12 10:23	MMF
Sample Description		**C-HS2-C08-5-Dup**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-56**						
Date/Time Collected		**07/10/12 13:09**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Field Parameters								

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Sample Description		**C-HS2-C08-5-Dup**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-56**						
Date/Time Collected		**07/10/12 13:09**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
pH	SU	6.3	DEP FT1100	0.1	0.1		07/10/12 13:09	SAS
Water Temperature	°C	27.2	DEP FT1400	0.1	0.1		07/10/12 13:09	SAS
Specific conductance	umhos/cm	319	DEP FT1200	0.1	0.1		07/10/12 13:09	SAS
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		07/10/12 13:09	SAS
Inorganics								
Ammonia as N	mg/L	0.034 I	EPA 350.1	0.040	0.009		07/16/12 11:01	MMF
Chemical Oxygen Demand	mg/L	94	EPA 410.4	25	10	07/13/12 09:00	07/13/12 16:25	CDB
Chloride	mg/L	14	EPA 300.0	0.20	0.050		07/16/12 16:31	JAG
Nitrate+Nitrite (N)	mg/L	8.5	EPA 353.2	0.20	0.05	07/16/12 11:00	07/16/12 12:26	MMF
Total Alkalinity	mg/L	43	SM 2320B	8.0	2.0	07/17/12 09:00	07/17/12 16:56	AES
Total Kjeldahl Nitrogen	mg/L	4.1	EPA 351.2	0.20	0.05	07/13/12 16:33	07/17/12 10:24	MMF
Sample Description		**C-HS2-C08-7**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-57**						
Date/Time Collected		**07/10/12 13:22**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Field Parameters								
pH	SU	6.5	DEP FT1100	0.1	0.1		07/10/12 13:22	SAS
Water Temperature	°C	25.8	DEP FT1400	0.1	0.1		07/10/12 13:22	SAS
Specific conductance	umhos/cm	449	DEP FT1200	0.1	0.1		07/10/12 13:22	SAS
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		07/10/12 13:22	SAS
Inorganics								
Ammonia as N	mg/L	0.017 I	EPA 350.1	0.040	0.009		07/16/12 11:03	MMF
Chemical Oxygen Demand	mg/L	48	EPA 410.4	25	10	07/13/12 09:00	07/13/12 16:25	CDB
Chloride	mg/L	55	EPA 300.0	0.20	0.050		07/19/12 01:31	JAG
Fluoride	mg/L	0.033 I	EPA 300.0	0.040	0.010	07/11/12 11:55	07/12/12 11:50	JAG
Nitrate (as N)	mg/L	18	EPA 300.0	0.04	0.01	07/11/12 11:55	07/12/12 11:50	JAG
Nitrate+Nitrite (N)	mg/L	22	EPA 353.2	1.0	0.25	07/16/12 11:00	07/16/12 12:35	MMF
Nitrite (as N)	mg/L	0.13	EPA 300.0	0.04	0.01	07/11/12 11:55	07/12/12 11:50	JAG
Orthophosphate as P	mg/L	0.42	EPA 300.0	0.040	0.010	07/11/12 11:55	07/12/12 11:50	JAG
Sulfate	mg/L	33	EPA 300.0	0.60	0.20	07/11/12 11:55	07/12/12 11:50	JAG
Total Alkalinity	mg/L	43	SM 2320B	8.0	2.0	07/17/12 09:00	07/17/12 17:07	AES
Total Kjeldahl Nitrogen	mg/L	2.6	EPA 351.2	0.20	0.05	07/13/12 16:33	07/17/12 10:26	MMF
Total Organic Carbon	mg/L	26	SM 5310B	1.0	0.50		07/18/12 13:14	MEJ
Magnesium Hardness as CaCO3	mg/L	33	SM2340B	2.1	0.082	07/12/12 10:35	07/13/12 12:01	VWC

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Sample Description		**C-HS2-C08-7**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-57**						
Date/Time Collected		**07/10/12 13:22**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	23	SM 5310B	1.0	0.50		07/12/12 09:40	ARP
Metals								
Boron	mg/L	0.052 I	EPA 200.7	0.10	0.050	07/12/12 10:35	07/13/12 12:01	VWC
Calcium	mg/L	44	EPA 200.7	0.50	0.042	07/12/12 10:35	07/13/12 12:01	VWC
Iron	mg/L	0.055 I	EPA 200.7	0.10	0.020	07/12/12 10:35	07/13/12 12:01	VWC
Magnesium	mg/L	8.0	EPA 200.7	0.50	0.020	07/12/12 10:35	07/13/12 12:01	VWC
Potassium	mg/L	11	EPA 200.7	0.050	0.010	07/12/12 10:35	07/13/12 12:01	VWC
Sodium	mg/L	36	EPA 200.7	0.50	0.13	07/12/12 10:35	07/13/12 12:01	VWC
Sample Description		**C-HS2-C08-10**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-58**						
Date/Time Collected		**07/10/12 13:43**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Field Parameters								
pH	SU	5.9	DEP FT1100	0.1	0.1		07/10/12 13:43	SAS
Water Temperature	°C	25.0	DEP FT1400	0.1	0.1		07/10/12 13:43	SAS
Specific conductance	umhos/cm	158	DEP FT1200	0.1	0.1		07/10/12 13:43	SAS
Dissolved Oxygen	mg/L	0.1	DEP FT1500	0.1	0.1		07/10/12 13:43	SAS
Inorganics								
Ammonia as N	mg/L	0.45	EPA 350.1	0.040	0.009		07/16/12 11:05	MMF
Chemical Oxygen Demand	mg/L	15 I	EPA 410.4	25	10	07/13/12 09:00	07/13/12 16:25	CDB
Chloride	mg/L	53	EPA 300.0	0.20	0.050		07/17/12 16:10	JAG
Nitrate+Nitrite (N)	mg/L	0.10	EPA 353.2	0.04	0.01	07/16/12 11:00	07/16/12 11:44	MMF
Total Alkalinity	mg/L	11	SM 2320B	8.0	2.0	07/17/12 09:00	07/17/12 17:07	AES
Total Kjeldahl Nitrogen	mg/L	0.83	EPA 351.2	0.20	0.05	07/13/12 16:33	07/17/12 10:28	MMF
Sample Description		**C-HS2-C10-6**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-59**						
Date/Time Collected		**07/10/12 14:16**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Field Parameters								
pH	SU	6.0	DEP FT1100	0.1	0.1		07/10/12 14:16	SAS

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Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**C-HS2-C10-6**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-59**						
Date/Time Collected		**07/10/12 14:16**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Water Temperature	°C	27.0	DEP FT1400	0.1	0.1		07/10/12 14:16	SAS
Specific conductance	umhos/cm	201	DEP FT1200	0.1	0.1		07/10/12 14:16	SAS
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		07/10/12 14:16	SAS
Inorganics								
Ammonia as N	mg/L	1.1	EPA 350.1	0.040	0.009		07/13/12 10:59	MMF
Chemical Oxygen Demand	mg/L	100	EPA 410.4	25	10	07/13/12 09:00	07/13/12 16:25	CDB
Chloride	mg/L	15	EPA 300.0	0.20	0.050		07/17/12 16:10	JAG
Nitrate+Nitrite (N)	mg/L	3.8	EPA 353.2	0.20	0.05	07/16/12 11:00	07/16/12 12:29	MMF
Total Alkalinity	mg/L	22	SM 2320B	8.0	2.0	07/17/12 09:00	07/17/12 17:07	AES
Total Kjeldahl Nitrogen	mg/L	3.8	EPA 351.2	0.20	0.05	07/13/12 16:33	07/17/12 10:29	MMF
Sample Description		**C-HS2-C10-8**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-60**						
Date/Time Collected		**07/10/12 14:27**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Field Parameters								
pH	SU	5.8	DEP FT1100	0.1	0.1		07/10/12 14:27	SAS
Water Temperature	°C	25.7	DEP FT1400	0.1	0.1		07/10/12 14:27	SAS
Specific conductance	umhos/cm	234	DEP FT1200	0.1	0.1		07/10/12 14:27	SAS
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		07/10/12 14:27	SAS
Inorganics								
Ammonia as N	mg/L	1.2	EPA 350.1	0.040	0.009		07/13/12 11:01	MMF
Chemical Oxygen Demand	mg/L	34	EPA 410.4	25	10	07/13/12 09:00	07/13/12 16:25	CDB
Chloride	mg/L	40	EPA 300.0	0.20	0.050		07/17/12 16:10	JAG
Nitrate+Nitrite (N)	mg/L	0.02 I	EPA 353.2	0.04	0.01	07/16/12 11:00	07/16/12 11:49	MMF
Total Alkalinity	mg/L	22	SM 2320B	8.0	2.0	07/17/12 09:00	07/17/12 17:07	AES
Total Kjeldahl Nitrogen	mg/L	1.8	EPA 351.2	0.20	0.05	07/13/12 16:33	07/17/12 10:31	MMF
Sample Description		**C-HS2-C10-12**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-61**						
Date/Time Collected		**07/10/12 14:48**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Field Parameters								

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Sample Description		**C-HS2-C10-12**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-61**						
Date/Time Collected		**07/10/12 14:48**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
pH	SU	5.5	DEP FT1100	0.1	0.1		07/10/12 14:48	SAS
Water Temperature	°C	25.1	DEP FT1400	0.1	0.1		07/10/12 14:48	SAS
Specific conductance	umhos/cm	142	DEP FT1200	0.1	0.1		07/10/12 14:48	SAS
Dissolved Oxygen	mg/L	0.1	DEP FT1500	0.1	0.1		07/10/12 14:48	SAS
Inorganics								
Ammonia as N	mg/L	0.65	EPA 350.1	0.040	0.009		07/13/12 11:03	MMF
Chemical Oxygen Demand	mg/L	15 I	EPA 410.4	25	10	07/13/12 09:00	07/13/12 16:25	CDB
Chloride	mg/L	37	EPA 300.0	0.20	0.050		07/17/12 16:10	JAG
Nitrate+Nitrite (N)	mg/L	0.09	EPA 353.2	0.04	0.01	07/16/12 11:00	07/16/12 11:55	MMF
Total Alkalinity	mg/L	11	SM 2320B	8.0	2.0	07/17/12 09:00	07/17/12 17:07	AES
Total Kjeldahl Nitrogen	mg/L	0.70	EPA 351.2	0.20	0.05	07/13/12 16:33	07/17/12 10:33	MMF
Sample Description		**C-HS2-C11-5**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-62**						
Date/Time Collected		**07/10/12 16:08**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Field Parameters								
pH	SU	5.4	DEP FT1100	0.1	0.1		07/10/12 16:08	SAS
Water Temperature	°C	27.9	DEP FT1400	0.1	0.1		07/10/12 16:08	SAS
Specific conductance	umhos/cm	167	DEP FT1200	0.1	0.1		07/10/12 16:08	SAS
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		07/10/12 16:08	SAS
Inorganics								
Ammonia as N	mg/L	0.072	EPA 350.1	0.040	0.009		07/13/12 11:05	MMF
Chemical Oxygen Demand	mg/L	86	EPA 410.4	25	10	07/13/12 09:00	07/13/12 16:25	CDB
Chloride	mg/L	13	EPA 300.0	0.20	0.050		07/17/12 01:18	JAG
Nitrate+Nitrite (N)	mg/L	0.82	EPA 353.2	0.04	0.01	07/16/12 11:00	07/16/12 11:57	MMF
Total Alkalinity	mg/L	5.4 I	SM 2320B	8.0	2.0	07/17/12 09:00	07/17/12 17:07	AES
Total Kjeldahl Nitrogen	mg/L	2.2	EPA 351.2	0.20	0.05	07/13/12 16:33	07/17/12 10:34	MMF
Sample Description		**C-HS2-C11-7**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-63**						
Date/Time Collected		**07/11/12 07:35**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						

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Project Name **Seminole County C-HS2**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**C-HS2-C11-7**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-63**						
Date/Time Collected		**07/11/12 07:35**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Field Parameters								
pH	SU	5.0	DEP FT1100	0.1	0.1		07/11/12 07:35	SAS
Water Temperature	°C	25.0	DEP FT1400	0.1	0.1		07/11/12 07:35	SAS
Specific conductance	umhos/cm	222	DEP FT1200	0.1	0.1		07/11/12 07:35	SAS
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		07/11/12 07:35	SAS
Inorganics								
Ammonia as N	mg/L	0.48	EPA 350.1	0.040	0.009		07/13/12 11:07	MMF
Chemical Oxygen Demand	mg/L	40	EPA 410.4	25	10	07/13/12 09:00	07/13/12 16:25	CDB
Chloride	mg/L	44	EPA 300.0	0.20	0.050		07/17/12 01:18	JAG
Nitrate+Nitrite (N)	mg/L	0.11	EPA 353.2	0.04	0.01	07/16/12 11:00	07/16/12 12:00	MMF
Total Alkalinity	mg/L	5.4 I	SM 2320B	8.0	2.0	07/17/12 09:00	07/17/12 17:07	AES
Total Kjeldahl Nitrogen	mg/L	0.98	EPA 351.2	0.20	0.05	07/13/12 16:33	07/17/12 10:36	MMF
Sample Description		**C-HS2-C11-10**						
Matrix		**Groundwater**						
SAL Sample Number		**1206553-64**						
Date/Time Collected		**07/11/12 07:53**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Field Parameters								
pH	SU	4.7	DEP FT1100	0.1	0.1		07/11/12 07:53	SAS
Water Temperature	°C	24.3	DEP FT1400	0.1	0.1		07/11/12 07:53	SAS
Specific conductance	umhos/cm	152	DEP FT1200	0.1	0.1		07/11/12 07:53	SAS
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		07/11/12 07:53	SAS
Inorganics								
Ammonia as N	mg/L	0.53	EPA 350.1	0.040	0.009		07/13/12 11:09	MMF
Chemical Oxygen Demand	mg/L	24 I	EPA 410.4	25	10	07/13/12 09:00	07/13/12 16:25	CDB
Chloride	mg/L	38	EPA 300.0	0.20	0.050		07/17/12 01:18	JAG
Nitrate+Nitrite (N)	mg/L	0.05	EPA 353.2	0.04	0.01	07/16/12 11:00	07/16/12 13:00	MMF
Total Alkalinity	mg/L	11	SM 2320B	8.0	2.0	07/17/12 09:00	07/17/12 17:07	AES
Total Kjeldahl Nitrogen	mg/L	0.77	EPA 351.2	0.20	0.05	07/13/12 16:33	07/17/12 10:41	MMF

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Project Name **Seminole County C-HS2**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**FB-Tap**						
Matrix		**Drinking Water**						
SAL Sample Number		**1206553-72**						
Date/Time Collected		**07/10/12 07:45**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Field Parameters								
pH	SU	7.2	DEP FT1100	0.1	0.1		07/10/12 07:45	SAS
Water Temperature	°C	24.8	DEP FT1400	0.1	0.1		07/10/12 07:45	SAS
Specific conductance	umhos/cm	216	DEP FT1200	0.1	0.1		07/10/12 07:45	SAS
Dissolved Oxygen	mg/L	1.3	DEP FT1500	0.1	0.1		07/10/12 07:45	SAS
Inorganics								
Ammonia as N	mg/L	0.016 I	EPA 350.1	0.040	0.009		07/13/12 11:11	MMF
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	07/13/12 09:00	07/13/12 16:25	CDB
Chloride	mg/L	5.6	EPA 300.0	0.20	0.050		07/17/12 01:18	JAG
Nitrate+Nitrite (N)	mg/L	0.01 U	EPA 353.2	0.04	0.01	07/16/12 11:00	07/16/12 12:04	MMF
Total Alkalinity	mg/L	86	SM 2320B	8.0	2.0	07/17/12 09:00	07/17/12 17:07	AES
Total Kjeldahl Nitrogen	mg/L	0.08 I	EPA 351.2	0.20	0.05	07/13/12 16:33	07/17/12 10:43	MMF
Sample Description		**FB-DI**						
Matrix		**Reagent Water**						
SAL Sample Number		**1206553-73**						
Date/Time Collected		**07/10/12 07:35**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Field Parameters								
pH	SU	7.9	DEP FT1100	0.1	0.1		07/10/12 07:35	SAS
Water Temperature	°C	24.4	DEP FT1400	0.1	0.1		07/10/12 07:35	SAS
Specific conductance	umhos/cm	3	DEP FT1200	0.1	0.1		07/10/12 07:35	SAS
Dissolved Oxygen	mg/L	2.4	DEP FT1500	0.1	0.1		07/10/12 07:35	SAS
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		07/13/12 11:13	MMF
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	07/13/12 09:00	07/13/12 16:25	CDB
Chloride	mg/L	0.050 U	EPA 300.0	0.20	0.050		07/17/12 01:18	JAG
Nitrate+Nitrite (N)	mg/L	0.01 U	EPA 353.2	0.04	0.01	07/16/12 11:00	07/16/12 12:06	MMF
Total Alkalinity	mg/L	2.0 U	SM 2320B	8.0	2.0	07/17/12 09:00	07/17/12 17:07	AES
Total Kjeldahl Nitrogen	mg/L	0.05 U	EPA 351.2	0.20	0.05	07/13/12 16:33	07/17/12 10:44	MMF

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Project Name **Seminole County C-HS2**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**EB**						
Matrix		**Reagent Water**						
SAL Sample Number		**1206553-74**						
Date/Time Collected		**07/10/12 07:40**						
Collected by		**Sean Schmidt**						
Date/Time Received		**07/11/12 11:55**						
Field Parameters								
pH	SU	7.9	DEP FT1100	0.1	0.1		07/10/12 07:40	SAS
Water Temperature	°C	24.4	DEP FT1400	0.1	0.1		07/10/12 07:40	SAS
Specific conductance	umhos/cm	3	DEP FT1200	0.1	0.1		07/10/12 07:40	SAS
Dissolved Oxygen	mg/L	2.4	DEP FT1500	0.1	0.1		07/10/12 07:40	SAS
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		07/13/12 11:15	MMF
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	07/13/12 09:00	07/13/12 16:25	CDB
Chloride	mg/L	0.050 U	EPA 300.0	0.20	0.050		07/17/12 01:18	JAG
Nitrate+Nitrite (N)	mg/L	0.01 U	EPA 353.2	0.04	0.01	07/16/12 11:00	07/16/12 12:08	MMF
Total Alkalinity	mg/L	2.0 U	SM 2320B	8.0	2.0	07/17/12 09:00	07/17/12 17:07	AES
Total Kjeldahl Nitrogen	mg/L	0.05 U	EPA 351.2	0.20	0.05	07/13/12 16:33	07/17/12 11:45	MMF

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BG21133 - Ion Chromatography 300.0 Prep										
Blank (BG21133-BLK1)					Prepared: 07/11/12 Analyzed: 07/12/12					
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						
Chloride	0.050 U	0.20	0.050	mg/L						
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
Orthophosphate as P	0.010 U	0.040	0.010	mg/L						
Fluoride	0.010 U	0.040	0.010	mg/L						
Sulfate	0.20 U	0.60	0.20	mg/L						
LCS (BG21133-BS1)					Prepared: 07/11/12 Analyzed: 07/12/12					
Fluoride	0.906	0.040	0.010	mg/L	0.90		101	85-115		
Nitrite (as N)	1.33	0.04	0.01	mg/L	1.4		95	85-115		
Sulfate	8.76	0.60	0.20	mg/L	9.0		97	85-115		
Nitrate (as N)	1.71	0.04	0.01	mg/L	1.7		101	85-115		
Orthophosphate as P	0.904	0.040	0.010	mg/L	0.90		100	85-115		
Chloride	3.04	0.20	0.050	mg/L	3.0		101	85-115		
LCS Dup (BG21133-BSD1)					Prepared: 07/11/12 Analyzed: 07/12/12					
Sulfate	8.81	0.60	0.20	mg/L	9.0		98	85-115	0.6	200
Chloride	3.05	0.20	0.050	mg/L	3.0		102	85-115	0.3	200
Fluoride	0.915	0.040	0.010	mg/L	0.90		102	85-115	1	200
Orthophosphate as P	0.909	0.040	0.010	mg/L	0.90		101	85-115	0.6	200
Nitrate (as N)	1.72	0.04	0.01	mg/L	1.7		101	85-115	0.6	200
Nitrite (as N)	1.34	0.04	0.01	mg/L	1.4		96	85-115	0.7	200
Matrix Spike (BG21133-MS1)		**Source: 1207379-01**			Prepared: 07/11/12 Analyzed: 07/12/12					
Fluoride	1.19	0.040	0.010	mg/L	0.90	0.286	100	85-115		
Nitrate (as N)	1.85	0.04	0.01	mg/L	1.7	0.110	102	85-115		
Nitrite (as N)	1.50	0.04	0.01	mg/L	1.4	0.147	97	85-115		
Orthophosphate as P	1.25	0.040	0.010	mg/L	0.90	0.356	99	85-115		
Chloride	44.2 +O	0.20	0.050	mg/L	3.0	44.1	3	80-120		
Sulfate	144 +O	0.60	0.20	mg/L	9.0	144	0	85-115		

