FLORIDA DEPARTMENT OF HEALTH

# Florida Onsite Sewage Nitrogen Reduction Strategies Study

Task C.25

## C-HS2 Monitoring Data Summary Report No. 3

## Progress Report

April 2012

4423-001


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Applied Environmental Technology

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# Florida Onsite Sewage Nitrogen Reduction Strategies Study

## TASK C.25
## PROGRESS REPORT

## C-HS2 Monitoring
## Data Summary Report No. 3

**Prepared for:**

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**April 2012**

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# C-HS2 Monitoring
# Data Summary Report No. 3

## 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 of 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 preliminary sample collection and analyses.

## 2.0 Purpose

This report documents data that was collected in the third C-HS2 mound monitoring and sampling event which was conducted March 13, 2012. The corresponding sample event report was submitted as C-HS2 Sample Event Report No. 3, March 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. A total of 62 specific monitoring locations were sampled during this third C-HS2 sampling event.

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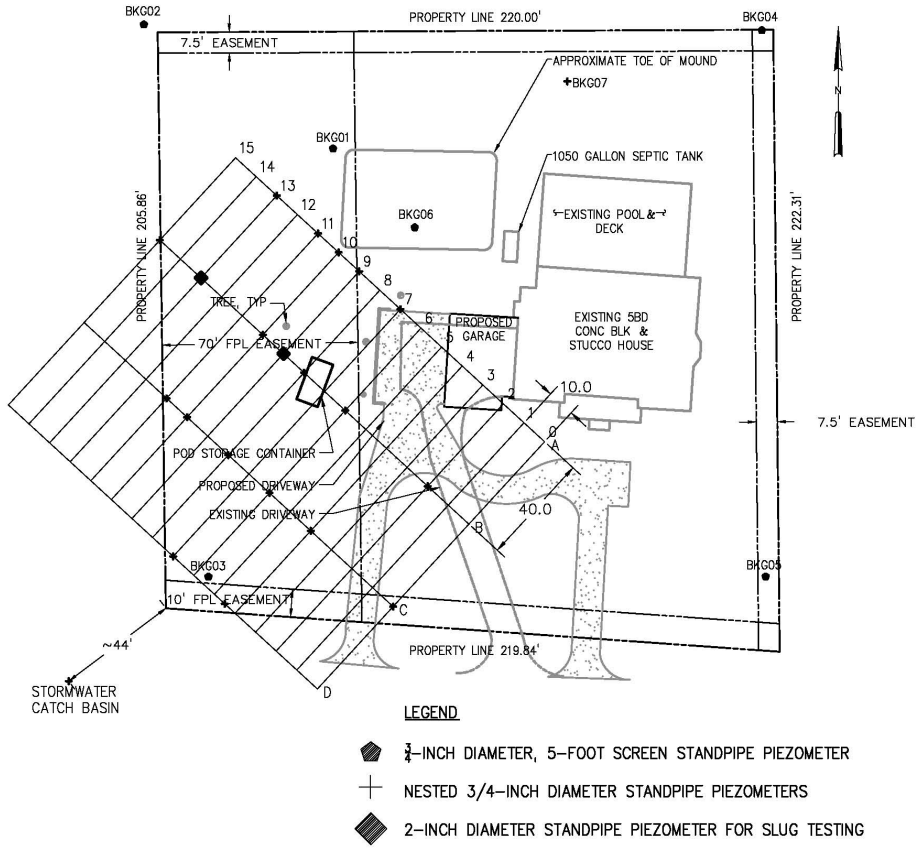


**Figure 1**
**C-HS2 Monitoring Network**

## 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 March 13, 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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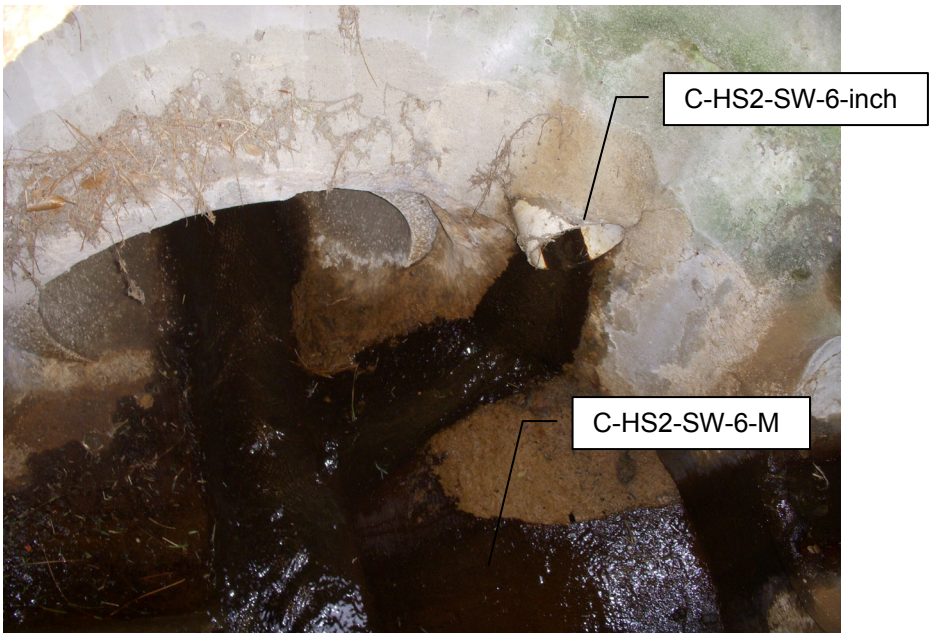


**Figure 2**
**Photo of Stormwater Catch Basin Southwest of Property**

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-A10-7
- C-HS2-B08-5
- C-HS2-C06-10
- C-HS2-C08-5
- C-HS2-D07-6

Field parameters (pH, specific conductance, temperature (Temp), and dissolved oxygen (DO)) were measured using portable electronic probes with probe tips placed in an over-

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flowing plastic beaker as groundwater was being pumped. All samples were analyzed 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 total phosphorus (TP). 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 ($CBOD_5$), total solids (TS), and total suspended solids (TSS) 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 |
| Total Phosphorus (TP) | SM 4500P-E | 0.05 mg/L |
| Total Solids (TS) | SM 2540B | 10 mg/L |
| Total Suspended Solids (TSS) | SM 2540D | 1 mg/L |
| Dissolved Organic Carbon (DOC) | SM 5310B | 0.5 mg/L |
| Total Organic Carbon (TOC) | SM 5310B | 0.5 mg/L |
| 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 |

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## 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 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 |

[1]Homeowner refilled swimming pool between readings.

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 March 3, 2012 – March 13, 2012**

| Date | Temperature (°F) | | | Humidity (%) | Wind (mph) | Rain Total (inches) |
|---|---|---|---|---|---|---|
| | High | Avg | Low | Avg | Avg | Sum |
| 3/3/2012 | 88 | 77 | 68 | 68 | 8 | 0 |
| 3/4/2012 | 76 | 62 | 44 | 57 | 9 | 0.25 |
| 3/5/2012 | 78 | 58 | 38 | 54 | 2 | 0 |
| 3/6/2012 | 74 | 63 | 50 | 66 | 4 | 0 |
| 3/7/2012 | 77 | 67 | 56 | 69 | 5 | 0 |
| 3/8/2012 | 84 | 70 | 59 | 76 | 4 | 0 |
| 3/9/2012 | 86 | 73 | 67 | 78 | 3 | 0.05 |
| 3/10/2012 | 79 | 69 | 65 | 86 | 6 | 0.06 |
| 3/11/2012 | 70 | 67 | 66 | 88 | 6 | 0.33 |
| 3/12/2012 | 80 | 69 | 58 | 71 | 4 | 0 |
| 3/13/2012 | 83 | 68 | 56 | 73 | 2 | 0 |