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BG21133 - Ion Chromatography 300.0 Prep										
Matrix Spike (BG21133-MS2)		**Source: 1207431-01**			Prepared: 07/11/12	Analyzed: 07/12/12				
Nitrite (as N)	1.40	0.04	0.01	mg/L	1.4	ND	100	85-115		
Orthophosphate as P	0.851	0.040	0.010	mg/L	0.90	ND	95	85-115		
Sulfate	13.4	0.60	0.20	mg/L	9.0	4.45	99	85-115		
Fluoride	0.960	0.040	0.010	mg/L	0.90	0.0860	97	85-115		
Nitrate (as N)	2.28	0.04	0.01	mg/L	1.7	0.561	101	85-115		
Chloride	9.83	0.20	0.050	mg/L	3.0	6.91	97	80-120		
Batch BG21136 - BOD										
Blank (BG21136-BLK1)					Prepared: 07/11/12	Analyzed: 07/16/12				
Carbonaceous BOD	2 U	2	2	mg/L						
Blank (BG21136-BLK2)					Prepared: 07/11/12	Analyzed: 07/16/12				
Carbonaceous BOD	2 U	2	2	mg/L						
LCS (BG21136-BS1)					Prepared: 07/11/12	Analyzed: 07/16/12				
Carbonaceous BOD	216	2	2	mg/L	200		108	85-115		
LCS (BG21136-BS2)					Prepared: 07/11/12	Analyzed: 07/16/12				
Carbonaceous BOD	202	2	2	mg/L	200		101	85-115		
LCS Dup (BG21136-BSD1)					Prepared: 07/11/12	Analyzed: 07/16/12				
Carbonaceous BOD	208	2	2	mg/L	200		104	85-115	4	200
LCS Dup (BG21136-BSD2)					Prepared: 07/11/12	Analyzed: 07/16/12				
Carbonaceous BOD	205	2	2	mg/L	200		102	85-115	1	200

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Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BG21136 - BOD										
Duplicate (BG21136-DUP1)		**Source: 1207276-01**			Prepared: 07/11/12 Analyzed: 07/16/12					
Carbonaceous BOD	170	2	2	mg/L		150			9	25
Duplicate (BG21136-DUP2)		**Source: 1207371-01**			Prepared: 07/11/12 Analyzed: 07/16/12					
Carbonaceous BOD	77	2	2	mg/L		66			15	25
Batch BG21235 - COD prep										
Blank (BG21235-BLK1)					Prepared & Analyzed: 07/12/12					
Chemical Oxygen Demand	10 U	25	10	mg/L						
LCS (BG21235-BS1)					Prepared & Analyzed: 07/12/12					
Chemical Oxygen Demand	48	25	10	mg/L	50		96	90-110		
Matrix Spike (BG21235-MS1)		**Source: 1206553-28**			Prepared & Analyzed: 07/12/12					
Chemical Oxygen Demand	63	25	10	mg/L	50	15	96	85-115		
Matrix Spike Dup (BG21235-MSD1)		**Source: 1206553-28**			Prepared & Analyzed: 07/12/12					
Chemical Oxygen Demand	67	25	10	mg/L	50	15	104	85-115	6	32
Batch BG21244 - COD prep										
Blank (BG21244-BLK1)					Prepared & Analyzed: 07/12/12					
Chemical Oxygen Demand	10 U	25	10	mg/L						
LCS (BG21244-BS1)					Prepared & Analyzed: 07/12/12					
Chemical Oxygen Demand	46	25	10	mg/L	50		92	90-110		

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BG21244 - COD prep										
Matrix Spike (BG21244-MS1)		**Source: 1206553-54**			Prepared & Analyzed: 07/12/12					
Chemical Oxygen Demand	61	25	10	mg/L	50	15	92	85-115		
Matrix Spike Dup (BG21244-MSD1)		**Source: 1206553-54**			Prepared & Analyzed: 07/12/12					
Chemical Oxygen Demand	65	25	10	mg/L	50	15	100	85-115	6	32
Batch BG21303 - Ammonia by SEAL										
Blank (BG21303-BLK1)					Prepared & Analyzed: 07/13/12					
Ammonia as N	0.009 U	0.040	0.009	mg/L						
LCS (BG21303-BS1)					Prepared & Analyzed: 07/13/12					
Ammonia as N	0.50	0.040	0.009	mg/L	0.50		101	90-110		
Matrix Spike (BG21303-MS1)		**Source: 1207282-01**			Prepared & Analyzed: 07/13/12					
Ammonia as N	0.49	0.040	0.009	mg/L	0.50	ND	98	90-110		
Matrix Spike Dup (BG21303-MSD1)		**Source: 1207282-01**			Prepared & Analyzed: 07/13/12					
Ammonia as N	0.50	0.040	0.009	mg/L	0.50	ND	100	90-110	2	10
Batch BG21311 - COD prep										
Blank (BG21311-BLK1)					Prepared & Analyzed: 07/13/12					
Chemical Oxygen Demand	10 U	25	10	mg/L						
LCS (BG21311-BS1)					Prepared & Analyzed: 07/13/12					
Chemical Oxygen Demand	48	25	10	mg/L	50		96	90-110		

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Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BG21311 - COD prep										
Matrix Spike (BG21311-MS1)		**Source: 1206553-72**			Prepared & Analyzed: 07/13/12					
Chemical Oxygen Demand	44	25	10	mg/L	50	ND	88	85-115		
Matrix Spike Dup (BG21311-MSD1)		**Source: 1206553-72**			Prepared & Analyzed: 07/13/12					
Chemical Oxygen Demand	44	25	10	mg/L	50	ND	88	85-115	0	32
Batch BG21325 - Ion Chromatography 300.0 Prep										
Blank (BG21325-BLK1)					Prepared: 07/11/12 Analyzed: 07/13/12					
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
LCS (BG21325-BS1)					Prepared: 07/11/12 Analyzed: 07/13/12					
Nitrate (as N)	1.73	0.04	0.01	mg/L	1.7		102	85-115		
LCS Dup (BG21325-BSD1)					Prepared: 07/11/12 Analyzed: 07/13/12					
Nitrate (as N)	1.74	0.04	0.01	mg/L	1.7		102	85-115	0.6	200
Matrix Spike (BG21325-MS1)		**Source: 1207511-03**			Prepared: 07/11/12 Analyzed: 07/13/12					
Nitrate (as N)	1.81	0.04	0.01	mg/L	1.7	0.0547	103	85-115		
Matrix Spike (BG21325-MS2)		**Source: 1207285-01**			Prepared: 07/11/12 Analyzed: 07/13/12					
Nitrate (as N)	17.4	0.04	0.01	mg/L	17	ND	102	85-115		
Batch BG21326 - Ion Chromatography 300.0 Prep										
Blank (BG21326-BLK1)					Prepared: 07/11/12 Analyzed: 07/27/12					
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						
Fluoride	0.010 U	0.040	0.010	mg/L						
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
Chloride	0.050 U	0.20	0.050	mg/L						
Orthophosphate as P	0.010 U	0.040	0.010	mg/L						
Sulfate	0.20 U	0.60	0.20	mg/L						

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BG21326 - Ion Chromatography 300.0 Prep										
LCS (BG21326-BS1)					Prepared: 07/11/12	Analyzed: 07/14/12				
Chloride	3.19	0.20	0.050	mg/L	3.0		106	85-115		
Fluoride	0.010 U	0.040	0.010	mg/L	0.90			85-115		
Nitrite (as N)	0.01 U	0.04	0.01	mg/L	1.4			85-115		
Nitrate (as N)	0.01 U	0.04	0.01	mg/L	1.7			85-115		
Sulfate	8.80	0.60	0.20	mg/L	9.0		98	85-115		
Orthophosphate as P	0.010 U	0.040	0.010	mg/L	0.90			85-115		
LCS Dup (BG21326-BSD1)					Prepared: 07/11/12	Analyzed: 07/14/12				
Sulfate	8.86	0.60	0.20	mg/L	9.0		98	85-115	0.7	200
Chloride	3.18	0.20	0.050	mg/L	3.0		106	85-115	0.3	200
Orthophosphate as P	0.010 U	0.040	0.010	mg/L	0.90			85-115		200
Fluoride	0.010 U	0.040	0.010	mg/L	0.90			85-115		200
Nitrite (as N)	0.01 U	0.04	0.01	mg/L	1.4			85-115		200
Nitrate (as N)	0.01 U	0.04	0.01	mg/L	1.7			85-115		200
Matrix Spike (BG21326-MS1)		**Source: 1206553-03**			Prepared: 07/11/12	Analyzed: 07/14/12				
Sulfate	118	0.60	0.20	mg/L	90	32.2	95	85-115		
Chloride	69.5	0.20	0.050	mg/L	30	38.2	104	80-120		
Orthophosphate as P	0.010 U	0.040	0.010	mg/L	9.0	ND		85-115		
Nitrite (as N)	0.01 U	0.04	0.01	mg/L	14	ND		85-115		
Fluoride	0.010 U	0.040	0.010	mg/L	9.0	ND		85-115		
Nitrate (as N)	0.01 U	0.04	0.01	mg/L	17	ND		85-115		
Matrix Spike (BG21326-MS2)		**Source: 1206553-22**			Prepared: 07/11/12	Analyzed: 07/27/12				
Fluoride	0.010 U	0.040	0.010	mg/L	1.8	ND		85-115		
Orthophosphate as P	0.010 U	0.040	0.010	mg/L	1.8	ND		85-115		
Sulfate	30.2	0.60	0.20	mg/L	18	11.3	105	85-115		
Nitrite (as N)	0.01 U	0.04	0.01	mg/L	2.8	ND		85-115		
Nitrate (as N)	0.01 U	0.04	0.01	mg/L	3.4	ND		85-115		
Chloride	39.1	0.20	0.050	mg/L	6.0	33.5	93	80-120		

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BG21327 - Ion Chromatography 300.0 Prep										
Blank (BG21327-BLK1)					Prepared: 07/11/12 Analyzed: 07/14/12					
Chloride	0.050 U	0.20	0.050	mg/L						
LCS (BG21327-BS1)					Prepared: 07/11/12 Analyzed: 07/14/12					
Chloride	3.19	0.20	0.050	mg/L	3.0		106	85-115		
LCS Dup (BG21327-BSD1)					Prepared: 07/11/12 Analyzed: 07/14/12					
Chloride	3.22	0.20	0.050	mg/L	3.0		107	85-115	0.9	200
Matrix Spike (BG21327-MS1)		**Source: 1206553-33**			Prepared: 07/11/12 Analyzed: 07/14/12					
Chloride	47.6	0.20	0.050	mg/L	6.0	41.0	110	80-120		
Matrix Spike (BG21327-MS2)		**Source: 1207605-07**			Prepared: 07/11/12 Analyzed: 07/14/12					
Chloride	43.6 +O	0.20	0.050	mg/L	3.0	221	NR	80-120		
Batch BG21338 - alkalinity										
Blank (BG21338-BLK1)					Prepared & Analyzed: 07/13/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
Blank (BG21338-BLK2)					Prepared & Analyzed: 07/13/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
LCS (BG21338-BS1)					Prepared & Analyzed: 07/13/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		
LCS (BG21338-BS2)					Prepared & Analyzed: 07/13/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		

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Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BG21338 - alkalinity										
Matrix Spike (BG21338-MS2)		**Source: 1206553-26**			Prepared & Analyzed: 07/13/12					
Total Alkalinity	150	8.0	2.0	mg/L	120	32	95	80-120		
Matrix Spike Dup (BG21338-MSD2)		**Source: 1206553-26**			Prepared & Analyzed: 07/13/12					
Total Alkalinity	150	8.0	2.0	mg/L	120	32	95	80-120	0	26
Batch BG21339 - Digestion for TKN by EPA 351.2										
Blank (BG21339-BLK1)					Prepared: 07/13/12 Analyzed: 07/17/12					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
LCS (BG21339-BS1)					Prepared: 07/13/12 Analyzed: 07/17/12					
Total Kjeldahl Nitrogen	2.45	0.20	0.05	mg/L	2.5		97	90-110		
Matrix Spike (BG21339-MS1)		**Source: 1207365-02**			Prepared: 07/13/12 Analyzed: 07/17/12					
Total Kjeldahl Nitrogen	3.18	0.20	0.05	mg/L	2.5	0.262	115	80-120		
Matrix Spike Dup (BG21339-MSD1)		**Source: 1207365-02**			Prepared: 07/13/12 Analyzed: 07/17/12					
Total Kjeldahl Nitrogen	2.96	0.20	0.05	mg/L	2.5	0.262	107	80-120	7	20
Batch BG21340 - Digestion for TKN by EPA 351.2										
Blank (BG21340-BLK1)					Prepared: 07/13/12 Analyzed: 07/17/12					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
LCS (BG21340-BS1)					Prepared: 07/13/12 Analyzed: 07/17/12					
Total Kjeldahl Nitrogen	2.51	0.20	0.05	mg/L	2.5		99	90-110		

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Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BG21340 - Digestion for TKN by EPA 351.2										
Matrix Spike (BG21340-MS1)		**Source: 1206553-28**			Prepared: 07/13/12 Analyzed: 07/17/12					
Total Kjeldahl Nitrogen	3.16	0.20	0.05	mg/L	2.5	0.752	95	80-120		
Matrix Spike Dup (BG21340-MSD1)		**Source: 1206553-28**			Prepared: 07/13/12 Analyzed: 07/17/12					
Total Kjeldahl Nitrogen	3.08	0.20	0.05	mg/L	2.5	0.752	92	80-120	3	20
Batch BG21341 - Digestion for TKN by EPA 351.2										
Blank (BG21341-BLK1)					Prepared: 07/13/12 Analyzed: 07/17/12					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
LCS (BG21341-BS1)					Prepared: 07/13/12 Analyzed: 07/17/12					
Total Kjeldahl Nitrogen	2.48	0.20	0.05	mg/L	2.5		98	90-110		
Matrix Spike (BG21341-MS1)		**Source: 1206553-04**			Prepared: 07/13/12 Analyzed: 07/17/12					
Total Kjeldahl Nitrogen	4.26	0.20	0.05	mg/L	2.5	1.69	101	80-120		
Matrix Spike Dup (BG21341-MSD1)		**Source: 1206553-04**			Prepared: 07/13/12 Analyzed: 07/17/12					
Total Kjeldahl Nitrogen	4.34	0.20	0.05	mg/L	2.5	1.69	104	80-120	2	20
Batch BG21601 - Nitrate 353.2 by seal										
Blank (BG21601-BLK1)					Prepared & Analyzed: 07/16/12					
Nitrate+Nitrite (N)	0.01 U	0.04	0.01	mg/L						
LCS (BG21601-BS1)					Prepared & Analyzed: 07/16/12					
Nitrate+Nitrite (N)	0.823	0.04	0.01	mg/L	0.80		103	90-110		

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BG21601 - Nitrate 353.2 by seal										
Matrix Spike (BG21601-MS1)		**Source: 1207365-02**			Prepared & Analyzed: 07/16/12					
Nitrate+Nitrite (N)	0.996	0.04	0.01	mg/L	1.0	ND	100	77-119		
Matrix Spike Dup (BG21601-MSD1)		**Source: 1207365-02**			Prepared & Analyzed: 07/16/12					
Nitrate+Nitrite (N)	0.999	0.04	0.01	mg/L	1.0	ND	100	77-119	0.3	20
Batch BG21602 - Ammonia by SEAL										
Blank (BG21602-BLK1)					Prepared & Analyzed: 07/16/12					
Ammonia as N	0.009 U	0.040	0.009	mg/L						
LCS (BG21602-BS1)					Prepared & Analyzed: 07/16/12					
Ammonia as N	0.52	0.040	0.009	mg/L	0.50		104	90-110		
Matrix Spike (BG21602-MS1)		**Source: 1206553-33**			Prepared & Analyzed: 07/16/12					
Ammonia as N	1.0	0.040	0.009	mg/L	0.50	0.51	101	90-110		
Matrix Spike Dup (BG21602-MSD1)		**Source: 1206553-33**			Prepared & Analyzed: 07/16/12					
Ammonia as N	1.0	0.040	0.009	mg/L	0.50	0.51	97	90-110	2	10
Batch BG21626 - Ion Chromatography 300.0 Prep										
Blank (BG21626-BLK1)					Prepared: 07/11/12 Analyzed: 07/16/12					
Chloride	0.050 U	0.20	0.050	mg/L						
LCS (BG21626-BS1)					Prepared: 07/11/12 Analyzed: 07/16/12					
Chloride	3.06	0.20	0.050	mg/L	3.0		102	85-115		

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BG21626 - Ion Chromatography 300.0 Prep										
LCS Dup (BG21626-BSD1)					Prepared: 07/11/12 Analyzed: 07/16/12					
Chloride	3.08	0.20	0.050	mg/L	3.0		103	85-115	0.7	200
Matrix Spike (BG21626-MS1)		**Source: 1206553-40**			Prepared: 07/11/12 Analyzed: 07/16/12					
Chloride	43.1	0.20	0.050	mg/L	6.0	37.9	87	80-120		
Matrix Spike (BG21626-MS2)		**Source: 1206553-56**			Prepared: 07/11/12 Analyzed: 07/16/12					
Chloride	20.3	0.20	0.050	mg/L	6.0	14.1	103	80-120		
Batch BG21627 - Ion Chromatography 300.0 Prep										
Blank (BG21627-BLK1)					Prepared & Analyzed: 07/17/12					
Chloride	0.050 U	0.20	0.050	mg/L						
LCS (BG21627-BS1)					Prepared & Analyzed: 07/17/12					
Chloride	3.26	0.20	0.050	mg/L	3.0		109	85-115		
LCS Dup (BG21627-BSD1)					Prepared & Analyzed: 07/17/12					
Chloride	3.28	0.20	0.050	mg/L	3.0		109	85-115	0.6	200
Matrix Spike (BG21627-MS1)		**Source: 1207365-01**			Prepared & Analyzed: 07/17/12					
Chloride	7,930	0.20	0.050	mg/L	3000	4890	101	80-120		
Matrix Spike (BG21627-MS2)		**Source: 1207450-01**			Prepared & Analyzed: 07/17/12					
Chloride	2,120	0.20	0.050	mg/L	300	1850	90	80-120		
Batch BG21631 - Nitrate 353.2 by seal										
Blank (BG21631-BLK1)					Prepared & Analyzed: 07/16/12					
Nitrate+Nitrite (N)	0.01 U	0.04	0.01	mg/L						

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Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BG21631 - Nitrate 353.2 by seal										
LCS (BG21631-BS1)					Prepared & Analyzed: 07/16/12					
Nitrate+Nitrite (N)	0.860	0.04	0.01	mg/L	0.80		107	90-110		
Matrix Spike (BG21631-MS1)		**Source: 1207442-01**			Prepared & Analyzed: 07/16/12					
Nitrate+Nitrite (N)	0.933	0.04	0.01	mg/L	1.0	0.0123	92	77-119		
Matrix Spike Dup (BG21631-MSD1)		**Source: 1207442-01**			Prepared & Analyzed: 07/16/12					
Nitrate+Nitrite (N)	0.951	0.04	0.01	mg/L	1.0	0.0123	94	77-119	2	20
Batch BG21632 - Ammonia by SEAL										
Blank (BG21632-BLK1)					Prepared & Analyzed: 07/16/12					
Ammonia as N	0.009 U	0.040	0.009	mg/L						
Blank (BG21632-BLK2)					Prepared & Analyzed: 07/16/12					
Ammonia as N	0.009 U	0.040	0.009	mg/L						
LCS (BG21632-BS1)					Prepared & Analyzed: 07/16/12					
Ammonia as N	0.51	0.040	0.009	mg/L	0.50		103	90-110		
LCS (BG21632-BS2)					Prepared & Analyzed: 07/16/12					
Ammonia as N	0.54	0.040	0.009	mg/L	0.50		108	90-110		
Matrix Spike (BG21632-MS1)		**Source: 1206553-03**			Prepared & Analyzed: 07/16/12					
Ammonia as N	0.87	0.040	0.009	mg/L	0.50	0.37	100	90-110		
Matrix Spike (BG21632-MS2)		**Source: 1206553-29**			Prepared & Analyzed: 07/16/12					
Ammonia as N	0.62	0.040	0.009	mg/L	0.50	0.11	102	90-110		

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Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BG21632 - Ammonia by SEAL										
Matrix Spike Dup (BG21632-MSD1)		**Source: 1206553-03**			Prepared & Analyzed: 07/16/12					
Ammonia as N	0.84	0.040	0.009	mg/L	0.50	0.37	93	90-110	4	10
Matrix Spike Dup (BG21632-MSD2)		**Source: 1206553-29**			Prepared & Analyzed: 07/16/12					
Ammonia as N	0.62	0.040	0.009	mg/L	0.50	0.11	102	90-110	0.1	10
Batch BG21702 - Digestion for TKN by EPA 351.2										
Blank (BG21702-BLK1)					Prepared: 07/17/12 Analyzed: 07/18/12					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
LCS (BG21702-BS1)					Prepared: 07/17/12 Analyzed: 07/18/12					
Total Kjeldahl Nitrogen	2.63	0.20	0.05	mg/L	2.5		104	90-110		
Matrix Spike (BG21702-MS1)		**Source: 1207453-01**			Prepared: 07/17/12 Analyzed: 07/18/12					
Total Kjeldahl Nitrogen	2.99	0.20	0.05	mg/L	2.5	ND	118	80-120		
Matrix Spike Dup (BG21702-MSD1)		**Source: 1207453-01**			Prepared: 07/17/12 Analyzed: 07/18/12					
Total Kjeldahl Nitrogen	2.59	0.20	0.05	mg/L	2.5	ND	102	80-120	14	20
Batch BG21710 - Ion Chromatography 300.0 Prep										
Blank (BG21710-BLK1)					Prepared: 07/11/12 Analyzed: 07/17/12					
Chloride	0.050 U	0.20	0.050	mg/L						
LCS (BG21710-BS1)					Prepared: 07/11/12 Analyzed: 07/17/12					
Chloride	3.08	0.20	0.050	mg/L	3.0		103	85-115		