## 4.2 Groundwater Levels

Water levels were measured within the standpipe piezometers sampled on March 13, 2012 for this sampling event as summarized in Table 4. Figures 3 through 5 illustrate the surficial groundwater contours as measured within the standpipe piezometers on July 27, 2011 (Figure 3), November 30, 2011 (Figure 4), and March 13, 2012 (Figure 5) during each of the sample events. A summary of all recorded groundwater elevations taken at the standpipe piezometers within the grid is presented in Appendix D. 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. 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 March 13, 2012**

| Identification | Water Table Elevation (feet) | Identification | Water Table Elevation (feet) |
|---|---|---|---|
| C-HS2-PZ01 | 92.26 | C-HS2-B10-10 | 92.06 |
| C-HS2-PZ02 | 91.99 | C-HS2-B15-5 | 91.91 |
| C-HS2-PZ03 | 91.08 | C-HS2-B15-7 | 91.85 |
| C-HS2-PZ04 | 93.26 | C-HS2-B15-10 | 91.84 |
| C-HS2-PZ05 | No reading | C-HS2-C00-5 | No reading |
| C-HS2-PZ06 | 92.50 | C-HS2-C00-7 | No reading |
| C-HS2-A07-6 | 92.33 | C-HS2-C00-10 | No reading |
| C-HS2-A07-8 | 92.39 | C-HS2-C04-5 | 91.80 |
| C-HS2-A07-11 | 92.34 | C-HS2-C04-7 | 91.78 |
| C-HS2-A09-7 | 92.33 | C-HS2-C04-10 | 91.80 |
| C-HS2-A09-9 | 92.28 | C-HS2-C06-5 | 91.73 |
| C-HS2-A09-12 | 92.27 | C-HS2-C06-7 | 91.72 |
| C-HS2-A10-7 | 92.29 | C-HS2-C06-10 | 91.72 |
| C-HS2-A10-9 | 92.31 | C-HS2-C08-5 | 91.77 |
| C-HS2-A10-12 | 92.31 | C-HS2-C08-7 | 91.74 |
| C-HS2-A11-5 | 92.24 | C-HS2-C08-10 | 91.73 |
| C-HS2-A11-7 | 92.22 | C-HS2-C10-6 | 91.74 |
| C-HS2-A11-10 | 92.22 | C-HS2-C10-8 | 91.71 |
| C-HS2-A13-5 | 92.27 | C-HS2-C10-11 | 91.72 |
| C-HS2-A13-7 | 92.27 | C-HS2-C11-5 | 91.70 |
| C-HS2-A13-10 | 92.26 | C-HS2-C11-7 | 91.70 |
| C-HS2-B02-6 | 92.12 | C-HS2-C11-10 | 91.71 |
| C-HS2-B02-8 | 92.12 | C-HS2-D04-5 | 91.37 |
| C-HS2-B02-11 | 92.11 | C-HS2-D04-7 | 91.36 |
| C-HS2-B06-6 | 92.12 | C-HS2-D04-10 | 91.35 |
| C-HS2-B06-8 | 92.07 | C-HS2-D07-6 | 91.44 |
| C-HS2-B06-11 | 92.09 | C-HS2-D07-8 | 91.42 |
| C-HS2-B08-5 | 92.08 | C-HS2-D07-11 | 91.45 |
| C-HS2-B08-7 | 92.06 | C-HS2-BKG-5 | 92.89 |
| C-HS2-B08-10 | 92.05 | C-HS2-BKG-7 | 92.88 |
| C-HS2-B10-5 | 92.06 | C-HS2-BKG-10 | 92.88 |
| C-HS2-B10-7 | 92.02 | | |