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Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BG21710 - Ion Chromatography 300.0 Prep										
LCS Dup (BG21710-BSD1)					Prepared: 07/11/12 Analyzed: 07/17/12					
Chloride	2.87	0.20	0.050	mg/L	3.0		96	85-115	7	200
Matrix Spike (BG21710-MS1)		**Source: 1206553-59**			Prepared: 07/11/12 Analyzed: 07/17/12					
Chloride	20.6	0.20	0.050	mg/L	6.0	14.9	95	80-120		
Matrix Spike (BG21710-MS2)		**Source: 1207516-02**			Prepared: 07/11/12 Analyzed: 07/17/12					
Chloride	285	0.20	0.050	mg/L	30	261	80	80-120		
Batch BG21736 - alkalinity										
Blank (BG21736-BLK1)					Prepared & Analyzed: 07/17/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
LCS (BG21736-BS1)					Prepared & Analyzed: 07/17/12					
Total Alkalinity	130	8.0	2.0	mg/L	120		103	90-110		
Matrix Spike (BG21736-MS1)		**Source: 1206553-41**			Prepared & Analyzed: 07/17/12					
Total Alkalinity	130	8.0	2.0	mg/L	120	11	95	80-120		
Matrix Spike Dup (BG21736-MSD1)		**Source: 1206553-41**			Prepared & Analyzed: 07/17/12					
Total Alkalinity	120	8.0	2.0	mg/L	120	11	86	80-120	9	26
Batch BG21737 - alkalinity										
Blank (BG21737-BLK1)					Prepared & Analyzed: 07/17/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						

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Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BG21737 - alkalinity										
LCS (BG21737-BS1)					Prepared & Analyzed: 07/17/12					
Total Alkalinity	130	8.0	2.0	mg/L	120		103	90-110		
Matrix Spike (BG21737-MS1)		**Source: 1206553-73**			Prepared & Analyzed: 07/17/12					
Total Alkalinity	120	8.0	2.0	mg/L	120	ND	95	80-120		
Matrix Spike Dup (BG21737-MSD1)		**Source: 1206553-73**			Prepared & Analyzed: 07/17/12					
Total Alkalinity	130	8.0	2.0	mg/L	120	ND	103	80-120	9	26
Batch BG21804 - Nitrate 353.2 by seal										
Blank (BG21804-BLK1)					Prepared & Analyzed: 07/18/12					
Nitrate+Nitrite (N)	0.01 U	0.04	0.01	mg/L						
LCS (BG21804-BS1)					Prepared & Analyzed: 07/18/12					
Nitrate+Nitrite (N)	0.791	0.04	0.01	mg/L	0.80		99	90-110		
Matrix Spike (BG21804-MS1)		**Source: 1206553-03**			Prepared & Analyzed: 07/18/12					
Nitrate+Nitrite (N)	1.51	0.04	0.01	mg/L	1.0	0.567	94	77-119		
Matrix Spike Dup (BG21804-MSD1)		**Source: 1206553-03**			Prepared & Analyzed: 07/18/12					
Nitrate+Nitrite (N)	1.48	0.04	0.01	mg/L	1.0	0.567	91	77-119	2	20
Batch BG21809 - TOC prep										
Blank (BG21809-BLK1)					Prepared & Analyzed: 07/18/12					
Total Organic Carbon	0.50 U	1.0	0.50	mg/L						

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Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BG21809 - TOC prep										
LCS (BG21809-BS1)					Prepared & Analyzed: 07/18/12					
Total Organic Carbon	10.6	1.0	0.50	mg/L	10		106	90-110		
Matrix Spike (BG21809-MS1)		**Source: 1206553-36**			Prepared & Analyzed: 07/18/12					
Total Organic Carbon	141	1.0	0.50	mg/L	100	42.7	98	85-115		
Matrix Spike Dup (BG21809-MSD1)		**Source: 1206553-36**			Prepared & Analyzed: 07/18/12					
Total Organic Carbon	142	1.0	0.50	mg/L	100	42.7	99	85-115	0.4	10
Batch BG21814 - Ion Chromatography 300.0 Prep										
Blank (BG21814-BLK1)					Prepared & Analyzed: 07/19/12					
Chloride	0.050 U	0.20	0.050	mg/L						
LCS (BG21814-BS1)					Prepared & Analyzed: 07/19/12					
Chloride	3.18	0.20	0.050	mg/L	3.0		106	85-115		
LCS Dup (BG21814-BSD1)					Prepared & Analyzed: 07/19/12					
Chloride	3.20	0.20	0.050	mg/L	3.0		107	85-115	0.6	200
Matrix Spike (BG21814-MS1)		**Source: 1207605-05**			Prepared & Analyzed: 07/19/12					
Chloride	842	0.20	0.050	mg/L	300	561	94	80-120		
Matrix Spike (BG21814-MS2)		**Source: 1207684-05**			Prepared & Analyzed: 07/19/12					
Chloride	324 +O	0.20	0.050	mg/L	60	301	38	80-120		
Batch BG21819 - Nitrate 353.2 by seal										
Blank (BG21819-BLK1)					Prepared & Analyzed: 07/18/12					
Nitrate+Nitrite (N)	0.01 U	0.04	0.01	mg/L						

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BG21819 - Nitrate 353.2 by seal										
LCS (BG21819-BS1)					Prepared & Analyzed: 07/18/12					
Nitrate+Nitrite (N)	0.870	0.04	0.01	mg/L	0.80		109	90-110		
Matrix Spike (BG21819-MS1)		**Source: 1207478-01**			Prepared & Analyzed: 07/18/12					
Nitrate+Nitrite (N)	1.46	0.04	0.01	mg/L	1.0	0.440	102	77-119		
Matrix Spike Dup (BG21819-MSD1)		**Source: 1207478-01**			Prepared & Analyzed: 07/18/12					
Nitrate+Nitrite (N)	1.46	0.04	0.01	mg/L	1.0	0.440	102	77-119	0.4	20

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Inorganic, Dissolved - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BG21203 - TOC prep										
Blank (BG21203-BLK1)					Prepared & Analyzed: 07/12/12					
Dissolved Organic Carbon	0.50 U	1.0	0.50	mg/L						
LCS (BG21203-BS1)					Prepared & Analyzed: 07/12/12					
Dissolved Organic Carbon	10.4	1.0	0.50	mg/L	10		104	90-110		
Matrix Spike (BG21203-MS1)		**Source: 1206553-57**			Prepared & Analyzed: 07/12/12					
Dissolved Organic Carbon	33.5	1.0	0.50	mg/L	10	23.3	102	85-125		
Matrix Spike Dup (BG21203-MSD1)		**Source: 1206553-57**			Prepared & Analyzed: 07/12/12					
Dissolved Organic Carbon	33.3	1.0	0.50	mg/L	10	23.3	100	85-125	0.7	25

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Metals - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BG21209 - Metals Preparation for EPA Method 200.7										
Blank (BG21209-BLK1)					Prepared: 07/12/12 Analyzed: 07/13/12					
Calcium	0.042 U	0.50	0.042	mg/L						
Boron	0.050 U	0.10	0.050	mg/L						
Sodium	0.13 U	0.50	0.13	mg/L						
Potassium	0.11	0.050	0.010	mg/L						
Iron	0.020 U	0.10	0.020	mg/L						
Manganese	0.0010 U	0.010	0.0010	mg/L						
Magnesium	0.020 U	0.50	0.020	mg/L						
LCS (BG21209-BS1)					Prepared: 07/12/12 Analyzed: 07/13/12					
Boron	0.40	0.10	0.050	mg/L	0.40		101	85-115		
Sodium	22	0.50	0.13	mg/L	20		109	85-115		
Calcium	21	0.50	0.042	mg/L	20		107	85-115		
Iron	8.3	0.10	0.020	mg/L	8.0		104	85-115		
Potassium	21	0.050	0.010	mg/L	20		106	85-115		
Magnesium	21	0.50	0.020	mg/L	20		105	85-115		
Manganese	0.41	0.010	0.0010	mg/L	0.40		103	85-115		
Matrix Spike (BG21209-MS1)		**Source: 1206553-01**			Prepared: 07/12/12 Analyzed: 07/13/12					
Iron	8.3	0.10	0.020	mg/L	8.0	0.087	102	70-130		
Potassium	42	0.050	0.010	mg/L	20	22	100	70-130		
Magnesium	33	0.50	0.020	mg/L	20	13	104	70-130		
Calcium	64	0.50	0.042	mg/L	20	43	106	70-130		
Boron	0.45	0.10	0.050	mg/L	0.40	0.054	100	70-130		
Sodium	82	0.50	0.13	mg/L	20	60	112	70-130		
Manganese	0.43	0.010	0.0010	mg/L	0.40	0.033	99	70-130		
Matrix Spike (BG21209-MS2)		**Source: 1207338-01**			Prepared: 07/12/12 Analyzed: 07/13/12					
Manganese	0.40	0.010	0.0010	mg/L	0.40	0.0059	97	70-130		
Boron	0.58	0.10	0.050	mg/L	0.40	0.19	97	70-130		
Sodium	53	0.50	0.13	mg/L	20	33	100	70-130		
Iron	8.1	0.10	0.020	mg/L	8.0	0.14	100	70-130		
Magnesium	22	0.50	0.020	mg/L	20	0.70	104	70-130		
Calcium	23	0.50	0.042	mg/L	20	2.4	105	70-130		
Potassium	29	0.050	0.010	mg/L	20	9.6	99	70-130		

Hazen and Sawyer
10002 Princess Palm Ave, Suite 200
Tampa, FL 33619

August 15, 2012
Work Order: 1206553

Metals - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BG21209 - Metals Preparation for EPA Method 200.7										
Matrix Spike Dup (BG21209-MSD1)		**Source: 1206553-01**			Prepared: 07/12/12 Analyzed: 07/13/12					
Calcium	67	0.50	0.042	mg/L	20	43	121	70-130	5	30
Magnesium	35	0.50	0.020	mg/L	20	13	110	70-130	3	30
Boron	0.45	0.10	0.050	mg/L	0.40	0.054	100	70-130	0.2	30
Sodium	85	0.50	0.13	mg/L	20	60	125	70-130	3	30
Iron	8.2	0.10	0.020	mg/L	8.0	0.087	101	70-130	1	30
Manganese	0.43	0.010	0.0010	mg/L	0.40	0.033	98	70-130	0.4	30
Potassium	43	0.050	0.010	mg/L	20	22	105	70-130	3	30
Matrix Spike Dup (BG21209-MSD2)		**Source: 1207338-01**			Prepared: 07/12/12 Analyzed: 07/13/12					
Calcium	23	0.50	0.042	mg/L	20	2.4	105	70-130	0.3	30
Boron	0.58	0.10	0.050	mg/L	0.40	0.19	98	70-130	0.7	30
Iron	8.4	0.10	0.020	mg/L	8.0	0.14	104	70-130	3	30
Magnesium	22	0.50	0.020	mg/L	20	0.70	105	70-130	0.9	30
Manganese	0.41	0.010	0.0010	mg/L	0.40	0.0059	100	70-130	3	30
Sodium	53	0.50	0.13	mg/L	20	33	101	70-130	0.3	30
Potassium	30	0.050	0.010	mg/L	20	9.6	101	70-130	1	30
Batch BH20303 - Metals Preparation for EPA Method 200.7										
Blank (BH20303-BLK1)					Prepared & Analyzed: 08/03/12					
Iron	0.020 U	0.10	0.020	mg/L						
Potassium	0.010 U	0.050	0.010	mg/L						
Calcium	0.042 U	0.50	0.042	mg/L						
Sodium	0.13 U	0.50	0.13	mg/L						
Manganese	0.0010 U	0.010	0.0010	mg/L						
Magnesium	0.020 U	0.50	0.020	mg/L						
Boron	0.050 U	0.10	0.050	mg/L						

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Tampa, FL 33619

August 15, 2012
Work Order: 1206553

Metals - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BH20303 - Metals Preparation for EPA Method 200.7										
LCS (BH20303-BS1)					Prepared & Analyzed: 08/03/12					
Manganese	0.39	0.010	0.0010	mg/L	0.40		97	85-115		
Potassium	20	0.050	0.010	mg/L	20		100	85-115		
Iron	7.9	0.10	0.020	mg/L	8.0		98	85-115		
Sodium	20	0.50	0.13	mg/L	20		100	85-115		
Boron	0.38	0.10	0.050	mg/L	0.40		95	85-115		
Calcium	20	0.50	0.042	mg/L	20		100	85-115		
Magnesium	20	0.50	0.020	mg/L	20		100	85-115		
Matrix Spike (BH20303-MS1)		**Source: 1208360-01**			Prepared & Analyzed: 08/03/12					
Potassium	20	0.050	0.010	mg/L	20	0.95	97	70-130		
Sodium	25	0.50	0.13	mg/L	20	6.1	93	70-130		
Magnesium	30	0.50	0.020	mg/L	20	11	94	70-130		
Calcium	74 J5	0.50	0.042	mg/L	20	60	69	70-130		
Manganese	0.41	0.010	0.0010	mg/L	0.40	0.0078	101	70-130		
Boron	0.40	0.10	0.050	mg/L	0.40	ND	100	70-130		
Iron	8.4	0.10	0.020	mg/L	8.0	0.085	104	70-130		
Matrix Spike Dup (BH20303-MSD1)		**Source: 1208360-01**			Prepared & Analyzed: 08/03/12					
Calcium	74 J5	0.50	0.042	mg/L	20	60	69	70-130	0.1	30
Iron	8.3	0.10	0.020	mg/L	8.0	0.085	103	70-130	1	30
Manganese	0.41	0.010	0.0010	mg/L	0.40	0.0078	101	70-130	0.5	30
Sodium	26	0.50	0.13	mg/L	20	6.1	98	70-130	4	30
Potassium	21	0.050	0.010	mg/L	20	0.95	99	70-130	2	30
Boron	0.40	0.10	0.050	mg/L	0.40	ND	100	70-130	0.08	30
Magnesium	30	0.50	0.020	mg/L	20	11	93	70-130	0.6	30

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August 15, 2012
Work Order: 1206553

Microbiology - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BG21124 - FC-MF										
Blank (BG21124-BLK1)					Prepared: 07/11/12	Analyzed: 07/12/12				
Fecal Coliforms	1 U	1	1	CFU/100 ml						
Duplicate (BG21124-DUP1)		**Source: 1207352-02**			Prepared: 07/11/12	Analyzed: 07/12/12				
Fecal Coliforms	1 U	1	1	CFU/100 ml		ND				200

SOUTHERN ANALYTICAL LABORATORIES, INC.
110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 FAX 813-855-2218

Hazen and Sawyer
10002 Princess Palm Ave, Suite 200
Tampa, FL 33619

August 15, 2012
Work Order: 1206553

* Qualifiers, Notes and Definitions

Results followed by a "U" indicate that the sample was analyzed but the compound was not detected. Results followed by "I" indicate that the reported value is between the laboratory method detection limts and the laboratory practical quantitation limit.

A statement of estimated uncertainty of test results is available upon request.

For methods marked with **, all QC criteria have been met for this method which is equivalent to a SAL certified method.

Test results in this report meet all the requirements of the NELAC standards. Any applicable qualifiers are shown below.
Questions regarding this report should be directed to Client Services at 813-855-1844.

J5	Matrix spike of this sample was outside typical range. All other QC criteria were acceptable.
+O	Matrix spike source sample was over the reccommended range for the method.

1206553

SOUTHERN ANALYTICAL LABORATORIES, INC.

110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 fax 813-855-2218

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: Seminole County C-HS2 SE #4

Samplers: (Signature)

Matrix Codes: DW-Drinking Water WW-Wastewater SW-SurfaceWater SL-Sludge SO-Soil GW-Groundwater SA-Saline Water O-Other R-Reagent Water

PARAMETER / CONTAINER DESCRIPTION

SAL Use Only Sample No.	Sample Description	Date	Time	Matrix	Composite	Grab	1LP, Cool Total Alkalinity, Cl, CBOD, F, NO_3, OP, SO_4, NO_2	250mL P, H_2SO_4 TKN, NH_3, NOx,	125mL P, $Na_2S_2O_3$ FC-MF	250mL P, HNO_3 B, Ca, Fe, Mg, K, Na, Mn	1LP, Cool Total Alkalinity, Cl	250mL P, H_2SO_4 COD, TKN, NH3, NOx	1LP, Cool Alkalinity, Cl, F, NO_3, OP, SO_4, NO_2	250mL P, H_2SO_4 COD, TKN, NH_3, NOx	40mLaV, HCl TOC	250mLaG, Cool DOC	Field DO	Field pH	Field Temperature	Field Conductivity
01	C-HS2-STE	07/11/12	0915	GW		X	1	1	2	1							1.04	7.0	28.4	1276
02	C-HS2-STE-Dup	07/11/12	0820	GW		X	1	1	2	1							1.04	7.0	28.4	1276
03	C-HS2-SW-6"	07/10/12	0830	GW		X					1	1					3.40	6.5	27.8	318.9
04	C-HS2-SW-M	07/10/12	0825	GW		X					1	1					3.31	6.8	26.9	352.2
05	C-HS2-BKG01-7	07/11/12	0841	GW		X					1	1					0.28	5.8	25.7	347.9
06	C-HS2-BKG02-6	07/11/12	0820	GW		X					1	1					0.14	6.0	24.4	245.3
07	C-HS2-BKG03-7	—	—	GW		X					1	1					—	—	—	—
08	C-HS2-BKG04-7	—	—	GW		X					1	1					—	—	—	—
09	C-HS2-BKG06-12	07/11/12	0905	GW		X					1	1					0.86	5.8	25.4	681
10	C-HS2-BKG07-5	—	—	GW		X					1	1					—	—	—	—
11	C-HS2-BKG07-7	—	—	GW		X				1			1	1	2	1	—	—	—	—
12	C-HS2-BKG07-10	—	—	GW		X					1	1					—	—	—	—

Relinquished	Date/Time	Received	Date/Time
Containers Prepared/ Relinquished: J. Chambers	6-21-12 11:25	Received:	1125 06/21/12
Relinquished:	1155 07/11/12	Received: K. Nudmark	1155 7/11/12
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

Seal intact?	Y N N/A
Samples intact upon arrival?	Y N N/A
Received on ice? Temp_____	Y N N/A
Proper preservatives indicated?	Y N N/A
Rec'd within holding time?	Y N N/A
Volatiles rec'd w/out headspace?	Y N N/A
Proper containers used?	Y N N/A

Instructions / Remarks:

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SOUTHERN ANALYTICAL LABORATORIES, INC.

110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 fax 813-855-2218

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: Seminole County C-HS2 SE #4

Samplers: (Signature)

Matrix Codes:
DW-Drinking Water WW-Wastewater
SW-SurfaceWater SL-Sludge SO-Soil
GW-Groundwater SA-Saline Water O-Other
R-Reagent Water

PARAMETER / CONTAINER DESCRIPTION

SAL Use Only Sample No.	Sample Description	Date	Time	Matrix	Composite	Grab	1LP, Cool Total Alkalinity, Cl, CBOD, F, NO_3, OP, SO_4, NO_2	250mL P, H_2SO_4 TKN, NH_3, NOx,	125mL P, $Na_2S_2O_3$ FC-MF	250mL P, HNO_3 B, Ca, Fe, Mg, K, Na, Mn	1LP, Cool Total Alkalinity, Cl	250mL P, H_2SO_4 COD, TKN, NH3, NOx	1LP, Cool Alkalinity, Cl, F, NO_3, OP, SO_4, NO_2	250mL P, H_2SO_4 COD, TKN, NH_3, NOx	40mLaV, HCl TOC	250mLaG, Cool DOC	Field DO	Field pH	Field Temperature	Field Conductivity
13	C-HS2-A07-6	071012	1440	GW		X					1	1					0.23	5.9	26.3	242
14	C-HS2-A07-8	071012	1510	GW		X				1			1	1	2	1	0.17	6.0	25.5	466
15	C-HS2-A07-11	071012	1535	GW		X					1	1					0.32	4.8	25.0	179.4
16	C-HS2-A09-7	—	—	GW		X					1	1					—	—	—	—
17	C-HS2-A09-9	—	—	GW		X					1	1					—	—	—	—
18	C-HS2-A09-12	—	—	GW		X					1	1					—	—	—	—
19	C-HS2-A10-7	071012	1325	GW		X					1	1					0.41	6.7	29.5	950
20	C-HS2-A10~~9 Dup~~	071012	1355	GW		X					1	1					0.30	6.4	27.7	717
21	C-HS2-A10-9	071012	1350	GW		X					1	1					0.30	6.4	27.7	717
22	C-HS2-A10-12	071012	1410	GW		X					1	1					0.24	4.8	26.0	168.2
23	C-HS2-A11-5	071012	1157	GW		X				1			1	1	2	1	0.25	6.5	29.3	679
24	C-HS2-A11-7	071012	1250	GW		X					1	1					0.35	6.1	26.4	447

Relinquished:	Date/Time:	Received:	Date/Time:
J. Chambers	6-21-12 11:27	[signature]	1127 062112
[signature]	1155 071112	K Mudmad	1155 7/11/12

Seal intact? Y N N/A
Samples intact upon arrival? Y N N/A
Received on ice? Temp_____ Y N N/A
Proper preservatives indicated? Y N N/A
Rec'd within holding time? Y N N/A
Volatiles rec'd w/out headspace? Y N N/A
Proper containers used? Y N N/A

Instructions / Remarks:

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SOUTHERN ANALYTICAL LABORATORIES, INC.