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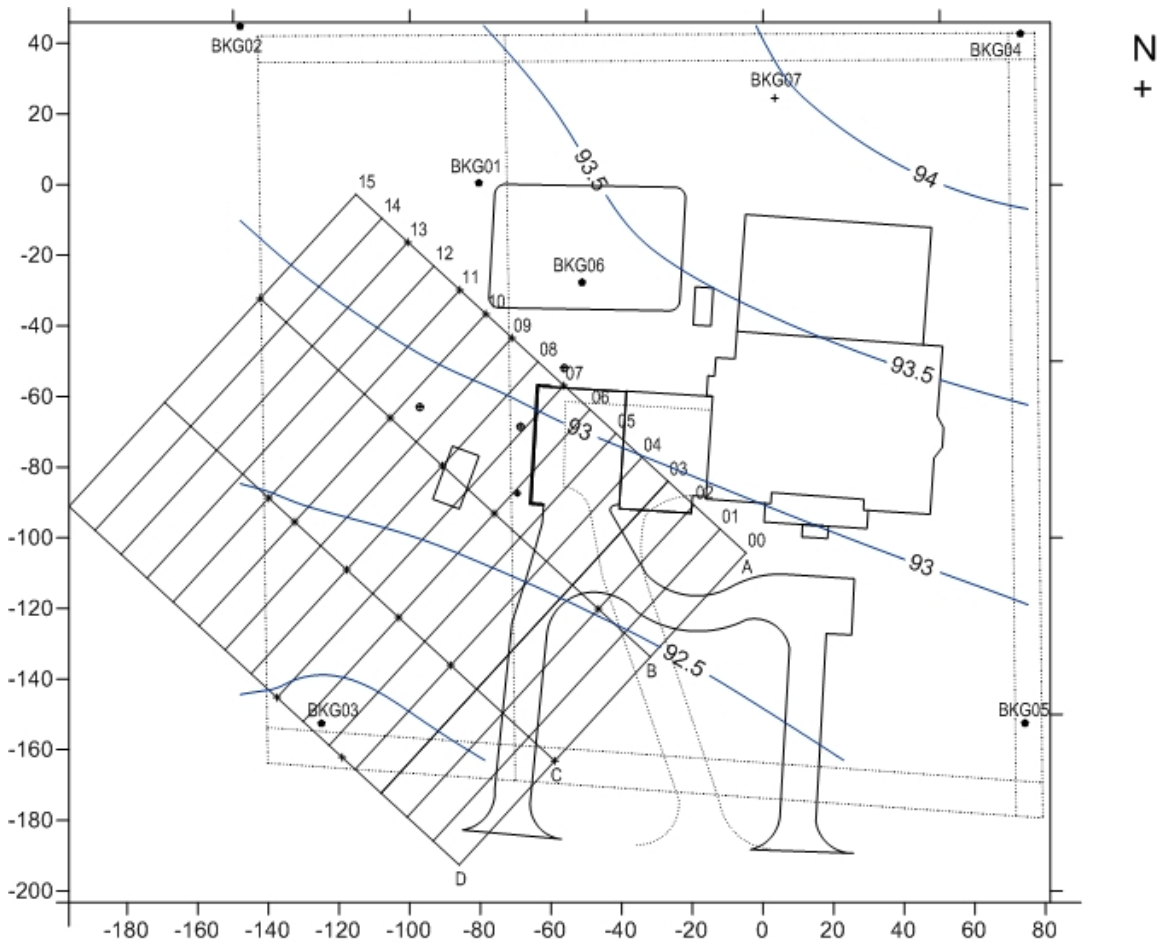


**Figure 3**
**Surficial Groundwater Contours July 27, 2011**

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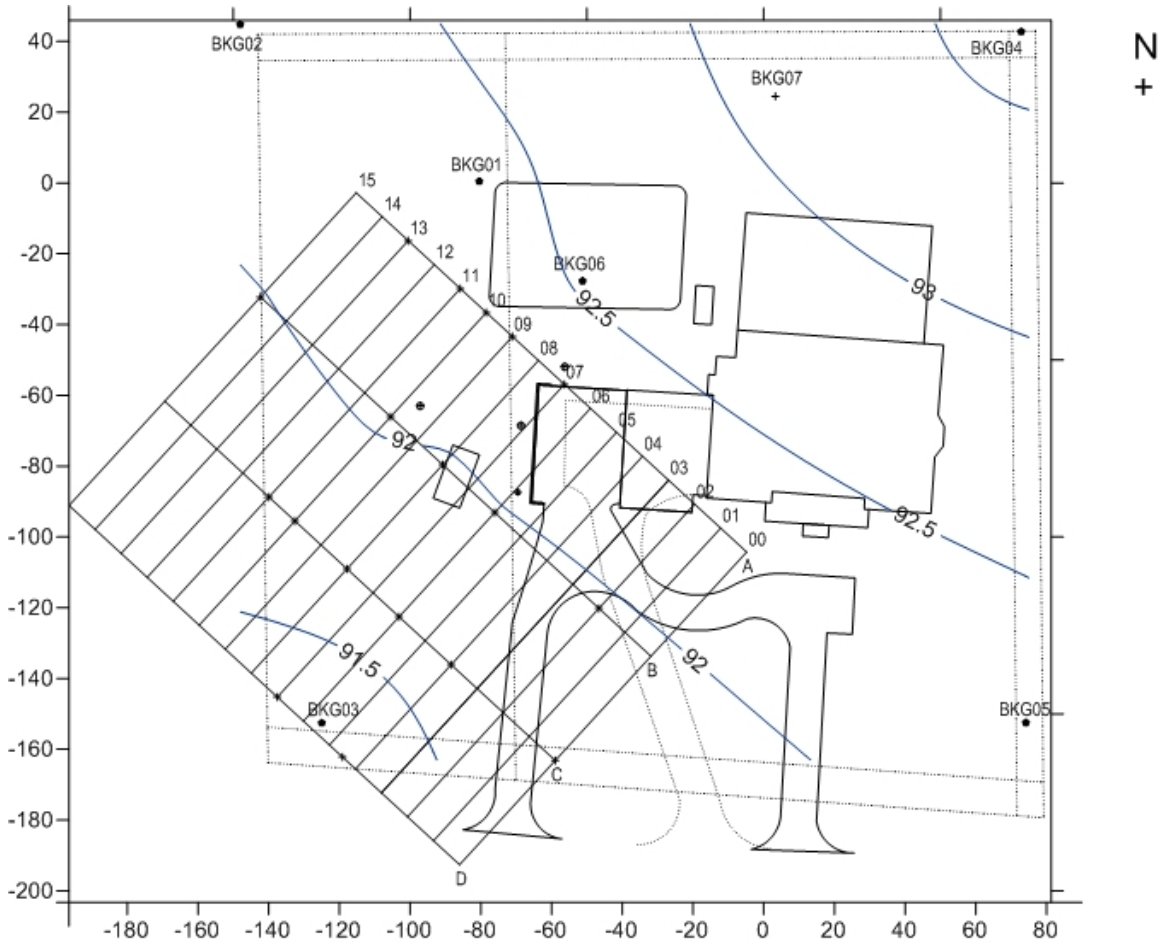