110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 fax 813-855-2218

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: Seminole County C-HS2 SE #4

Samplers: (Signature)

Matrix Codes: DW-Drinking Water WW-Wastewater SW-SurfaceWater SL-Sludge SO-Soil GW-Groundwater SA-Saline Water O-Other R-Reagent Water

PARAMETER / CONTAINER DESCRIPTION

SAL Use Only Sample No.	Sample Description	Date	Time	Matrix	Composite	Grab	1LP, Cool Total Alkalinity, Cl, CBOD, F, NO_3, OP, SO_4, NO_2	250mL P, H_2SO_4 TKN, NH_3, NOx,	125mL P, $Na_2S_2O_3$ FC-MF	250mL P, HNO_3 B, Ca, Fe, Mg, K, Na, Mn	1LP, Cool Total Alkalinity, Cl	250mL P, H_2SO_4 COD, TKN, NH3, NOx	1LP, Cool Alkalinity, Cl, F, NO_3, OP, SO_4, NO_2	250mL P, H_2SO_4 COD, TKN, NH_3, NOx	40mLaV, HCl TOC	250mLaG, Cool DOC	Field DO	Field pH	Field Temperature	Field Conductivity
25	C-HS2-A11-10	071011	1302	GW		X					1	1					0.30	4.9	26.3	166.4
26	C-HS2-A13-5		1355	GW		X					1	1					0.26	5.4	28.6	185.6
27	C-HS2-A13-7		1608	GW		X					1	1					0.14	4.7	27.3	218.3
28	C-HS2-A13-10		1621	GW		X					1	1					0.61	4.7	25.3	160.5
29	C-HS2-B02-6		0925	GW		X				1			1	1	2	1	0.06	6.2	27.0	472.5
30	C-HS2-B02-8		0938	GW		X					1	1					0.05	6.6	26.5	516
31	C-HS2-B02-11		0956	GW		X					1	1					0.23	6.1	25.3	224.9
32	C-HS2-B06-6		1106	GW		X					1	1					0.42	5.7	26.1	353
33	C-HS2-B06-8		1120	GW		X					1	1					0.10	5.3	25.6	219
34	C-HS2-B06-11		1135	GW		X					1	1					0.26	5.0	24.7	153.9
35	C-HS2-B08-5		1000	GW		X				1			1	1	2	1	0.55	5.6	25.9	579
36	~~C-HS2-B08-5-Dup~~			GW		X				1			1	1	2	1	—	—	—	—

Containers Prepared/ Relinquished:	Date/Time:	Received:	Date/Time:
J. Chambers	6-21-12 11:27		1127 06 21 12
Relinquished:	Date/Time: 1155 071112	Received: K Nudmark	Date/Time: 7/11/12 1155
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

Seal intact? Y N (N/A)

Samples intact upon arrival? (Y) N N/A

Received on ice? Temp_____ (Y) N N/A

Proper preservatives indicated? (Y) N N/A

Rec'd within holding time? (Y) N N/A

Volatiles rec'd w/out headspace? Y N (N/A)

Proper containers used? (Y) N N/A

Instructions / Remarks:

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SOUTHERN ANALYTICAL LABORATORIES, INC.

110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 fax 813-855-2218

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: Seminole County C-HS2 SE #4

Samplers: (Signature)

Matrix Codes: DW-Drinking Water WW-Wastewater SW-SurfaceWater SL-Sludge SO-Soil GW-Groundwater SA-Saline Water O-Other R-Reagent Water

PARAMETER / CONTAINER DESCRIPTION

SAL Use Only Sample No.	Sample Description	Date	Time	Matrix	Composite	Grab	1LP, Cool Total Alkalinity, Cl, CBOD, F, NO_3, OP, SO_4, NO_2	250mL P, H_2SO_4 TKN, NH_3, NOx,	125mL P, $Na_2S_2O_3$ FC-MF	250mL P, HNO_3 B, Ca, Fe, Mg, K, Na, Mn	1LP, Cool Total Alkalinity, Cl	250mL P, H_2SO_4 COD, TKN, NH3, NOx	1LP, Cool Alkalinity, Cl, F, NO_3, OP, SO_4, NO_2	250mL P, H_2SO_4 COD, TKN, NH_3, NOx	40mLaV, HCl TOC	250mLaG, Cool DOC	Field DO	Field pH	Field Temperature	Field Conductivity
37	C-HS2-B08-7	071012	1025	GW		X					1	1					0.73	5.9	24.9	442
38	C-HS2-B08-10		1045	GW		X					1	1					0.17	4.8	24.4	144
39	C-HS2-B10-5		0905	GW		X					1	1					0.17	6.2	26.4	649
40	C-HS2-B10-7		0920	GW		X					1	1					0.16	5.87	25.5	419
41	C-HS2-B10-10		0945	GW		X					1	1					0.25	4.4	24.4	141.7
42	C-HS2-B15-5			GW		X					1	1								
43	C-HS2-B15-7			GW		X					1	1								
44	C-HS2-B15-10			GW		X					1	1								
45	C-HS2-C00-5			GW		X					1	1								
46	C-HS2-C00-7			GW		X					1	1								
47	C-HS2-C00-10			GW		X					1	1								
48	C-HS2-C04-5	071012	1014	GW		X					1	1					0.08	6.1	25.4	330.2

Relinquished	Date/Time	Received	Date/Time
Containers Prepared/ Relinquished: J. Chambers	6-21-12 12:17	[signature]	1217 062112
Relinquished: [signature]	1155 07/11/12	K Mudmach	1155 7/11/12
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

Seal intact?	Y N NA
Samples intact upon arrival?	Y N NA
Received on ice? Temp_____	Y N NA
Proper preservatives indicated?	Y N NA
Rec'd within holding time?	Y N NA
Volatiles rec'd w/out headspace?	Y N NA
Proper containers used?	Y N NA

Instructions / Remarks:

1206553

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Rev.Date 11/19/01

Chain of Custody

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SOUTHERN ANALYTICAL LABORATORIES, INC.

110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 fax 813-855-2218

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: Seminole County C-HS2 SE #4

Samplers: (Signature)

Matrix Codes: DW-Drinking Water WW-Wastewater SW-SurfaceWater SL-Sludge SO-Soil GW-Groundwater SA-Saline Water O-Other R-Reagent Water

PARAMETER / CONTAINER DESCRIPTION

SAL Use Only Sample No.	Sample Description	Date	Time	Matrix	Composite	Grab	1LP, Cool Total Alkalinity, Cl, CBOD, F, NO_3, OP, SO_4, NO_2	250mL P, H_2SO_4 TKN, NH_3, NOx,	125mL P, $Na_2S_2O_3$ FC-MF	250mL P, HNO_3 B, Ca, Fe, Mg, K, Na, Mn	1LP, Cool Total Alkalinity, Cl	250mL P, H_2SO_4 COD, TKN, NH3, NOx	1LP, Cool Alkalinity, Cl, F, NO_3, OP, SO_4, NO_2	250mL P, H_2SO_4 COD, TKN, NH_3, NOx	40mLaV, HCl TOC	250mLaG, Cool DOC	Field DO	Field pH	Field Temperature	Field Conductivity
49	C-HS2-C04-7	071012	1026	GW		X					1	1					0.10	~~24.4~~ 5.5	24.9	209.3
50	C-HS2-C04-10		1044	GW		X					1	1					0.12	5.7	24.3	153.5
51	C-HS2-C06-5		1121	GW		X					1	1					0.01	6.1	25.5	423.1
52	C-HS2-C06-7		1138	GW		X					1	1					0.19	6.3	24.8	225.2
53	C-HS2-C06-10		1155	GW		X					1	1					0.14	5.7	24.0	145.7
54	C-HS2-C06-10-Dup		1200	GW		X					1	1					0.14	5.7	24.0	145.7
55	C-HS2-C08-5	071012	1304	GW		X					1	1					0.19	6.3	27.2	319.4
56	C-HS2-C08-5-Dup	071012	1309	GW		X					1	1					0.19	6.3	27.2	319.4
57	C-HS2-C08-7	071012	1322	GW		X				1			1	1	2	1	0.21	6.5	25.8	499
58	C-HS2-C08-10	071012	1343	GW		X					1	1					0.12	5.9	25.0	159.6
59	C-HS2-C10-6	071012	1416	GW		X					1	1					0.23	6.0	27.0	200.7
60	C-HS2-C10-8	071012	1427	GW		X					1	1					0.16	5.8	25.7	233.6

Containers Prepared/ Relinquished:	Date/Time:	Received:	Date/Time:
J. Chambers	6-21-12 12:23		1223 062112
Relinquished:	Date/Time: 1155 071112	Received: K Muelmark	Date/Time: 7/11/12 1155
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

Seal intact? Y N (N/A)

Samples intact upon arrival? (Y) N N/A

Received on ice? Temp_____ (Y) N N/A

Proper preservatives indicated? (Y) N N/A

Rec'd within holding time? (Y) N N/A

Volatiles rec'd w/out headspace? Y N (N/A)

Proper containers used? (Y) N N/A

Instructions / Remarks:

1206553

Chain of Custody.xls
Rev.Date 11/19/01

Chain of Custody

1206553

SOUTHERN ANALYTICAL LABORATORIES, INC.

110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 fax 813-855-2218

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: Seminole County C-HS2 SE #4

Samplers: (Signature)

Matrix Codes: DW-Drinking Water WW-Wastewater SW-SurfaceWater SL-Sludge SO-Soil GW-Groundwater SA-Saline Water O-Other R-Reagent Water

PARAMETER / CONTAINER DESCRIPTION

SAL Use Only Sample No.	Sample Description	Date	Time	Matrix	Composite	Grab	1LP, Cool Total Alkalinity, Cl, CBOD, F, NO_3, OP, SO_4, NO_2	250mL P, H_2SO_4 TKN, NH_3, NOx,	125mL P, $Na_2S_2O_3$ FC-MF	250mL P, HNO_3 B, Ca, Fe, Mg, K, Na, Mn	1LP, Cool Total Alkalinity, Cl	250mL P, H_2SO_4 COD, TKN, NH3, NOx	1LP, Cool Alkalinity, Cl, F, NO_3, OP, SO_4, NO_2	250mL P, H_2SO_4 COD, TKN, NH_3, NOx	40mLaV, HCl TOC	250mLaG, Cool DOC	Field DO	Field pH	Field Temperature	Field Conductivity
61	C-HS2-C10-12	071012	1448	GW		X					1	1					0.13	5.5	25.1	142.4
62	C-HS2-C11-5	071012	1608	GW		X					1	1					0.17	5.4	27.9	167.0
63	C-HS2-C11-7	071112	0735	GW		X					1	1					0.22	5.0	25.0	222.5
64	C-HS2-C11-10	071112	0753	GW		X					1	1					0.18	4.7	24.3	152.3
65	C-HS2-D04-5	—	—	GW		X					1	1					—	—	—	—
66	C-HS2-D04-5-Dup	—	—	GW		X					1	1					—	—	—	—
67	C-HS2-D04-7	—	—	GW		X					1	1					—	—	—	—
68	C-HS2-D04-10	—	—	GW		X					1	1					—	—	—	—
69	C-HS2-D07-6	—	—	GW		X				1			1	1	2	1	—	—	—	—
70	C-HS2-D07-8	—	—	GW		X					1	1					—	—	—	—
71	C-HS2-D07-11	—	—	GW		X					1	1					—	—	—	—
72	FB-Tap	071012	0745	DW		X					1	1					1.28	7.2	24.8	215.9

Containers Prepared/ Relinquished:	Date/Time:	Received:	Date/Time:
J. Chambers	6-21-12 12:23		1233 06/21/12
Relinquished:	Date/Time: 1155 07/11/12	Received: K Nudmark	Date/Time: 7/11/12 1155
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

Seal intact?	Y N (N/A)
Samples intact upon arrival?	(Y) N N/A
Received on ice? Temp_____	(Y) N N/A
Proper preservatives indicated?	(Y) N N/A
Rec'd within holding time?	(Y) N N/A
Volatiles rec'd w/out headspace?	Y N (N/A)
Proper containers used?	(Y) N N/A

Instructions / Remarks:

1206553

Chain of Custody.xls
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Chain of Custody

1206553

SOUTHERN ANALYTICAL LABORATORIES, INC.

110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 fax 813-855-2218

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: Seminole County C-HS2 SE #4

Samplers: (Signature)

Matrix Codes: DW-Drinking Water WW-Wastewater SW-SurfaceWater SL-Sludge SO-Soil GW-Groundwater SA-Saline Water O-Other R-Reagent Water

PARAMETER / CONTAINER DESCRIPTION

SAL Use Only Sample No.	Sample Description	Date	Time	Matrix	Composite	Grab	1LP, Cool Total Alkalinity, Cl, CBOD, F, NO_3, OP, SO_4, NO_2	250mL P, H_2SO_4 TKN, NH_3, NOx,	125mL P, $Na_2S_2O_3$ FC-MF	250mL P, HNO_3 B, Ca, Fe, Mg, K, Na, Mn	1LP, Cool Total Alkalinity, Cl	250mL P, H_2SO_4 COD, TKN, NH3, NOx	1LP, Cool Alkalinity, Cl, F, NO_3, OP, SO_4, NO_2	250mL P, H_2SO_4 COD, TKN, NH_3, NOx	40mLaV, HCl TOC	250mLaG, Cool DOC	Field DO	Field pH	Field Temperature	Field Conductivity
73	FB-DI	07/10/12	0735	R		X					1	1					2.35	7.9	24.4	2.9
74	EB		0740	R		X					1	1					2.35	7.9	24.4	2.9

Containers Prepared/ Relinquished:	Date/Time:	Received:	Date/Time:
J. Chambers	6-21-12 12:23		1223 06/21/12
Relinquished:	Date/Time: 1155 07/11/12	Received: K Wiedmark	Date/Time: 7/11/12 1155
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

Seal intact?	Y N (N/A)
Samples intact upon arrival?	(Y) N N/A
Received on ice? Temp_____	(Y) N N/A
Proper preservatives indicated?	(Y) N N/A
Rec'd within holding time?	(Y) N N/A
Volatiles rec'd w/out headspace?	Y N (N/A)
Proper containers used?	(Y) N N/A

Instructions / Remarks:

1206553

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Rev.Date 11/19/01

Chain of Custody

SOUTHERN ANALYTICAL LABORATORIES, INC.
110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 FAX 813-855-2218

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	071012	SAL Project #	1206553	Project Name	Seminole Co
Well Number	C-HS2-B02-6	Sample ID	29	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	0.75	WELL CAPACITY (gal/ft)	0.02	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	3.05	PURGE PUMP CODE (PP) GP IBP
TOTAL WELL DEPTH (Feet)	5.94	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)
Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)									
WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =									
ONE WELL VOLUME	0.057	1/4 WELL VOLUME		3 WELL VOLUMES	0.171		5 WELL VOLUMES		
EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME									
PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME			EQUIPMENT VOLUME		
INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START	0909	PURGE TIME END	0924	TOTAL PURGED	1.50
INST. ID				SAL-SAM-63-01	SAL-SAM-63-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01	

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
0912	0.30	0.30	0.10	3.22	6.3	27.3	475.3	0.14	23.7	CLOUDY	NONE
0915	0.30	0.60			6.3	27.2	476.0	0.12	47.6		
0918	0.30	0.90			6.3	27.2	474.4	0.10	52.7		
0921	0.30	~~0.~~ 1.20			6.2	27.1	473.8	0.08	68.4		
0924	0.30	1.50			6.2	27.0	472.5	0.06	93.1		

Well Capacity (gallons/foot): 0.75"=0.02, 1.25"=0.06, 2"=0.16, 3"=0.37, 4"=0.65, 5"=1.02, 6"=1.47, 12"5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL			SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP (TL) TT		SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED	0925	SAMPLING ENDED	0926	FIELD CLEANED	Y (N)	CLEANING STEPS	
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)
SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)						
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED					
WEATHER CONDITIONS	Clear, 80°						
COMMENTS							

PUMP CODES: PP=Peristaltic Pump, GP= Submersible Grundfos Pump, IBP= In-place Bladder Pump

TUBING MATERIAL CODES: PP= Polypropylene, PE= Polyethylene, NP= Non-inert Plastic, TL= Teflon Lined, TT= Teflon

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.
110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 FAX 813-855-2218

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	07/012	SAL Project #	1206553	Project Name	Seminole Co
Well Number	C-HS2-B02-8	Sample ID	30	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	0.75	WELL CAPACITY (gal/ft)	0.02	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	3.05	PURGE PUMP CODE (PP) GP IBP
TOTAL WELL DEPTH (Feet)	7.42	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)
Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)									
WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =									
ONE WELL VOLUME	0.087	1/4 WELL VOLUME		3 WELL VOLUMES	0.262		5 WELL VOLUMES		
EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME									
PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME			EQUIPMENT VOLUME		
INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START	0928	PURGE TIME END	0937	TOTAL PURGED	0.90
INST. ID				SAL-SAM-63-01	SAL-SAM-63-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01	

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
0931	0.30	0.30	0.10	3.23	6.6	26.6	499	0.19	18.5	CLEAR	NONE
0934	0.30	0.60	/	/	6.6	26.5	515	0.08	12.6	/	/
0937	0.30	0.90	/	/	6.6	26.5	516	0.05	11.7	/	/

Well Capacity (gallons/foot): 0.75"=0.02, 1.25"=0.06, 2"=0.16, 3"=0.37, 4"=0.65, 5"=1.02, 6"=1.47, 12"5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL				SAMPLER(S) SIGNATURES:				
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP (TL) TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	0938	SAMPLING ENDED	0939	FIELD CLEANED	Y (N)	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Clear, 80°								
COMMENTS									

PUMP CODES: PP=Peristaltic Pump, GP= Submersible Grundfos Pump, IBP= In-place Bladder Pump

TUBING MATERIAL CODES: PP= Polypropylene, PE= Polyethylene, NP= Non-inert Plastic, TL= Teflon Lined, TT= Teflon

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.
110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 FAX 813-855-2218

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	07/11/12	SAL Project #	1206553	Project Name	Seminole Co
Well Number	C-HS2-STE	Sample ID	01	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	~	WELL CAPACITY (gal/ft)	~	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	—	PURGE PUMP CODE (PP) GP IBP
TOTAL WELL DEPTH (Feet)	—	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)
Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)									
WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =									
ONE WELL VOLUME		1/4 WELL VOLUME		3 WELL VOLUMES			5 WELL VOLUMES		
EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME									
PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME			EQUIPMENT VOLUME		
INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START		PURGE TIME END		TOTAL PURGED	
INST. ID				SAL-SAM-63-01	SAL-SAM-63-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01	

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
0915	—	—	—	~	7.0	28.4	RTG	1.04	120	CLOUDY	WASTE

Well Capacity (gallons/foot): 0.75"=0.02, 1.25"=0.06, 2"=0.16, 3"=0.37, 4"=0.65, 5"=1.02, 6"=1.47, 12"5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL					SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL (TT)			SAMPLE TUBING LEGNTH IN WELL (FEET)				SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED	0915	SAMPLING ENDED	0916	FIELD CLEANED	Y (N)	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	(Y) N	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Clear, 84°								
COMMENTS									

PUMP CODES: PP=Peristaltic Pump, GP= Submersible Grundfos Pump, IBP= In-place Bladder Pump

TUBING MATERIAL CODES: PP= Polypropylene, PE= Polyethylene, NP= Non-inert Plastic, TL= Teflon Lined, TT= Teflon

Reviewed By:		Date:	

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.
110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 FAX 813-855-2218

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	07/1/12	SAL Project #	1206553	Project Name	Seminole Co
Well Number	C-HS2-STE-Dup	Sample ID	08	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	—	WELL CAPACITY (gal/ft)	—	Screen Interval (Feet)	UNK To UNK	Static Depth to Water (Feet)	—	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	—	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)		TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	

Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)

WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =

ONE WELL VOLUME		1/4 WELL VOLUME		3 WELL VOLUMES		5 WELL VOLUMES	

EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME

PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME		EQUIPMENT VOLUME	

INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START		PURGE TIME END		TOTAL PURGED	
INST. ID	X	X	X	X	SAL-SAM-63-01	SAL-SAM-63-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01	X	X

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
0820	—	—	—	—	7.0	28.4	1276	1.04	120	CLOUDY	WASTE

Well Capacity (gallons/foot): 0.75"=0.02, 1.25"=0.06, 2"=0.16, 3"=0.37, 4"=0.65, 5"=1.02, 6"=1.47, 12"5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL					SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL (TT)			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	0920	SAMPLING ENDED	0921	FIELD CLEANED	Y (N)	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (μm)		DUPLICATE	(Y) N	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Clear, 84°								
COMMENTS									

PUMP CODES: PP=Peristaltic Pump, GP= Submersible Grundfos Pump, IBP= In-place Bladder Pump

TUBING MATERIAL CODES: PP= Polypropylene, PE= Polyethylene, NP= Non-inert Plastic, TL= Teflon Lined, TT= Teflon

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.
110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 FAX 813-855-2218

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	07 10 12	SAL Project #	1206553	Project Name	Seminole Co
Well Number	C-HS2-SW-6 inch	Sample ID	03	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)		WELL CAPACITY (gal/ft)		Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)		PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)		REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	
Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)										
WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =										
ONE WELL VOLUME			1/4 WELL VOLUME		3 WELL VOLUMES			5 WELL VOLUMES		
EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME										
PUMP VOLUME			TUBING LEGNTH		FLOW CELL VOLUME			EQUIPMENT VOLUME		
INITIAL TUBING LEGNTH IN WELL (FEET)			FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START		PURGE TIME END		TOTAL PURGED	
INST. ID				SAL-SAM-63-01	SAL-SAM-63-01	SAL-SAM-63-01	SAL-SAM-55-01	SAL-SAM-01		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
0830	—	—	—	—	6.5	27.8	318.9	3.40	5.10	CLEAR	WASTE

Well Capacity (gallons/foot): 0.75"=0.02, 1.25"=0.06, 2"=0.16, 3"=0.37, 4"=0.65, 5"=1.02, 6"=1.47, 12"5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL					SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	0830	SAMPLING ENDED	0831	FIELD CLEANED	Y (N)	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Clear, 80°								
COMMENTS									

PUMP CODES: PP=Peristaltic Pump, GP= Submersible Grundfos Pump, IBP= In-place Bladder Pump

TUBING MATERIAL CODES: PP= Polypropylene, PE= Polyethylene, NP= Non-inert Plastic, TL= Teflon Lined, TT= Teflon

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.
110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 FAX 813-855-2218

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	07 10 12	SAL Project #	P06553	Project Name	Seminole Co
Well Number	C-HS2-SW-M	Sample ID	04	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)		WELL CAPACITY (gal/ft)		Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)		REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)	TUBING CAPACITY (gal/ft)	
Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)									
WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =									
ONE WELL VOLUME			1/4 WELL VOLUME		3 WELL VOLUMES			5 WELL VOLUMES	
EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME									
PUMP VOLUME			TUBING LEGNTH		FLOW CELL VOLUME			EQUIPMENT VOLUME	
INITIAL TUBING LEGNTH IN WELL (FEET)			FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START		PURGE TIME END		TOTAL PURGED
INST. ID				SAL-SAM-63-01	SAL-SAM-63-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01	
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
0825	–	–	–	–	6.8	26.9	352.2	3.31	4.73	CLEAR	WASTE

Well Capacity (gallons/foot): 0.75"=0.02, 1.25"=0.06, 2"=0.16, 3"=0.37, 4"=0.65, 5"=1.02, 6"=1.47, 12"5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)		SAL				SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)		PP PE NP TL TT		SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	0825	SAMPLING ENDED	0826	FIELD CLEANED	Y (N)	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (μm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)
PRESERVATION CHECKED IN FIELD?		(Y) N N/A	LIST PRESERVATIVES ADDED						
WEATHER CONDITIONS		Clear, 80°							
COMMENTS									

PUMP CODES: PP=Peristaltic Pump, GP= Submersible Grundfos Pump, IBP= In-place Bladder Pump

TUBING MATERIAL CODES: PP= Polypropylene, PE= Polyethylene, NP= Non-inert Plastic, TL= Teflon Lined, TT= Teflon

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.
110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 FAX 813-855-2218

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	07/1/12	SAL Project #	1206553	Project Name	Seminole Co
Well Number	C-HS2-BKG01-7	Sample ID	05	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	0.75	WELL CAPACITY (gal/ft)	0.02	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	2.62	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	6.75	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	
Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)										
WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =										
ONE WELL VOLUME	0.082	1/4 WELL VOLUME		3 WELL VOLUMES	0.247		5 WELL VOLUMES			
EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME										
PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME			EQUIPMENT VOLUME			
INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START	0831	PURGE TIME END	0840	TOTAL PURGED	0.90	
INST. ID				SAL-SAM-63-01	SAL-SAM-63-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
0834	0.30	0.30	0.10	2.68	5.9	25.7	352.6	1.14	6.72	CLEAR	NONE
0837	0.30	0.60	|	|	5.8	25.7	349.8	0.65	3.52	|	|
0840	0.30	0.90	|	|	5.8	25.7	347.9	0.28	3.18	|	|

Well Capacity (gallons/foot): 0.75"=0.02, 1.25"=0.06, 2"=0.16, 3"=0.37, 4"=0.65, 5"=1.02, 6"=1.47, 12"5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL					SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP (TL) TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	0841	SAMPLING ENDED	0842	FIELD CLEANED	Y (N)	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Clear, 80°								
COMMENTS									

PUMP CODES: PP=Peristaltic Pump, GP= Submersible Grundfos Pump, IBP= In-place Bladder Pump

TUBING MATERIAL CODES: PP= Polypropylene, PE= Polyethylene, NP= Non-inert Plastic, TL= Teflon Lined, TT= Teflon

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.
110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 FAX 813-855-2218

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	07/1/12	SAL Project #	1206553	Project Name	Seminole Co
Well Number	C-HS2-BKG02-6	Sample ID	06	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	0.75	WELL CAPACITY (gal/ft)	0.02	Screen Interval (Feet)	UNK To UNK	Static Depth to Water (Feet)	1.14	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	6.42	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)		TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	

Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)

WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =

ONE WELL VOLUME	0.105	1/4 WELL VOLUME		3 WELL VOLUMES	0.316	5 WELL VOLUMES	

EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME

PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME		EQUIPMENT VOLUME	

INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START	0804	PURGE TIME END	0819	TOTAL PURGED	1.50

INST. ID					SAL-SAM-63-01	SAL-SAM-65-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
0807	0.30	0.30	0.10	1.19	5.9	24.3	240.8	1.03	120	CLOUDY	SULFUR
0810	0.30	0.60			5.9	24.3	241.3	0.72	23.1		
0813	0.30	0.90			5.9	24.3	243.6	0.48	11.8	CLEAR	
0816	0.30	1.20			6.0	24.3	245.2	0.23	9.71		
0819	0.30	1.50			6.0	24.4	245.3	0.14	7.67		

Well Capacity (gallons/foot): 0.75"=0.02, 1.25"=0.06, 2"=0.16, 3"=0.37, 4"=0.65, 5"=1.02, 6"=1.47, 12"5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL			SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT		SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED	0820	SAMPLING ENDED	0821	FIELD CLEANED	Y N	CLEANING STEPS	
FIELD FILTERED?	Y N	FILTER SIZE (µm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A
SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A						
PRESERVATION CHECKED IN FIELD?	Y N N/A	LIST PRESERVATIVES ADDED					
WEATHER CONDITIONS							
COMMENTS							

PUMP CODES: PP=Peristaltic Pump, GP= Submersible Grundfos Pump, IBP= In-place Bladder Pump

TUBING MATERIAL CODES: PP= Polypropylene, PE= Polyethylene, NP= Non-inert Plastic, TL= Teflon Lined, TT= Teflon

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.
110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 FAX 813-855-2218

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	071112	SAL Project #	1206553	Project Name	Seminole Co
Well Number	C-HS2-BKG06-12	Sample ID	09	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	0.75	WELL CAPACITY (gal/ft)		Screen Interval (Feet)	UNK To UNK	Static Depth to Water (Feet)	3.82	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	12.09	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)		TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	

Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)

WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =

ONE WELL VOLUME	0.165	1/4 WELL VOLUME		3 WELL VOLUMES	0.496	5 WELL VOLUMES	

EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME

PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME		EQUIPMENT VOLUME	

INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START	0855	PURGE TIME END	0904	TOTAL PURGED	0.90

INST. ID					SAL-SAM-63-01	SAL-SAM-63-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-04		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
0858	0.30	0.30	0.10	3.90	5.8	25.5	669	0.92	6.93	CLEAR	WASTE
0901	0.30	0.60	|	|	5.8	25.3	676	0.88	5.35	|	|
0904	0.30	0.90	|	|	5.8	25.4	681	0.86	3.93	|	|

Well Capacity (gallons/foot): 0.75"=0.02, 1.25"=0.06, 2"=0.16, 3"=0.37, 4"=0.65, 5"=1.02, 6"=1.47, 12"5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL					SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP (TL) TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	0905	SAMPLING ENDED	0906	FIELD CLEANED	Y (N)	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Clear, 82°								
COMMENTS									

PUMP CODES: PP=Peristaltic Pump, GP= Submersible Grundfos Pump, IBP= In-place Bladder Pump

TUBING MATERIAL CODES: PP= Polypropylene, PE= Polyethylene, NP= Non-inert Plastic, TL= Teflon Lined, TT= Teflon

Reviewed By:		Date:	

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.
110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 FAX 813-855-2218

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	7/10/12 14:40pm	SAL Project #	12065553	Project Name	Seminole Co
Well Number	C-HS2-A07-6	Sample ID	13	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	3/4"	WELL CAPACITY (gal/ft)		Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	4.01	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	6'	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	
Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)										
WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =										
ONE WELL VOLUME		1/4 WELL VOLUME			3 WELL VOLUMES	520 mL		5 WELL VOLUMES		
EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME										
PUMP VOLUME		TUBING LEGNTH			FLOW CELL VOLUME			EQUIPMENT VOLUME		
INITIAL TUBING LEGNTH IN WELL (FEET)			FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START		PURGE TIME END		TOTAL PURGED	4800mL
INST. ID					SAL-SAM-63-____	SAL-SAM-65-____	SAL-SAM-63-____	SAL-SAM-55-__	SAL-SAM-0____	

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	ORP ~~COLOR~~ (Describe) (mV)	ODOR (Describe)
14:25		400mL			5.90	28.2	239				
14:28		900mL			5.79	26.7	241		35.6		
14:30		1200mL			5.88	26.3	242	0.23	36.3	114.0	
14:35											

Well Capacity (gallons/foot): 0.75"=0.02, 1.25"=0.06, 2"=0.16, 3"=0.37, 4"=0.65, 5"=1.02, 6"=1.47, 12"5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)						SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT			SAMPLE TUBING LEGNTH IN WELL (FEET)				SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED		SAMPLING ENDED		FIELD CLEANED	Y N	CLEANING STEPS			
FIELD FILTERED?	Y N	FILTER SIZE (μm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?		Y N N/A	LIST PRESERVATIVES ADDED						
WEATHER CONDITIONS									
COMMENTS									

PUMP CODES: PP=Peristaltic Pump, GP= Submersible Grundfos Pump, IBP= In-place Bladder Pump

TUBING MATERIAL CODES: PP= Polypropylene, PE= Polyethylene, NP= Non-inert Plastic, TL= Teflon Lined, TT= Teflon

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.
110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 FAX 813-855-2218

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	7/10/12 15:10	SAL Project #	1206553	Project Name	Seminole Co
Well Number	C-HS2-A07-8	Sample ID	14	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)		WELL CAPACITY (gal/ft)		Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)		PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)		REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	
Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)										
WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =										
ONE WELL VOLUME			1/4 WELL VOLUME			3 WELL VOLUMES	1048 mL		5 WELL VOLUMES	
EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME										
PUMP VOLUME			TUBING LEGNTH			FLOW CELL VOLUME			EQUIPMENT VOLUME	
INITIAL TUBING LEGNTH IN WELL (FEET)			FINAL TUBING LEGNTH IN WELL (FEET)			PURGE TIME START		PURGE TIME END		TOTAL PURGED 5100 mL
INST. ID					SAL-SAM-63-____	SAL-SAM - 65-_____	SAL-SAM-63-_____	SAL-SAM-55-__	SAL-SAM-0____	
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe) / ODOR (Describe)
14:53	1100				5.94	26.2	471			
14:56	1600				6.06	25.7	464			
14:59	2200				6.01	25.5	463		52.6	
15:02	3000				5.95	25.5	466	.17	42.4	

Well Capacity (gallons/foot): 0.75"=0.02, 1.25"=0.06, 2"=0.16, 3"=0.37, 4"=0.65, 5"=1.02, 6"=1.47, 12"5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)						SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)		PP PE NP TL TT		SAMPLE TUBING LEGNTH IN WELL (FEET)				SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED		SAMPLING ENDED		FIELD CLEANED	Y N	CLEANING STEPS			
FIELD FILTERED?	Y N	FILTER SIZE (µm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?		Y N N/A	LIST PRESERVATIVES ADDED						
WEATHER CONDITIONS									
COMMENTS									

PUMP CODES: PP=Peristaltic Pump, GP= Submersible Grundfos Pump, IBP= In-place Bladder Pump

TUBING MATERIAL CODES: PP= Polypropylene, PE= Polyethylene, NP= Non-inert Plastic, TL= Teflon Lined, TT= Teflon

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.
110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 FAX 813-855-2218

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	7/10/12 15:35pm	SAL Project #	1206553	Project Name	Seminole Co
Well Number	C-HS2-A07-11	Sample ID	15	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	3/4"	WELL CAPACITY (gal/ft)		Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	3.99'	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	11'	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	
Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)										
WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =										
ONE WELL VOLUME		1/4 WELL VOLUME		3 WELL VOLUMES	1830 mL		5 WELL VOLUMES			
EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME										
PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME			EQUIPMEN T VOLUME			
INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START		PURGE TIME END			TOTAL PURGED	3000mL
INST. ID					SAL-SAM-63-____	SAL-SAM - 65-____	SAL-SAM-63-____	SAL-SAM-55-__	SAL-SAM-0____	
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
15:25	400mL				4.82 ~~6.09~~	25.8	176.5				
15:29	800mL				4.82	25.2	172.5		1.22		
15:31	1500mL				4.82	25.0	179.4	0.32	1.37		

Well Capacity (gallons/foot): 0.75"=0.02, 1.25"=0.06, 2"=0.16, 3"=0.37, 4"=0.65, 5"=1.02, 6"=1.47, 12"5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)						SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED		SAMPLING ENDED		FIELD CLEANED	Y N	CLEANING STEPS			
FIELD FILTERED?	Y N	FILTER SIZE (μm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?	Y N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS									
COMMENTS									

PUMP CODES: PP=Peristaltic Pump, GP= Submersible Grundfos Pump, IBP= In-place Bladder Pump

TUBING MATERIAL CODES: PP= Polypropylene, PE= Polyethylene, NP= Non-inert Plastic, TL= Teflon Lined, TT= Teflon

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.
110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 FAX 813-855-2218

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	7/10/12 13:25 pm	SAL Project #	1206553	Project Name	Seminole Co
Well Number	C-HS2-A10-7	Sample ID	19	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)		WELL CAPACITY (gal/ft)		Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	4.25'	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	7'	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	
Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)										
WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =										
ONE WELL VOLUME			1/4 WELL VOLUME		3 WELL VOLUMES	717		5 WELL VOLUMES		
EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME										
PUMP VOLUME			TUBING LEGNTH		FLOW CELL VOLUME			EQUIPMENT VOLUME		
INITIAL TUBING LEGNTH IN WELL (FEET)			FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START		PURGE TIME END		TOTAL PURGED	1900mL
INST. ID				SAL-SAM-63-____	SAL-SAM-65-_____	SAL-SAM-63-_____	SAL-SAM-55-__	SAL-SAM-0_____		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
13:17		400 mL			6.56	29.1	924				
13:19		800			6.60	27.7	938		19.8		
13:21		1200			6.65	28.9	951				
13:23		1800			6.67	29.5	950	0.41	12.40		

Well Capacity (gallons/foot): 0.75"=0.02, 1.25"=0.06, 2"=0.16, 3"=0.37, 4"=0.65, 5"=1.02, 6"=1.47, 12"5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)						SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)		PP PE NP TL TT		SAMPLE TUBING LEGNTH IN WELL (FEET)				SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED		SAMPLING ENDED		FIELD CLEANED	Y N	CLEANING STEPS			
FIELD FILTERED?	Y N	FILTER SIZE (μm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?		Y N N/A	LIST PRESERVATIVES ADDED						
WEATHER CONDITIONS									
COMMENTS									

PUMP CODES: PP=Peristaltic Pump, GP= Submersible Grundfos Pump, IBP= In-place Bladder Pump

TUBING MATERIAL CODES: PP= Polypropylene, PE= Polyethylene, NP= Non-inert Plastic, TL= Teflon Lined, TT= Teflon

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.

110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 FAX 813-855-2218

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	7/10/12 13:55pm	SAL Project #	1206553	Project Name	Seminole Co
Well Number	C-HS2-~~A10-7-Dup~~ A10-9-Dup	Sample ID	20	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)		WELL CAPACITY (gal/ft)		Screen Interval (Feet)	UNK To UNK	Static Depth to Water (Feet)	4.18'	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	9'	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)		TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	

Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)

WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =

ONE WELL VOLUME		1/4 WELL VOLUME		3 WELL VOLUMES	1256 mL	5 WELL VOLUMES	

EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME

PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME		EQUIPMENT VOLUME	

INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START		PURGE TIME END		TOTAL PURGED	
INST. ID				SAL-SAM-63-____	SAL-SAM - 65-_____	SAL-SAM-63-_____	SAL-SAM-55-__	SAL-SAM-0_____	

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
13:37	900				6.38	28.3	711				
13:40	1400				6.34	27.7	712				
13:42	2000mL				6.43	27.7	717	0.30	6.09		

Well Capacity (gallons/foot): 0.75"=0.02, 1.25"=0.06, 2"=0.16, 3"=0.37, 4"=0.65, 5"=1.02, 6"=1.47, 12"5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)						SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)		PP PE NP TL TT		SAMPLE TUBING LEGNTH IN WELL (FEET)				SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED		SAMPLING ENDED		FIELD CLEANED	Y N	CLEANING STEPS			
FIELD FILTERED?	Y N	FILTER SIZE (μm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?		Y N N/A	LIST PRESERVATIVES ADDED						
WEATHER CONDITIONS									
COMMENTS									

PUMP CODES: PP=Peristaltic Pump, GP= Submersible Grundfos Pump, IBP= In-place Bladder Pump

TUBING MATERIAL CODES: PP= Polypropylene, PE= Polyethylene, NP= Non-inert Plastic, TL= Teflon Lined, TT= Teflon

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.
110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 FAX 813-855-2218

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	7/10/12 13:50pm	SAL Project #	1206553	Project Name	Seminole Co
Well Number	C-HS2-A10-9	Sample ID	21	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)		WELL CAPACITY (gal/ft)		Screen Interval (Feet)	UNK To UNK	Static Depth to Water (Feet)	4.18'	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	9'	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)		TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	

Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)

WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =

ONE WELL VOLUME		1/4 WELL VOLUME		3 WELL VOLUMES	1256 mL	5 WELL VOLUMES	

EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME

PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME		EQUIPMENT VOLUME	

INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START		PURGE TIME END		TOTAL PURGED	
INST. ID				SAL-SAM-63-____	SAL-SAM-65-____	SAL-SAM-63-____	SAL-SAM-55-__	SAL-SAM-0____	

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
13:37	900mL				6.38	28.3	711				
13:40	1400mL				6.34	27.7	712				
13:42	2000				6.43	27.7	717	0.30	6.09		

Well Capacity (gallons/foot): 0.75"=0.02, 1.25"=0.06, 2"=0.16, 3"=0.37, 4"=0.65, 5"=1.02, 6"=1.47, 12"5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)						SAMPLER(S) SIGNATURES:	[illegible]		
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED		SAMPLING ENDED		FIELD CLEANED	Y N	CLEANING STEPS			
FIELD FILTERED?	Y N	FILTER SIZE (μm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?		Y N N/A	LIST PRESERVATIVES ADDED						
WEATHER CONDITIONS									
COMMENTS									

PUMP CODES: PP=Peristaltic Pump, GP= Submersible Grundfos Pump, IBP= In-place Bladder Pump

TUBING MATERIAL CODES: PP= Polypropylene, PE= Polyethylene, NP= Non-inert Plastic, TL= Teflon Lined, TT= Teflon

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.
110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 FAX 813-855-2218

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	7/10/12 14:10pm	SAL Project #	1206553	Project Name	Seminole Co
Well Number	C-HS2-A10-12	Sample ID	22	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	3/4"	WELL CAPACITY (gal/ft)		Screen Interval (Feet)	UNK	To	UNK	Static Depth to Water (Feet)	4.20'	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	12'	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)				TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	
Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)											
WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =											
ONE WELL VOLUME			1/4 WELL VOLUME		3 WELL VOLUMES	2032			5 WELL VOLUMES		
EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME											
PUMP VOLUME			TUBING LEGNTH		FLOW CELL VOLUME				EQUIPMEN T VOLUME		
INITIAL TUBING LEGNTH IN WELL (FEET)			FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START			PURGE TIME END		TOTAL PURGED	
INST. ID					SAL-SAM-63-____	SAL-SAM - 65-_____	SAL-SAM-63-_____	SAL-SAM-55-__	SAL-SAM-0_____		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
14:00		400mL			4.75	26.4°C	166.3				
14:05		800mL			4.75	25.7°C	166.4				
14:07		1200mL			4.77	26.0°C	168.2	0.24	1.16		

Well Capacity (gallons/foot): 0.75"=0.02, 1.25"=0.06, 2"=0.16, 3"=0.37, 4"=0.65, 5"=1.02, 6"=1.47, 12"5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)						SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)		PP PE NP TL TT		SAMPLE TUBING LEGNTH IN WELL (FEET)				SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED		SAMPLING ENDED		FIELD CLEANED	Y N	CLEANING STEPS			
FIELD FILTERED?	Y N	FILTER SIZE (µm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?		Y N N/A	SEMI-VOLS COLLECTED THROUGH TRAP? Y N N/A
PRESERVATION CHECKED IN FIELD?		Y N N/A	LIST PRESERVATIVES ADDED						
WEATHER CONDITIONS									
COMMENTS									

PUMP CODES: PP=Peristaltic Pump, GP= Submersible Grundfos Pump, IBP= In-place Bladder Pump

TUBING MATERIAL CODES: PP= Polypropylene, PE= Polyethylene, NP= Non-inert Plastic, TL= Teflon Lined, TT= Teflon

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.
110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 FAX 813-855-2218

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	7/10/12	SAL Project #	1206553	Project Name	Seminole Co
Well Number	C-HS2-A11-5	Sample ID	23	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	3/4"	WELL CAPACITY (gal/ft)		Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	3.01'	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	5'	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	
Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)										
WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =										
ONE WELL VOLUME			1/4 WELL VOLUME		3 WELL VOLUMES	520mL		5 WELL VOLUMES		
EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME										
PUMP VOLUME			TUBING LEGNTH		FLOW CELL VOLUME			EQUIPMENT VOLUME		
INITIAL TUBING LEGNTH IN WELL (FEET)			FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START		PURGE TIME END		TOTAL PURGED	3300mL
INST. ID					SAL-SAM-63-____	SAL-SAM-65-____	SAL-SAM-63-____	SAL-SAM-55-__	SAL-SAM-0____	

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
11:50	500mL				6.48	29.3	767				
11:53	1000mL				6.53	29.1	724		2.25		
11:55	1200mL				6.46	29.1	695				
11:57	1800mL				6.53	29.3	679	0.25	2.43		

Well Capacity (gallons/foot): 0.75"=0.02, 1.25"=0.06, 2"=0.16, 3"=0.37, 4"=0.65, 5"=1.02, 6"=1.47, 12"5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)						SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)		PP PE NP TL TT		SAMPLE TUBING LEGNTH IN WELL (FEET)				SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED		SAMPLING ENDED		FIELD CLEANED	Y N	CLEANING STEPS			
FIELD FILTERED?	Y N	FILTER SIZE (μm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?		Y N N/A	LIST PRESERVATIVES ADDED						
WEATHER CONDITIONS									
COMMENTS									

PUMP CODES: PP=Peristaltic Pump, GP= Submersible Grundfos Pump, IBP= In-place Bladder Pump

TUBING MATERIAL CODES: PP= Polypropylene, PE= Polyethylene, NP= Non-inert Plastic, TL= Teflon Lined, TT= Teflon

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.
110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 FAX 813-855-2218

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	7/10/12 12:50 pm	SAL Project #	1206553	Project Name	Seminole Co
Well Number	C-HS2-A11-7	Sample ID	24	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)		WELL CAPACITY (gal/ft)		Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	3.03'	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	7'	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	
Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)										
WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =										
ONE WELL VOLUME			1/4 WELL VOLUME		3 WELL VOLUMES	1035 mL		5 WELL VOLUMES		
EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME										
PUMP VOLUME			TUBING LEGNTH		FLOW CELL VOLUME			EQUIPMENT VOLUME		
INITIAL TUBING LEGNTH IN WELL (FEET)			FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START		PURGE TIME END		TOTAL PURGED	
INST. ID					SAL-SAM-63-____	SAL-SAM - 65-____	SAL-SAM-63-____	SAL-SAM-55-__	SAL-SAM-0____	

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
12:40	500	500mL			5.83	30.4	403				
12:44	1000				6.00	27.0	438		1.11		
12:46	1500				6.03	26.5	446		0.95		
12:48	2000				6.09	26.4	447	0.35	0.78		

Well Capacity (gallons/foot): 0.75"=0.02, 1.25"=0.06, 2"=0.16, 3"=0.37, 4"=0.65, 5"=1.02, 6"=1.47, 12"5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)						SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)		PP PE NP TL TT		SAMPLE TUBING LEGNTH IN WELL (FEET)				SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED		SAMPLING ENDED		FIELD CLEANED	Y N	CLEANING STEPS			
FIELD FILTERED?	Y N	FILTER SIZE (μm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?		Y N N/A	LIST PRESERVATIVES ADDED						
WEATHER CONDITIONS									
COMMENTS									

PUMP CODES: PP=Peristaltic Pump, GP= Submersible Grundfos Pump, IBP= In-place Bladder Pump

TUBING MATERIAL CODES: PP= Polypropylene, PE= Polyethylene, NP= Non-inert Plastic, TL= Teflon Lined, TT= Teflon

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.
110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 FAX 813-855-2218

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	7/10/12 13:05pm	SAL Project #	1206553	Project Name	Seminole Co
Well Number	C-HS2-A11-10	Sample ID	25	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)		WELL CAPACITY (gal/ft)		Screen Interval (Feet)	UNK To UNK	Static Depth to Water (Feet)	2.99'	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	10'	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)		TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	

Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)

WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =

ONE WELL VOLUME		1/4 WELL VOLUME		3 WELL VOLUMES	1827mL	5 WELL VOLUMES	

EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME

PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME		EQUIPMENT VOLUME	

INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START		PURGE TIME END		TOTAL PURGED	
INST. ID				SAL-SAM-63-____	SAL-SAM - 65-____	SAL-SAM-63-____	SAL-SAM-55-__	SAL-SAM-0____	

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
12:58		500			4.75	~~164.5~~ 27.9	164.5				
13:00		1000			4.93	26.9	164.5		2.00		
13:02		1500			4.85	26.3	166.4	0.30	0.99		

Well Capacity (gallons/foot): 0.75"=0.02, 1.25"=0.06, 2"=0.16, 3"=0.37, 4"=0.65, 5"=1.02, 6"=1.47, 12"5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)				SAMPLER(S) SIGNATURES:	Joseph Hu		
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT		SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED		SAMPLING ENDED		FIELD CLEANED	Y N	CLEANING STEPS	
FIELD FILTERED?	Y N	FILTER SIZE (μm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A
PRESERVATION CHECKED IN FIELD?	Y N N/A	LIST PRESERVATIVES ADDED					SEMI-VOLS COLLECTED THROUGH TRAP? Y N N/A
WEATHER CONDITIONS							
COMMENTS							

PUMP CODES: PP=Peristaltic Pump, GP= Submersible Grundfos Pump, IBP= In-place Bladder Pump

TUBING MATERIAL CODES: PP= Polypropylene, PE= Polyethylene, NP= Non-inert Plastic, TL= Teflon Lined, TT= Teflon

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.

110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 FAX 813-855-2218

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	7/10/12 15:55pm	SAL Project #	1206553	Project Name	Seminole Co
Well Number	C-HS2-A13-5	Sample ID	26	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	3/4"	WELL CAPACITY (gal/ft)		Screen Interval (Feet)	UNK	To	UNK	Static Depth to Water (Feet)	2.32'	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	5'	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)				TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	
Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)											
WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =											
ONE WELL VOLUME			1/4 WELL VOLUME			3 WELL VOLUMES	700mL		5 WELL VOLUMES		
EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME											
PUMP VOLUME			TUBING LEGNTH			FLOW CELL VOLUME			EQUIPMENT VOLUME		
INITIAL TUBING LEGNTH IN WELL (FEET)			FINAL TUBING LEGNTH IN WELL (FEET)			PURGE TIME START		PURGE TIME END		TOTAL PURGED	2700mL
INST. ID					SAL-SAM-63-____	SAL-SAM - 65-_____	SAL-SAM-63-_____	SAL-SAM-55-__	SAL-SAM-0_____		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
15:45	400mL				5.49	30.7	173.2				
15:48	800mL				5.47	29.1	182.9		16.3		
15:52	1200mL				5.39	28.6	185.6	0.26	16.2		

Well Capacity (gallons/foot): 0.75"=0.02, 1.25"=0.06, 2"=0.16, 3"=0.37, 4"=0.65, 5"=1.02, 6"=1.47, 12"5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)						SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)		PP PE NP TL TT		SAMPLE TUBING LEGNTH IN WELL (FEET)				SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED		SAMPLING ENDED		FIELD CLEANED	Y N	CLEANING STEPS			
FIELD FILTERED?	Y N	FILTER SIZE (µm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?		Y N N/A	SEMI-VOLS COLLECTED THROUGH TRAP? Y N N/A
PRESERVATION CHECKED IN FIELD?		Y N N/A	LIST PRESERVATIVES ADDED						
WEATHER CONDITIONS									
COMMENTS									

PUMP CODES: PP=Peristaltic Pump, GP= Submersible Grundfos Pump, IBP= In-place Bladder Pump

TUBING MATERIAL CODES: PP= Polypropylene, PE= Polyethylene, NP= Non-inert Plastic, TL= Teflon Lined, TT= Teflon

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.
110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 FAX 813-855-2218

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	7/10/12	SAL Project #	1206553	Project Name	Seminole Co
Well Number	C-HS2-A13-7	Sample ID	27	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)		WELL CAPACITY (gal/ft)		Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)		REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)	TUBING CAPACITY (gal/ft)	
Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)									
WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =									
ONE WELL VOLUME			1/4 WELL VOLUME		3 WELL VOLUMES	1220 mL		5 WELL VOLUMES	
EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME									
PUMP VOLUME			TUBING LEGNTH		FLOW CELL VOLUME			EQUIPMENT VOLUME	
INITIAL TUBING LEGNTH IN WELL (FEET)			FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START		PURGE TIME END		TOTAL PURGED
INST. ID				SAL-SAM-63-____	SAL-SAM - 65-____	SAL-SAM-63-____	SAL-SAM-55-__	SAL-SAM-0____	

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
16:02					4.90	28.5	209.2				
16:05					4.72	27.6	217.9				
16:08					4.72	27.3	218.3				

Well Capacity (gallons/foot): 0.75"=0.02, 1.25"=0.06, 2"=0.16, 3"=0.37, 4"=0.65, 5"=1.02, 6"=1.47, 12"5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)						SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)		PP PE NP TL TT		SAMPLE TUBING LEGNTH IN WELL (FEET)				SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED		SAMPLING ENDED		FIELD CLEANED	Y N	CLEANING STEPS			
FIELD FILTERED?	Y N	FILTER SIZE (μm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?		Y N N/A	LIST PRESERVATIVES ADDED						
WEATHER CONDITIONS									
COMMENTS									

PUMP CODES: PP=Peristaltic Pump, GP= Submersible Grundfos Pump, IBP= In-place Bladder Pump

TUBING MATERIAL CODES: PP= Polypropylene, PE= Polyethylene, NP= Non-inert Plastic, TL= Teflon Lined, TT= Teflon

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.
110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 FAX 813-855-2218

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	071012	SAL Project #	1206553	Project Name	Seminole Co
Well Number	C-HS2-A13-10	Sample ID	28	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)		WELL CAPACITY (gal/ft)		Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)		REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)	TUBING CAPACITY (gal/ft)	

Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)

WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =

ONE WELL VOLUME		1/4 WELL VOLUME		3 WELL VOLUMES	2004	5 WELL VOLUMES	

EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME

PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME		EQUIPMENT VOLUME	

INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START		PURGE TIME END		TOTAL PURGED	2100mL
INST. ID				SAL-SAM-63-____	SAL-SAM - 65-____	SAL-SAM-63-____	SAL-SAM-55-__	SAL-SAM-0____	

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
16:15	600				4.57	26.3	155.6				
16:19	1100				4.58	25.5	160.1		23.7		
16:21					4.67	25.3	160.5	.61	11.27		

Well Capacity (gallons/foot): 0.75"=0.02, 1.25"=0.06, 2"=0.16, 3"=0.37, 4"=0.65, 5"=1.02, 6"=1.47, 12"5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)						SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)		PP PE NP TL TT		SAMPLE TUBING LEGNTH IN WELL (FEET)				SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED		SAMPLING ENDED		FIELD CLEANED	Y N	CLEANING STEPS			
FIELD FILTERED?	Y N	FILTER SIZE (μm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?		Y N N/A	LIST PRESERVATIVES ADDED						
WEATHER CONDITIONS									
COMMENTS									

PUMP CODES: PP=Peristaltic Pump, GP= Submersible Grundfos Pump, IBP= In-place Bladder Pump

TUBING MATERIAL CODES: PP= Polypropylene, PE= Polyethylene, NP= Non-inert Plastic, TL= Teflon Lined, TT= Teflon

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.
110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 FAX 813-855-2218

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	07/012	SAL Project #	1206553	Project Name	Seminole Co
Well Number	C-HS2-B02-11	Sample ID	31	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	0.75	WELL CAPACITY (gal/ft)	0.02	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	3.08	PURGE PUMP CODE (PP) GP IBP
TOTAL WELL DEPTH (Feet)	10.65	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)

Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)

WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =

ONE WELL VOLUME	0.151	1/4 WELL VOLUME		3 WELL VOLUMES	0.454	5 WELL VOLUMES	

EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME

PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME		EQUIPMENT VOLUME	

INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START	0940	PURGE TIME END	0955	TOTAL PURGED	1.50

INST. ID					SAL-SAM-63-01	SAL-SAM-63-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
0943	0.30	0.30	0.10	3.21	6.2	25.4	216.8	0.46	377	CLOUDY	NONE
0946	0.30	0.60			6.2	25.4	220.2	0.39	370		
0949	0.30	0.90			6.2	25.3	221.9	0.34	265		
0952	0.30	1.20			6.1	25.3	223.4	0.29	228		
0955	0.30	1.50			6.1	25.3	224.9	0.23	208		

Well Capacity (gallons/foot): 0.75"=0.02, 1.25"=0.06, 2"=0.16, 3"=0.37, 4"=0.65, 5"=1.02, 6"=1.47, 12"5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL			SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP (TL) TT		SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED	0956	SAMPLING ENDED	0957	FIELD CLEANED	Y (N)	CLEANING STEPS	
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)
SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)						
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED					
WEATHER CONDITIONS	Clear, 82°						
COMMENTS							

PUMP CODES: PP=Peristaltic Pump, GP= Submersible Grundfos Pump, IBP= In-place Bladder Pump

TUBING MATERIAL CODES: PP= Polypropylene, PE= Polyethylene, NP= Non-inert Plastic, TL= Teflon Lined, TT= Teflon

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.
110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 FAX 813-855-2218

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	7/10/12 11:05am	SAL Project #	12061553	Project Name	Seminole Co
Well Number	C-HS2-B06-6	Sample ID	32	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	3/4"	WELL CAPACITY (gal/ft)		Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	2.91'	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	6'	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	
Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)										
WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =										
ONE WELL VOLUME			1/4 WELL VOLUME		3 WELL VOLUMES	730mL		5 WELL VOLUMES		
EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME										
PUMP VOLUME			TUBING LEGNTH		FLOW CELL VOLUME			EQUIPMENT VOLUME		
INITIAL TUBING LEGNTH IN WELL (FEET)			FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START		PURGE TIME END		TOTAL PURGED	2400
INST. ID					SAL-SAM-63-____	SAL-SAM-65-____	SAL-SAM-63-____	SAL-SAM-55-__	SAL-SAM-0____	
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
11:02	900				5.70	26.4	334				
11:04	700				5.81	26.0	351		7.62		
11:06	1500				5.69	26.1°C	353	0.42	7.62		

Well Capacity (gallons/foot): 0.75"=0.02, 1.25"=0.06, 2"=0.16, 3"=0.37, 4"=0.65, 5"=1.02, 6"=1.47, 12"5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)						SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)		PP PE NP TL TT		SAMPLE TUBING LEGNTH IN WELL (FEET)				SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED		SAMPLING ENDED		FIELD CLEANED	Y N	CLEANING STEPS			
FIELD FILTERED?	Y N	FILTER SIZE (μm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?		Y N N/A	LIST PRESERVATIVES ADDED						
WEATHER CONDITIONS									
COMMENTS									

PUMP CODES: PP=Peristaltic Pump, GP= Submersible Grundfos Pump, IBP= In-place Bladder Pump

TUBING MATERIAL CODES: PP= Polypropylene, PE= Polyethylene, NP= Non-inert Plastic, TL= Teflon Lined, TT= Teflon

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.
110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 FAX 813-855-2218

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	7/10/12 11:20am	SAL Project #	1206553	Project Name	Seminole Co
Well Number	C-HS2-B06-8	Sample ID	33	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	3/4"	WELL CAPACITY (gal/ft)		Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)		PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)		REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	
Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)										
WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =										
ONE WELL VOLUME			1/4 WELL VOLUME		3 WELL VOLUMES	1212mL		5 WELL VOLUMES		
EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME										
PUMP VOLUME			TUBING LEGNTH		FLOW CELL VOLUME			EQUIPMENT VOLUME		
INITIAL TUBING LEGNTH IN WELL (FEET)			FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START		PURGE TIME END		TOTAL PURGED	2000mL
INST. ID					SAL-SAM-63-____	SAL-SAM - 65-____	SAL-SAM-63-____	SAL-SAM-55-__	SAL-SAM-0____	
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
11:15	400				5.27	26.6	202.1				
11:18	800				5.28	25.9	216		3.26		
11:20	1200				5.28	25.6	219	0.10	2.24		

Well Capacity (gallons/foot): 0.75"=0.02, 1.25"=0.06, 2"=0.16, 3"=0.37, 4"=0.65, 5"=1.02, 6"=1.47, 12"5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)						SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)		PP PE NP TL TT		SAMPLE TUBING LEGNTH IN WELL (FEET)				SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED		SAMPLING ENDED		FIELD CLEANED	Y N	CLEANING STEPS			
FIELD FILTERED?	Y N	FILTER SIZE (μm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?		Y N N/A	LIST PRESERVATIVES ADDED						
WEATHER CONDITIONS									
COMMENTS									

PUMP CODES: PP=Peristaltic Pump, GP= Submersible Grundfos Pump, IBP= In-place Bladder Pump

TUBING MATERIAL CODES: PP= Polypropylene, PE= Polyethylene, NP= Non-inert Plastic, TL= Teflon Lined, TT= Teflon

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.

110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 FAX 813-855-2218

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	7/10/12 11:20am	SAL Project #	1206553	Project Name	Seminole Co
Well Number	C-HS2-B06-11	Sample ID	34	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)		WELL CAPACITY (gal/ft)		Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)		REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)	TUBING CAPACITY (gal/ft)	
Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)									
WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =									
ONE WELL VOLUME			1/4 WELL VOLUME		3 WELL VOLUMES	2121 mL		5 WELL VOLUMES	
EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME									
PUMP VOLUME			TUBING LEGNTH		FLOW CELL VOLUME			EQUIPMENT VOLUME	
INITIAL TUBING LEGNTH IN WELL (FEET)			FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START		PURGE TIME END		TOTAL PURGED
INST. ID					SAL-SAM-63-____	SAL-SAM-65-____	SAL-SAM-63-____	SAL-SAM-55-__	SAL-SAM-0____

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
11:30	500				4.88	25.3	155.3				
11:32	1000				4.96	24.9	152.4		16.0		
11:35	1900				4.97	24.7	153.9	0.26	12.0		

Well Capacity (gallons/foot): 0.75"=0.02, 1.25"=0.06, 2"=0.16, 3"=0.37, 4"=0.65, 5"=1.02, 6"=1.47, 12"5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)						SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)		PP PE NP TL TT		SAMPLE TUBING LEGNTH IN WELL (FEET)				SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED		SAMPLING ENDED		FIELD CLEANED	Y N	CLEANING STEPS			
FIELD FILTERED?	Y N	FILTER SIZE (μm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?		Y N N/A	LIST PRESERVATIVES ADDED						
WEATHER CONDITIONS									
COMMENTS									

PUMP CODES: PP=Peristaltic Pump, GP= Submersible Grundfos Pump, IBP= In-place Bladder Pump

TUBING MATERIAL CODES: PP= Polypropylene, PE= Polyethylene, NP= Non-inert Plastic, TL= Teflon Lined, TT= Teflon

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.
110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 FAX 813-855-2218

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	7/10/12 10:00 am	SAL Project #	1206563	Project Name	Seminole Co
Well Number	C-HS2-B08-5	Sample ID	35	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	2 1/4"	WELL CAPACITY (gal/ft)		Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)		REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)	TUBING CAPACITY (gal/ft)	
Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)									
WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =									
ONE WELL VOLUME		1/4 WELL VOLUME		3 WELL VOLUMES	615 mL		5 WELL VOLUMES		
EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME									
PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME			EQUIPMENT VOLUME		
INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START		PURGE TIME END		TOTAL PURGED	
INST. ID				SAL-SAM-63-____	SAL-SAM - 65-____	SAL-SAM-63-____	SAL-SAM-55-__	SAL-SAM-0____	

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
9:57	600				5.70	26.2	561				
9:58	800				5.62	25.9	575		15.6		
9:59	1000				5.63	25.9	579	0.55	13.8		

Well Capacity (gallons/foot): 0.75"=0.02, 1.25"=0.06, 2"=0.16, 3"=0.37, 4"=0.65, 5"=1.02, 6"=1.47, 12"5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)						SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)		PP PE NP TL TT		SAMPLE TUBING LEGNTH IN WELL (FEET)				SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED		SAMPLING ENDED		FIELD CLEANED	Y N	CLEANING STEPS			
FIELD FILTERED?	Y N	FILTER SIZE (μm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?		Y N N/A	LIST PRESERVATIVES ADDED						
WEATHER CONDITIONS									
COMMENTS									

PUMP CODES: PP=Peristaltic Pump, GP= Submersible Grundfos Pump, IBP= In-place Bladder Pump

TUBING MATERIAL CODES: PP= Polypropylene, PE= Polyethylene, NP= Non-inert Plastic, TL= Teflon Lined, TT= Teflon

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.
110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 FAX 813-855-2218

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled		SAL Project #	1206553	Project Name	Seminole Co
Well Number	C-HS2-~~B08-5-Dup~~ B08-7	Sample ID	37	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	3/4"	WELL CAPACITY (gal/ft)		Screen Interval (Feet)	UNK	To	UNK	Static Depth to Water (Feet)		PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)		REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)				TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	
Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)											
WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =											
ONE WELL VOLUME			1/4 WELL VOLUME		3 WELL VOLUMES	1090		5 WELL VOLUMES			
EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME											
PUMP VOLUME			TUBING LEGNTH		FLOW CELL VOLUME			EQUIPMENT VOLUME			
INITIAL TUBING LEGNTH IN WELL (FEET)			FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START		PURGE TIME END			TOTAL PURGED	2200 mL
INST. ID					SAL-SAM-63-____	SAL-SAM - 65-_____	SAL-SAM-63-_____	SAL-SAM-55-__	SAL-SAM-0____		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
10:20	400				5.89	25.7	428				
10:23	800				5.93	25.0	443		5.19		
10:25	1200				5.88	24.9	442	0.73	3.89		

Well Capacity (gallons/foot): 0.75"=0.02, 1.25"=0.06, 2"=0.16, 3"=0.37, 4"=0.65, 5"=1.02, 6"=1.47, 12"5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)						SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)		PP PE NP TL TT		SAMPLE TUBING LEGNTH IN WELL (FEET)				SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED		SAMPLING ENDED		FIELD CLEANED	Y N	CLEANING STEPS			
FIELD FILTERED?	Y N	FILTER SIZE (μm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?		Y N N/A	LIST PRESERVATIVES ADDED						
WEATHER CONDITIONS									
COMMENTS									

PUMP CODES: PP=Peristaltic Pump, GP= Submersible Grundfos Pump, IBP= In-place Bladder Pump

TUBING MATERIAL CODES: PP= Polypropylene, PE= Polyethylene, NP= Non-inert Plastic, TL= Teflon Lined, TT= Teflon

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.
110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 FAX 813-855-2218

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	7/10/12 10:45am	SAL Project #	1206553	Project Name	Seminole Co
Well Number	C-HS2[redacted]10	Sample ID	38	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	3/4"	WELL CAPACITY (gal/ft)		Screen Interval (Feet)	UNK To UNK	Static Depth to Water (Feet)	2.40'	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	10'	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)		TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	

Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)

WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =

ONE WELL VOLUME		1/4 WELL VOLUME		3 WELL VOLUMES	1792 mL	5 WELL VOLUMES	

EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME

PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME		EQUIPMENT VOLUME	

INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START		PURGE TIME END		TOTAL PURGED	
INST. ID				SAL-SAM-63-____	SAL-SAM - 65-____	SAL-SAM-63-____	SAL-SAM-55-__	SAL-SAM-0____	

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
10:37	400 mL				4.74	24.8	142.2				
10:39	800 mL				4.68	24.4	143		11.44		
10:42	1200 mL				4.76	24.4	144	0.17	11.3		

Well Capacity (gallons/foot): 0.75"=0.02, 1.25"=0.06, 2"=0.16, 3"=0.37, 4"=0.65, 5"=1.02, 6"=1.47, 12"5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)				SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT		SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED		SAMPLING ENDED		FIELD CLEANED	Y N	CLEANING STEPS	
FIELD FILTERED?	Y N	FILTER SIZE (μm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A
PRESERVATION CHECKED IN FIELD?	Y N N/A	LIST PRESERVATIVES ADDED				SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A
WEATHER CONDITIONS							
COMMENTS							

PUMP CODES: PP=Peristaltic Pump, GP= Submersible Grundfos Pump, IBP= In-place Bladder Pump

TUBING MATERIAL CODES: PP= Polypropylene, PE= Polyethylene, NP= Non-inert Plastic, TL= Teflon Lined, TT= Teflon

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.
110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 FAX 813-855-2218

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	7/10/12 9:05am	SAL Project #	1206553	Project Name	Seminole Co
Well Number	C-HS2-B10-5	Sample ID	39	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	3/4"	WELL CAPACITY (gal/ft)		Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	2.21'	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	5'	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	

Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)

WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =

ONE WELL VOLUME		1/4 WELL VOLUME		3 WELL VOLUMES	727 mL	5 WELL VOLUMES	

EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME

PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME		EQUIPMENT VOLUME	

INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START		PURGE TIME END		TOTAL PURGED	
INST. ID				SAL-SAM-63-____	SAL-SAM - 65-____	SAL-SAM-63-____	SAL-SAM-55-__	SAL-SAM-0____	

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
9:00	2000				6.12	26.6	639				
9:02	3000				6.15	26.4	642				
9:04	4000				6.18	26.4	649	0.17			

Well Capacity (gallons/foot): 0.75"=0.02, 1.25"=0.06, 2"=0.16, 3"=0.37, 4"=0.65, 5"=1.02, 6"=1.47, 12"5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)						SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT			SAMPLE TUBING LEGNTH IN WELL (FEET)				SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED		SAMPLING ENDED		FIELD CLEANED	Y N	CLEANING STEPS			
FIELD FILTERED?	Y N	FILTER SIZE (μm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?		Y N N/A	LIST PRESERVATIVES ADDED						
WEATHER CONDITIONS									
COMMENTS									

PUMP CODES: PP=Peristaltic Pump, GP= Submersible Grundfos Pump, IBP= In-place Bladder Pump

TUBING MATERIAL CODES: PP= Polypropylene, PE= Polyethylene, NP= Non-inert Plastic, TL= Teflon Lined, TT= Teflon

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.
110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 FAX 813-855-2218

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	7/10/12 9:20am	SAL Project #	1206553	Project Name	Seminole Co
Well Number	C-HS2-B10-7	Sample ID	40	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	3/4"	WELL CAPACITY (gal/ft)		Screen Interval (Feet)	UNK	To	UNK	Static Depth to Water (Feet)		PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)		REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)				TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	
Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)											
WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =											
ONE WELL VOLUME			1/4 WELL VOLUME			3 WELL VOLUMES	1250		5 WELL VOLUMES		
EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME											
PUMP VOLUME			TUBING LEGNTH			FLOW CELL VOLUME			EQUIPMENT VOLUME		
INITIAL TUBING LEGNTH IN WELL (FEET)			FINAL TUBING LEGNTH IN WELL (FEET)			PURGE TIME START		PURGE TIME END		TOTAL PURGED	
INST. ID					SAL-SAM-63-____	SAL-SAM - 65-_____	SAL-SAM-63-_____	SAL-SAM-55-__	SAL-SAM-0_____		
TIME	Total VOLUME PURGED ~~(Gallons)~~ mL	TOTAL VOLUME PURGED ~~(Gallons)~~ mL	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
9:16	800		0.10		5.81	26.2	413				
9:18	1200				5.91	26.1	416		1.2		
9:20	1800				5.87	25.5	419	0.16	1.36		

Well Capacity (gallons/foot): 0.75"=0.02, 1.25"=0.06, 2"=0.16, 3"=0.37, 4"=0.65, 5"=1.02, 6"=1.47, 12"5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)						SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT			SAMPLE TUBING LEGNTH IN WELL (FEET)				SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED		SAMPLING ENDED		FIELD CLEANED	Y N	CLEANING STEPS			
FIELD FILTERED?	Y N	FILTER SIZE (μm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?		Y N N/A	LIST PRESERVATIVES ADDED						
WEATHER CONDITIONS									
COMMENTS									

PUMP CODES: PP=Peristaltic Pump, GP= Submersible Grundfos Pump, IBP= In-place Bladder Pump

TUBING MATERIAL CODES: PP= Polypropylene, PE= Polyethylene, NP= Non-inert Plastic, TL= Teflon Lined, TT= Teflon

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.
110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 FAX 813-855-2218

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	7/10/12 9:45am	SAL Project #	1206553	Project Name	Seminole Co
Well Number	C-HS2-B10-10	Sample ID	41	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	3/4"	WELL CAPACITY (gal/ft)		Screen Interval (Feet)	UNK	To	UNK	Static Depth to Water (Feet)	2.20'	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	10'	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)				TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	
Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)											
WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =											
ONE WELL VOLUME			1/4 WELL VOLUME			3 WELL VOLUMES	2032 mL		5 WELL VOLUMES		
EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME											
PUMP VOLUME			TUBING LEGNTH			FLOW CELL VOLUME			EQUIPMENT VOLUME		
INITIAL TUBING LEGNTH IN WELL (FEET)			FINAL TUBING LEGNTH IN WELL (FEET)			PURGE TIME START		PURGE TIME END		TOTAL PURGED	
INST. ID					SAL-SAM-63-____	SAL-SAM - 65-_____	SAL-SAM-63-_____	SAL-SAM-55-__	SAL-SAM-0_____		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
9:35	600 mL				4.32	25.7	144.8				
9:37	1200				4.41	25.2	140.6				
9:39	1600				4.63	24.3	141.1		9.27		
9:41	1800				4.39	24.4	141.7	0.25	7.12		

Well Capacity (gallons/foot): 0.75"=0.02, 1.25"=0.06, 2"=0.16, 3"=0.37, 4"=0.65, 5"=1.02, 6"=1.47, 12"5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)						SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)		PP PE NP TL TT		SAMPLE TUBING LEGNTH IN WELL (FEET)				SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED		SAMPLING ENDED		FIELD CLEANED	Y N	CLEANING STEPS			
FIELD FILTERED?	Y N	FILTER SIZE (μm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?		Y N N/A	LIST PRESERVATIVES ADDED						
WEATHER CONDITIONS									
COMMENTS									

PUMP CODES: PP=Peristaltic Pump, GP= Submersible Grundfos Pump, IBP= In-place Bladder Pump

TUBING MATERIAL CODES: PP= Polypropylene, PE= Polyethylene, NP= Non-inert Plastic, TL= Teflon Lined, TT= Teflon

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.
110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 FAX 813-855-2218

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	071012	SAL Project #	1206553	Project Name	Seminole Co
Well Number	C-HS2-C04-5	Sample ID	48	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	0.75	WELL CAPACITY (gal/ft)	0.02	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	2.10	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	4.90	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	

Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)

WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =

ONE WELL VOLUME	0.056	1/4 WELL VOLUME		3 WELL VOLUMES	0.168	5 WELL VOLUMES	

EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME

PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME		EQUIPMENT VOLUME	

INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START	0958	PURGE TIME END	1013	TOTAL PURGED	1.50
INST. ID	X	X	X	X	SAL-SAM-63-01	SAL-SAM-63-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
1001	0.30	0.30	0.10	2.19	6.1	25.6	341.8	0.43	23.2	CLOUDY	NONE
1004	0.30	0.60			6.1	25.5	338.1	0.14	27.0		
1007	0.30	0.90			6.1	25.4	335.2	0.08	34.6		
1010	0.30	1.20			6.1	25.4	330.9	0.08	38.3		
1013	0.30	1.50			6.1	25.4	330.2	0.08	39.7		

Well Capacity (gallons/foot): 0.75"=0.02, 1.25"=0.06, 2"=0.16, 3"=0.37, 4"=0.65, 5"=1.02, 6"=1.47, 12"5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL					SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	1014	SAMPLING ENDED	1015	FIELD CLEANED	Y N	CLEANING STEPS			
FIELD FILTERED?	Y N	FILTER SIZE (μm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?	Y N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Clear, 82°								
COMMENTS									

PUMP CODES: PP=Peristaltic Pump, GP= Submersible Grundfos Pump, IBP= In-place Bladder Pump

TUBING MATERIAL CODES: PP= Polypropylene, PE= Polyethylene, NP= Non-inert Plastic, TL= Teflon Lined, TT= Teflon

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.
110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 FAX 813-855-2218

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	071012	SAL Project #	1206553	Project Name	Seminole Co
Well Number	C-HS2-C04-7	Sample ID	49	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	0.75	WELL CAPACITY (gal/ft)	0.02	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	2.12	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	6.94	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	
Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)										
WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =										
ONE WELL VOLUME	0.096	1/4 WELL VOLUME		3 WELL VOLUMES	0.289		5 WELL VOLUMES			
EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME										
PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME			EQUIPMENT VOLUME			
INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START	1016	PURGE TIME END	1025	TOTAL PURGED	0.90	
INST. ID				SAL-SAM-63-01	SAL-SAM-63-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01		

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
1019	0.30	0.30	0.10	2.19	6.0	25.1	206.2	0.41	17.0	CLEAR	NONE
1022	0.30	0.60	|	|	6.0	25.0	207.4	0.15	7.97	|	|
1025	0.30	0.90	|	|	6.0	24.9	209.3	0.10	5.56	|	|

Well Capacity (gallons/foot): 0.75"=0.02, 1.25"=0.06, 2"=0.16, 3"=0.37, 4"=0.65, 5"=1.02, 6"=1.47, 12"5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL					SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	1026	SAMPLING ENDED	1027	FIELD CLEANED	Y N	CLEANING STEPS			
FIELD FILTERED?	Y N	FILTER SIZE (µm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?	Y N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Clear, 81°								
COMMENTS									

PUMP CODES: PP=Peristaltic Pump, GP= Submersible Grundfos Pump, IBP= In-place Bladder Pump

TUBING MATERIAL CODES: PP= Polypropylene, PE= Polyethylene, NP= Non-inert Plastic, TL= Teflon Lined, TT= Teflon

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.
110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 FAX 813-855-2218

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	071012	SAL Project #	1206553	Project Name	Seminole Co
Well Number	C-HS2-C04-10	Sample ID	50	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	0.75	WELL CAPACITY (gal/ft)	0.02	Screen Interval (Feet)	UNK	To	UNK	Static Depth to Water (Feet)	2.14	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	10.78	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)				TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	

Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)

WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =

ONE WELL VOLUME	0.172	1/4 WELL VOLUME		3 WELL VOLUMES	0.518	5 WELL VOLUMES	

EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME

PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME		EQUIPMENT VOLUME	

INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START	1028	PURGE TIME END	1043	TOTAL PURGED	1.50

INST. ID					SAL-SAM-63-01	SAL-SAM-63-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
1031	0.30	0.30	0.10	2.19	5.6	24.4	152.5	0.32	254	CLOUDY	NONE
1034	0.30	0.60			5.6	24.5	152.7	0.28	252		
1037	0.30	0.90			5.6	24.4	153.1	0.15	224		
1040	0.30	1.20			5.6	24.4	153.2	0.13	168		
1043	0.30	1.50			5.7	24.3	153.5	0.12	104		

Well Capacity (gallons/foot): 0.75"=0.02, 1.25"=0.06, 2"=0.16, 3"=0.37, 4"=0.65, 5"=1.02, 6"=1.47, 12"5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL			SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT		SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED	1044	SAMPLING ENDED	1045	FIELD CLEANED	Y N	CLEANING STEPS	
FIELD FILTERED?	Y N	FILTER SIZE (µm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A
SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A						
PRESERVATION CHECKED IN FIELD?	Y N N/A	LIST PRESERVATIVES ADDED					
WEATHER CONDITIONS	Clear, 84°						
COMMENTS							

PUMP CODES: PP=Peristaltic Pump, GP= Submersible Grundfos Pump, IBP= In-place Bladder Pump

TUBING MATERIAL CODES: PP= Polypropylene, PE= Polyethylene, NP= Non-inert Plastic, TL= Teflon Lined, TT= Teflon

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.
110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 FAX 813-855-2218

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	071012	SAL Project #	1206553	Project Name	Seminole Co
Well Number	C-HS2-C06-5	Sample ID	51	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	0.75	WELL CAPACITY (gal/ft)	0.02	Screen Interval (Feet)	UNK To UNK	Static Depth to Water (Feet)	2.0	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	5.0	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)		TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	

Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)

WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =

ONE WELL VOLUME	0.06	1/4 WELL VOLUME		3 WELL VOLUMES	0.18	5 WELL VOLUMES	

EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME

PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME		EQUIPMENT VOLUME	

INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START	1105	PURGE TIME END	1120	TOTAL PURGED	1.50

INST. ID					SAL-SAM-63-01	SAL-SAM-63-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
1108	0.30	0.30	0.10	2.09	6.2	25.7	446.1	0.07	59.3	CLOUDY	NONE
1111	0.30	0.60			6.2	25.5	434.0	0.04	65.0		
1114	0.30	0.90			6.1	25.5	425.5	0.02	50.7		
1117	0.30	1.20			6.1	25.5	423.9	0.02	47.4		
1120	0.30	1.50			6.1	25.5	423.1	0.01	41.6		

Well Capacity (gallons/foot): 0.75"=0.02, 1.25"=0.06, 2"=0.16, 3"=0.37, 4"=0.65, 5"=1.02, 6"=1.47, 12"5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL					SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP (TL) TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	1121	SAMPLING ENDED	1122	FIELD CLEANED	Y (N)	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Clear, 84°								
COMMENTS									

PUMP CODES: PP=Peristaltic Pump, GP= Submersible Grundfos Pump, IBP= In-place Bladder Pump

TUBING MATERIAL CODES: PP= Polypropylene, PE= Polyethylene, NP= Non-inert Plastic, TL= Teflon Lined, TT= Teflon

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.
110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 FAX 813-855-2218

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	07 10 12	SAL Project #	1206553	Project Name	Seminole Co
Well Number	C-HS2-C06-7	Sample ID	52	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	0.75	WELL CAPACITY (gal/ft)	0.02	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	2.04	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	6.80	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	
Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)										
WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =										
ONE WELL VOLUME	0.095	1/4 WELL VOLUME		3 WELL VOLUMES	0.285		5 WELL VOLUMES			
EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME										
PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME			EQUIPMENT VOLUME			
INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START	1122	PURGE TIME END	1137	TOTAL PURGED	1.50	
INST. ID				SAL-SAM-63-01	SAL-SAM-63-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01		

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
1125	0.30	0.30	0.10	2.09	6.3	25.0	227.0	0.38	116	CLOUDY	NONE
1128	0.30	0.60			6.3	24.9	224.9	0.25	61.3		
1131	0.30	0.90			6.3	24.9	224.6	0.23	59.2		
1134	0.30	1.20			6.3	24.9	225.0	0.20	44.8		
1137	0.30	1.50			6.3	24.8	225.2	0.19	43.9		

Well Capacity (gallons/foot): 0.75"=0.02, 1.25"=0.06, 2"=0.16, 3"=0.37, 4"=0.65, 5"=1.02, 6"=1.47, 12"5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL				SAMPLER(S) SIGNATURES:				
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP (TL) TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	1138	SAMPLING ENDED	1139	FIELD CLEANED	Y (N)	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Clean, 85°								
COMMENTS									

PUMP CODES: PP=Peristaltic Pump, GP= Submersible Grundfos Pump, IBP= In-place Bladder Pump

TUBING MATERIAL CODES: PP= Polypropylene, PE= Polyethylene, NP= Non-inert Plastic, TL= Teflon Lined, TT= Teflon

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.
110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 FAX 813-855-2218

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	071012	SAL Project #	1206553	Project Name	Seminole Co
Well Number	C-HS2-C06-10	Sample ID	53	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	0.75	WELL CAPACITY (gal/ft)	0.02	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	2.08	PURGE PUMP CODE (PP) GP IBP
TOTAL WELL DEPTH (Feet)	9.85	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)
Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)									
WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =									
ONE WELL VOLUME	0.155	1/4 WELL VOLUME		3 WELL VOLUMES	0.466		5 WELL VOLUMES		
EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME									
PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME			EQUIPMENT VOLUME		
INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START	1139	PURGE TIME END	1154	TOTAL PURGED	1.50
INST. ID				SAL-SAM-63-01	SAL-SAM-63-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01	

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
1142	0.30	0.30	0.10	2.12	5.7	24.1	145.7	0.31	657	BROWN	NONE
1145	0.30	0.60			5.7	24.1	146.7	0.18	520		
1148	0.30	0.90			5.7	24.0	146.4	0.17	502		
1151	0.30	1.20			5.7	24.0	145.9	0.15	480		
1154	0.30	1.50			5.7	24.0	145.7	0.14	434		

Well Capacity (gallons/foot): 0.75"=0.02, 1.25"=0.06, 2"=0.16, 3"=0.37, 4"=0.65, 5"=1.02, 6"=1.47, 12"5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL					SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP (TL) TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	1155	SAMPLING ENDED	1156	FIELD CLEANED	Y (N)	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Clear, 85°								
COMMENTS									

PUMP CODES: PP=Peristaltic Pump, GP= Submersible Grundfos Pump, IBP= In-place Bladder Pump

TUBING MATERIAL CODES: PP= Polypropylene, PE= Polyethylene, NP= Non-inert Plastic, TL= Teflon Lined, TT= Teflon

Reviewed By:		Date:	

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.
110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 FAX 813-855-2218

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	071012	SAL Project #	1206553	Project Name	Seminole Co
Well Number	C-HS2-C06-10-Dup	Sample ID	54	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	0.75	WELL CAPACITY (gal/ft)	0.02	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	2.08	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	9.85	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	

Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)

WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =

ONE WELL VOLUME		1/4 WELL VOLUME		3 WELL VOLUMES		5 WELL VOLUMES	

EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME

PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME		EQUIPMENT VOLUME	

INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START	1139	PURGE TIME END	1154	TOTAL PURGED	1.50
INST. ID	X	X	X	X	SAL-SAM-63-01	SAL-SAM-63-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01	X	X

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
1142	0.30	0.30	0.10	2.12	5.7	24.1	145.7	0.31	657	BROWN	NONE
1145	0.30	0.60			5.7	24.1	146.7	0.18	520		
1148	0.30	0.90			5.7	24.0	146.4	0.17	502		
1152	0.30	1.20			5.7	24.0	145.9	0.15	480		
1154	0.30	1.50			5.7	24.0	145.7	0.14	434		

Well Capacity (gallons/foot): 0.75"=0.02, 1.25"=0.06, 2"=0.16, 3"=0.37, 4"=0.65, 5"=1.02, 6"=1.47, 12"5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL					SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	1200	SAMPLING ENDED	1201	FIELD CLEANED	Y N	CLEANING STEPS			
FIELD FILTERED?	Y N	FILTER SIZE (µm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?	Y N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Clear, 85°								
COMMENTS									

PUMP CODES: PP=Peristaltic Pump, GP= Submersible Grundfos Pump, IBP= In-place Bladder Pump

TUBING MATERIAL CODES: PP= Polypropylene, PE= Polyethylene, NP= Non-inert Plastic, TL= Teflon Lined, TT= Teflon

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.
110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 FAX 813-855-2218

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	071012	SAL Project #	1206553	Project Name	Seminole Co
Well Number	C-HS2-C08-5	Sample ID	55	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	0.75	WELL CAPACITY (gal/ft)		Screen Interval (Feet)	UNK	To	UNK	Static Depth to Water (Feet)	2.75	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	5.0	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)				TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	

Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)

WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =

ONE WELL VOLUME	0.045	1/4 WELL VOLUME		3 WELL VOLUMES	0.135	5 WELL VOLUMES	

EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME

PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME		EQUIPMENT VOLUME	

INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START	1248	PURGE TIME END	1303	TOTAL PURGED	1.50	
INST. ID	X	X	X	X	SAL-SAM-63-01	SAL-SAM-63-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01	X	X

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
1251	0.30	0.30	0.10	2.81	6.1	27.3	305.5	0.34	246	CLOUDY	NONE
1254	0.30	0.60	|	|	6.1	27.1	314.0	0.26	157	|	|
1257	0.30	0.90	|	|	6.2	27.1	318.9	0.21	133	|	|
1300	0.30	1.20	|	|	6.2	27.2	318.8	0.20	119	|	|
1303	0.30	1.50	|	|	6.3	27.2	319.4	0.19	117	|	|

Well Capacity (gallons/foot): 0.75"=0.02, 1.25"=0.06, 2"=0.16, 3"=0.37, 4"=0.65, 5"=1.02, 6"=1.47, 12"5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL					SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP (TL) TT			SAMPLE TUBING LEGNTH IN WELL (FEET)				SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED	1304	SAMPLING ENDED	1305	FIELD CLEANED	Y (N)	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Clear, 88°								
COMMENTS									

PUMP CODES: PP=Peristaltic Pump, GP= Submersible Grundfos Pump, IBP= In-place Bladder Pump

TUBING MATERIAL CODES: PP= Polypropylene, PE= Polyethylene, NP= Non-inert Plastic, TL= Teflon Lined, TT= Teflon

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.
110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 FAX 813-855-2218

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	071012	SAL Project #	12065553	Project Name	Seminole Co
Well Number	C-HS2-C08-5-Dup	Sample ID	56	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	0.75	WELL CAPACITY (gal/ft)	0.02	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	2.75	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	5.0	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	
Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)										
WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =										
ONE WELL VOLUME	0.045	1/4 WELL VOLUME		3 WELL VOLUMES	0.135		5 WELL VOLUMES			
EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME										
PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME			EQUIPMENT VOLUME			
INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START	1248	PURGE TIME END	1303	TOTAL PURGED	1:50	
INST. ID	X	X	X	X	SAL-SAM-63-01	SAL-SAM-63-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01	X X

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
1251	0.30	0.30	0.10	2.81	6.1	27.3	305.5	0.34	246	CLOUDY	NONE
1254	0.30	0.60			6.1	27.1	314.0	0.26	157		
1257	0.30	0.90			6.2	27.1	318.9	0.21	133		
1300	0.30	1.20			6.2	27.2	318.8	0.20	119		
1303	0.30	1.50			6.3	27.2	319.4	0.19	117		

Well Capacity (gallons/foot): 0.75"=0.02, 1.25"=0.06, 2"=0.16, 3"=0.37, 4"=0.65, 5"=1.02, 6"=1.47, 12"5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL			SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT		SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED	1309	SAMPLING ENDED	1310	FIELD CLEANED	Y N	CLEANING STEPS	
FIELD FILTERED?	Y N	FILTER SIZE (µm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A
						SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?	Y N N/A	LIST PRESERVATIVES ADDED					
WEATHER CONDITIONS	Clear, 88°						
COMMENTS							

PUMP CODES: PP=Peristaltic Pump, GP= Submersible Grundfos Pump, IBP= In-place Bladder Pump

TUBING MATERIAL CODES: PP= Polypropylene, PE= Polyethylene, NP= Non-inert Plastic, TL= Teflon Lined, TT= Teflon

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.
110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 FAX 813-855-2218

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	071012	SAL Project #	1206553	Project Name	Seminole Co
Well Number	C-HS2-C08-7	Sample ID	57	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	0.75	WELL CAPACITY (gal/ft)	0.02	Screen Interval (Feet)	UNK To UNK	Static Depth to Water (Feet)	2.78	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	6.98	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)		TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	

Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)

WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =

ONE WELL VOLUME	0.084	1/4 WELL VOLUME		3 WELL VOLUMES	0.252	5 WELL VOLUMES	

EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME

PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME		EQUIPMENT VOLUME	

INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START	1306	PURGE TIME END	1321	TOTAL PURGED	1.50

INST. ID					SAL-SAM-63-01	SAL-SAM-63-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
1309	0.30	0.30	0.10	2.82	6.5	26.0	500	0.29	102	CLOUDY	NONE
1312	0.30	0.60			6.5	26.0	501	0.24	74.1		
1315	0.30	0.90			6.5	25.9	500	0.22	53.5		
1318	0.30	1.20			6.5	25.9	500	0.22	50.6		
1321	0.30	1.50			6.5	25.8	499	0.21	45.5		

Well Capacity (gallons/foot): 0.75"=0.02, 1.25"=0.06, 2"=0.16, 3"=0.37, 4"=0.65, 5"=1.02, 6"=1.47, 12"5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL					SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP (TL) TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	1322	SAMPLING ENDED	1323	FIELD CLEANED	Y (N)	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Clear, 90°								
COMMENTS									

PUMP CODES: PP=Peristaltic Pump, GP= Submersible Grundfos Pump, IBP= In-place Bladder Pump

TUBING MATERIAL CODES: PP= Polypropylene, PE= Polyethylene, NP= Non-inert Plastic, TL= Teflon Lined, TT= Teflon

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.
110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 FAX 813-855-2218

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	071012	SAL Project #	D06553	Project Name	Seminole Co
Well Number	C-HS2-C08-10	Sample ID	58	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	0.75	WELL CAPACITY (gal/ft)	0.02	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	2.80	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	9.91	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	

Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)

WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =

ONE WELL VOLUME	0.142	1/4 WELL VOLUME		3 WELL VOLUMES	0.426	5 WELL VOLUMES	

EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME

PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME		EQUIPMENT VOLUME	

INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START	1327	PURGE TIME END	1342	TOTAL PURGED	1.50

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
INST. ID	X	X	X	X	SAL-SAM-63-01	SAL-SAM-63-01	SAL-SAM-63-01	SAL-SAM-55-03	SAL-SAM-01	X	X
1330	0.30	0.30	0.10	2.84	5.9	25.4	159.5	0.17	606	BROWN	NONE
1333	0.30	0.60			5.9	24.9	158.2	0.12	482		
1336	0.30	0.90			5.9	24.9	157.8	0.12	379		
1339	0.30	1.20			5.9	25.0	157.7	0.11	282		
1342	0.30	1.50			5.9	25.0	157.6	0.12	239		

Well Capacity (gallons/foot): 0.75"=0.02, 1.25"=0.06, 2"=0.16, 3"=0.37, 4"=0.65, 5"=1.02, 6"=1.47, 12"5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL					SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP (TL) TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	1343	SAMPLING ENDED	1344	FIELD CLEANED	Y (N)	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Clear, 90°								
COMMENTS									

PUMP CODES: PP=Peristaltic Pump, GP= Submersible Grundfos Pump, IBP= In-place Bladder Pump

TUBING MATERIAL CODES: PP= Polypropylene, PE= Polyethylene, NP= Non-inert Plastic, TL= Teflon Lined, TT= Teflon

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.
110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 FAX 813-855-2218

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	071012	SAL Project #	12060553	Project Name	Seminole Co
Well Number	C-1452-C10-6	Sample ID	59	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	0.75	WELL CAPACITY (gal/ft)	0.02	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	3.12	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	5.65	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	

Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)

WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =

ONE WELL VOLUME	0.07	1/4 WELL VOLUME		3 WELL VOLUMES	0.211	5 WELL VOLUMES	

EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME

PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME		EQUIPMENT VOLUME	

INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START	1400	PURGE TIME END	1415	TOTAL PURGED	1.50

INST. ID					SAL-SAM-63-01	SAL-SAM-63-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
1403	0.30	0.30	0.10	3.18	5.9	27.7	162.9	0.52	520	BROWN	NONE
1406	0.30	0.60			6.0	27.2	172.5	0.40	424		
1409	0.30	0.90			6.0	26.9	193.8	0.26	284		
1412	0.30	1.20			6.0	27.0	200.1	0.25	242		
1415	0.30	1.50			6.0	27.0	200.7	0.23	218		

Well Capacity (gallons/foot): 0.75"=0.02, 1.25"=0.06, 2"=0.16, 3"=0.37, 4"=0.65, 5"=1.02, 6"=1.47, 12"5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL					SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP (PL) TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	1416	SAMPLING ENDED	1417	FIELD CLEANED	Y (N)	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (μm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Clean, 90°								
COMMENTS									

PUMP CODES: PP=Peristaltic Pump, GP= Submersible Grundfos Pump, IBP= In-place Bladder Pump

TUBING MATERIAL CODES: PP= Polypropylene, PE= Polyethylene, NP= Non-inert Plastic, TL= Teflon Lined, TT= Teflon

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.

110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 FAX 813-855-2218

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	07/10/12	SAL Project #	12065553	Project Name	Seminole Co
Well Number	C-HS2-C10-8	Sample ID	60	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	0.75	WELL CAPACITY (gal/ft)	0.02	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	3.15	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	7.80	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	

Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)

WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =

ONE WELL VOLUME	0.093	1/4 WELL VOLUME		3 WELL VOLUMES	0.279	5 WELL VOLUMES	

EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME

PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME		EQUIPMENT VOLUME	

INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START	1417	PURGE TIME END	1427	TOTAL PURGED	0.90

INST. ID					SAL-SAM-63-01	SAL-SAM-63-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
1420	0.30	0.30	0.10	3.18	5.8	25.8	229.5	0.24	14.3	CLEAR	NONE
1423	0.30	0.60	|	|	5.8	25.7	229.5	0.18	7.98	|	|
1426	0.30	0.90	|	|	5.8	25.7	233.6	0.16	5.85	|	|

Well Capacity (gallons/foot): 0.75"=0.02, 1.25"=0.06, 2"=0.16, 3"=0.37, 4"=0.65, 5"=1.02, 6"=1.47, 12"5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL					SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP (TL) TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	1427	SAMPLING ENDED	1428	FIELD CLEANED	Y (N)	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Clear, 92°								
COMMENTS									

PUMP CODES: PP=Peristaltic Pump, GP= Submersible Grundfos Pump, IBP= In-place Bladder Pump

TUBING MATERIAL CODES: PP= Polypropylene, PE= Polyethylene, NP= Non-inert Plastic, TL= Teflon Lined, TT= Teflon

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.
110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 FAX 813-855-2218

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	071012	SAL Project #	1206553	Project Name	Seminole Co
Well Number	C-1452-C10-12	Sample ID	01	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	0.75	WELL CAPACITY (gal/ft)	0.02	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	3.19	PURGE PUMP CODE (PP) GP IBP
TOTAL WELL DEPTH (Feet)	9.84	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)

Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)

WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =

ONE WELL VOLUME	0.133	1/4 WELL VOLUME		3 WELL VOLUMES	0.399	5 WELL VOLUMES	

EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME

PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME		EQUIPMENT VOLUME	

INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START	1432	PURGE TIME END	1447	TOTAL PURGED	1.50

INST. ID					SAL-SAM-63-01	SAL-SAM-63-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
1435	0.30	0.30	0.10	3.24	5.5	25.6	142.9	0.24	MAX	BROWN	NONE
1438	0.30	0.60			5.5	25.2	142.3	0.15	MAX		
1441	0.30	0.90			5.5	25.1	142.6	0.15	MAX		
1444	0.30	1.20			5.5	25.1	142.6	0.14	MAX		
1447	0.30	1.50			5.5	25.1	142.4	0.13	MAX		

Well Capacity (gallons/foot): 0.75"=0.02, 1.25"=0.06, 2"=0.16, 3"=0.37, 4"=0.65, 5"=1.02, 6"=1.47, 12"5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL					SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP (TL) TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	1448	SAMPLING ENDED	1449	FIELD CLEANED	Y (N)	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Clear, 92°								
COMMENTS									

PUMP CODES: PP=Peristaltic Pump, GP= Submersible Grundfos Pump, IBP= In-place Bladder Pump

TUBING MATERIAL CODES: PP= Polypropylene, PE= Polyethylene, NP= Non-inert Plastic, TL= Teflon Lined, TT= Teflon

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.
110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 FAX 813-855-2218

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	071012	SAL Project #	1206553	Project Name	Seminole Co
Well Number	C-HS2-C11-5	Sample ID	62	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	0.75	WELL CAPACITY (gal/ft)	0.02	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	2.60	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	4.68	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	

Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)

WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =

ONE WELL VOLUME	0.041	1/4 WELL VOLUME		3 WELL VOLUMES	0.124	5 WELL VOLUMES	

EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME

PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME		EQUIPMENT VOLUME	

INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START	1552	PURGE TIME END	1407	TOTAL PURGED	1.50

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
INST. ID					SAL-SAM-63-01	SAL-SAM-63-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01		
1555	0.30	0.30	0.10	2.67	5.4	29.6	160.5	0.42	MAX	BROWN	NONE
1558	0.30	0.60			5.4	28.7	162.7	0.27	MAX		
1601	0.30	0.90			5.4	28.2	165.2	0.20	MAX		
1604	0.30	1.20			5.4	28.0	166.4	0.19	MAX		
1607	0.30	1.50			5.4	27.9	167.0	0.17	MAX		

Well Capacity (gallons/foot): 0.75"=0.02, 1.25"=0.06, 2"=0.16, 3"=0.37, 4"=0.65, 5"=1.02, 6"=1.47, 12"5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL			SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP (TL) TT		SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED	1608	SAMPLING ENDED	1609	FIELD CLEANED	Y (N)	CLEANING STEPS	
FIELD FILTERED?	Y (N)	FILTER SIZE (μm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)
						SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED					
WEATHER CONDITIONS	Clean, 92°						
COMMENTS							

PUMP CODES: PP=Peristaltic Pump, GP= Submersible Grundfos Pump, IBP= In-place Bladder Pump

TUBING MATERIAL CODES: PP= Polypropylene, PE= Polyethylene, NP= Non-inert Plastic, TL= Teflon Lined, TT= Teflon

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.
110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 FAX 813-855-2218

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:	1206553	Contact:	
				Phone:	
Date Sampled	~~07/10/12~~ 55 07/11/12	SAL Project #	~~63~~	Project Name	Seminole Co
Well Number	C-HS2-C11-7	Sample ID	63	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	0.75	WELL CAPACITY (gal/ft)	0.02	Screen Interval (Feet)	UNK	To	UNK	Static Depth to Water (Feet)	2.92	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	6.80	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)				TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	

Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)

WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =

ONE WELL VOLUME	0.077	1/4 WELL VOLUME		3 WELL VOLUMES	0.232	5 WELL VOLUMES	

EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME

PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME		EQUIPMENT VOLUME	

INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START	0719	PURGE TIME END	0734	TOTAL PURGED	1.50	
INST. ID				SAL-SAM-63-01	SAL-SAM-63-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01		

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
0722	0.30	0.30	0.10	3.01	5.4	24.8	279.4	0.89	505	BROWN	NONE
0725	0.30	0.60			5.1	25.0	239.3	0.54	507		
0728	0.30	0.90			5.1	25.0	232.6	0.48	489		
0731	0.30	1.20			5.0	25.0	228.7	0.34	438		
0734	0.30	1.50			5.0	25.0	222.5	0.22	400		

Well Capacity (gallons/foot): 0.75"=0.02, 1.25"=0.06, 2"=0.16, 3"=0.37, 4"=0.65, 5"=1.02, 6"=1.47, 12"5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL			SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP (TL) TT		SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED	0735	SAMPLING ENDED	0736	FIELD CLEANED	Y (N)	CLEANING STEPS	
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)
SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)						
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED					
WEATHER CONDITIONS	Clear, 76°						
COMMENTS							

PUMP CODES: PP=Peristaltic Pump, GP= Submersible Grundfos Pump, IBP= In-place Bladder Pump

TUBING MATERIAL CODES: PP= Polypropylene, PE= Polyethylene, NP= Non-inert Plastic, TL= Teflon Lined, TT= Teflon

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.
110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 FAX 813-855-2218

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	~~07/01/12~~ 55 071112	SAL Project #	1206553	Project Name	Seminole Co
Well Number	C-HS2-C11-10	Sample ID	64	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	0.75	WELL CAPACITY (gal/ft)	0.02	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	2.95	PURGE PUMP CODE (PP) GP IBP
TOTAL WELL DEPTH (Feet)	9.58	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)
Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)									
WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =									
ONE WELL VOLUME	0.132	1/4 WELL VOLUME		3 WELL VOLUMES	0.397		5 WELL VOLUMES		
EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME									
PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME			EQUIPMENT VOLUME		
INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START	0737	PURGE TIME END	0752	TOTAL PURGED	1.50
INST. ID				SAL-SAM-63-01	SAL-SAM-63-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01	

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
0740	0.30	0.30	0.10	3.03	4.8	24.5	153.0	1.02	501	BROWN	NONE
0743	0.30	0.60			4.8	24.4	153.0	0.76	356		
0746	0.30	0.90			4.7	24.4	152.4	0.48	229	CLOUDY	
0749	0.30	1.20			4.7	24.3	152.2	0.28	202		
0752	0.30	1.50			4.7	24.3	152.3	0.18	160		

Well Capacity (gallons/foot): 0.75"=0.02, 1.25"=0.06, 2"=0.16, 3"=0.37, 4"=0.65, 5"=1.02, 6"=1.47, 12"5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL					SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP (TL) TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	0753	SAMPLING ENDED	0754	FIELD CLEANED	Y (N)	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Clear, 76°								
COMMENTS									

PUMP CODES: PP=Peristaltic Pump, GP= Submersible Grundfos Pump, IBP= In-place Bladder Pump

TUBING MATERIAL CODES: PP= Polypropylene, PE= Polyethylene, NP= Non-inert Plastic, TL= Teflon Lined, TT= Teflon

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.
110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 FAX 813-855-2218

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	07 10 12	SAL Project #	1206553	Project Name	Seminole Co
Well Number	FB-Tap	Sample ID	72	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)		WELL CAPACITY (gal/ft)		Screen Interval (Feet)	UNK To UNK	Static Depth to Water (Feet)		PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)		REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)		TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	
Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)									
WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =									
ONE WELL VOLUME			1/4 WELL VOLUME		3 WELL VOLUMES		5 WELL VOLUMES		
EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME									
PUMP VOLUME			TUBING LEGNTH		FLOW CELL VOLUME		EQUIPMENT VOLUME		
INITIAL TUBING LEGNTH IN WELL (FEET)			FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START		PURGE TIME END	TOTAL PURGED	
INST. ID				SAL-SAM-63-____	SAL-SAM - 65-____	SAL-SAM-63-____	SAL-SAM-55-__	SAL-SAM-0____	
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
0745	—	—	—	—	7.2	24.8	215.9	1.28	0.76	CLEAR	NONE

Well Capacity (gallons/foot): 0.75"=0.02, 1.25"=0.06, 2"=0.16, 3"=0.37, 4"=0.65, 5"=1.02, 6"=1.47, 12"5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL					SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	0745	SAMPLING ENDED	0746	FIELD CLEANED	Y (N)	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (μm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)
PRESERVATION CHECKED IN FIELD?	(Y) N N/A		LIST PRESERVATIVES ADDED						
WEATHER CONDITIONS	Clear, 77°								
COMMENTS									

PUMP CODES: PP=Peristaltic Pump, GP= Submersible Grundfos Pump, IBP= In-place Bladder Pump

TUBING MATERIAL CODES: PP= Polypropylene, PE= Polyethylene, NP= Non-inert Plastic, TL= Teflon Lined, TT= Teflon

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.
110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 FAX 813-855-2218

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	071012	SAL Project #	1206553	Project Name	Seminole Co
Well Number	C-HS2-BKG-DFB-DI	Sample ID	73	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)		WELL CAPACITY (gal/ft)		Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)		PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)		REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	
Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)										
WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =										
ONE WELL VOLUME			1/4 WELL VOLUME		3 WELL VOLUMES			5 WELL VOLUMES		
EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME										
PUMP VOLUME			TUBING LEGNTH		FLOW CELL VOLUME			EQUIPMEN T VOLUME		
INITIAL TUBING LEGNTH IN WELL (FEET)			FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START		PURGE TIME END		TOTAL PURGED	
INST. ID					SAL-SAM-63-01	SAL-SAM - 6501	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01	
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
0735	–	–	–	–	7.9	24.4	2.9	2.35	0.22	CLEAR	NONE

Well Capacity (gallons/foot): 0.75"=0.02, 1.25"=0.06, 2"=0.16, 3"=0.37, 4"=0.65, 5"=1.02, 6"=1.47, 12"5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL				SAMPLER(S) SIGNATURES:				
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	0735	SAMPLING ENDED		FIELD CLEANED	(Y) N	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)	0736	DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)
PRESERVATION CHECKED IN FIELD?	(Y) N N/A		LIST PRESERVATIVES ADDED						
WEATHER CONDITIONS	Clear, 77°								
COMMENTS									

PUMP CODES: PP=Peristaltic Pump, GP= Submersible Grundfos Pump, IBP= In-place Bladder Pump

TUBING MATERIAL CODES: PP= Polypropylene, PE= Polyethylene, NP= Non-inert Plastic, TL= Teflon Lined, TT= Teflon

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.
110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 FAX 813-855-2218

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	071012	SAL Project #	176553	Project Name	Seminole Co
Well Number	EB	Sample ID	74	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)		WELL CAPACITY (gal/ft)		Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)		PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)		REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	
Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)										
WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =										
ONE WELL VOLUME			1/4 WELL VOLUME		3 WELL VOLUMES			5 WELL VOLUMES		
EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME										
PUMP VOLUME			TUBING LEGNTH		FLOW CELL VOLUME			EQUIPMENT VOLUME		
INITIAL TUBING LEGNTH IN WELL (FEET)			FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START		PURGE TIME END		TOTAL PURGED	
INST. ID					SAL-SAM-63-01	SAL-SAM-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01	
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
0740	—	—	—	—	7.9	24.4	2.9	2.35	0.22	CLEAR	NONE

Well Capacity (gallons/foot): 0.75"=0.02, 1.25"=0.06, 2"=0.16, 3"=0.37, 4"=0.65, 5"=1.02, 6"=1.47, 12"5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)		SAL				SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)		PP PE NP TL TT		SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	0740	SAMPLING ENDED	0741	FIELD CLEANED	(Y) N	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)
PRESERVATION CHECKED IN FIELD?		Y N (N/A)	LIST PRESERVATIVES ADDED						
WEATHER CONDITIONS	Clear, 77°								
COMMENTS									

PUMP CODES: PP=Peristaltic Pump, GP= Submersible Grundfos Pump, IBP= In-place Bladder Pump

TUBING MATERIAL CODES: PP= Polypropylene, PE= Polyethylene, NP= Non-inert Plastic, TL= Teflon Lined, TT= Teflon

Reviewed By: Date:

Revision Date 09/25/09