**Figure 4**
**Surficial Groundwater Contours November 30, 2011**

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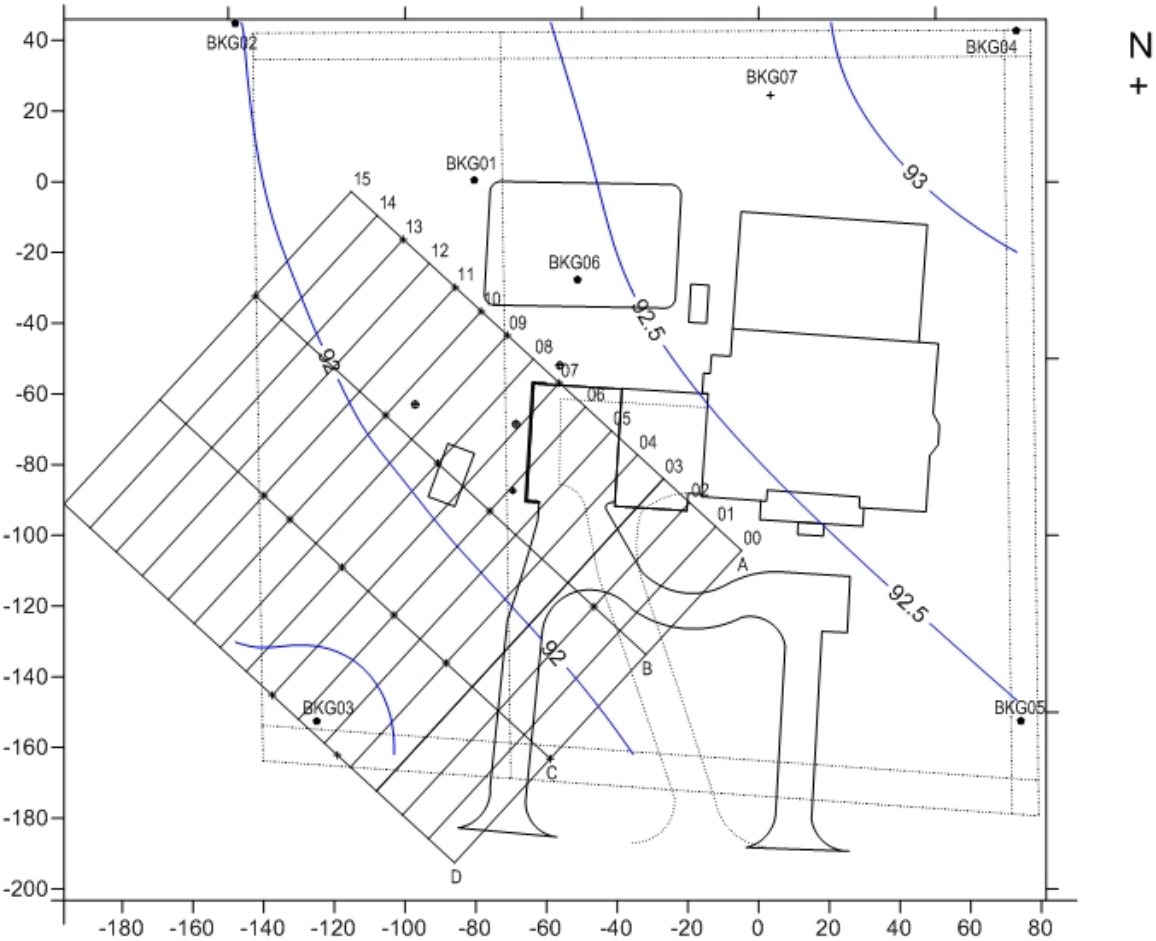


**Figure 5**
**Surficial Groundwater Contours March 13, 2012**

## 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" (BKG03, BKG06, A07, A09, A10, A11, B02, B06, B08, B10, C04, C06, C08, C10, C11, D04, D07) and "non-impacted" (A13, B15, BKG01, BKG02, BKG04, BKG07) groundwater monitoring locations.

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**Table 5**
**Field Parameter Ranges**

| Field Parameters | "Impacted" Range | "Non-Impacted" Range |
|---|---|---|
| Temperature (°C) | 18.5 – 24.1 | 18.8 – 21.9 |
| pH | 4.7 – 7.4 | 4.4 – 6.3 |
| DO (mg/L) | 0.2 – 5.2 | 0.2 – 2 |
| Specific conductance (µS) | 134 - 812 | 144 - 335 |

### 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 6).

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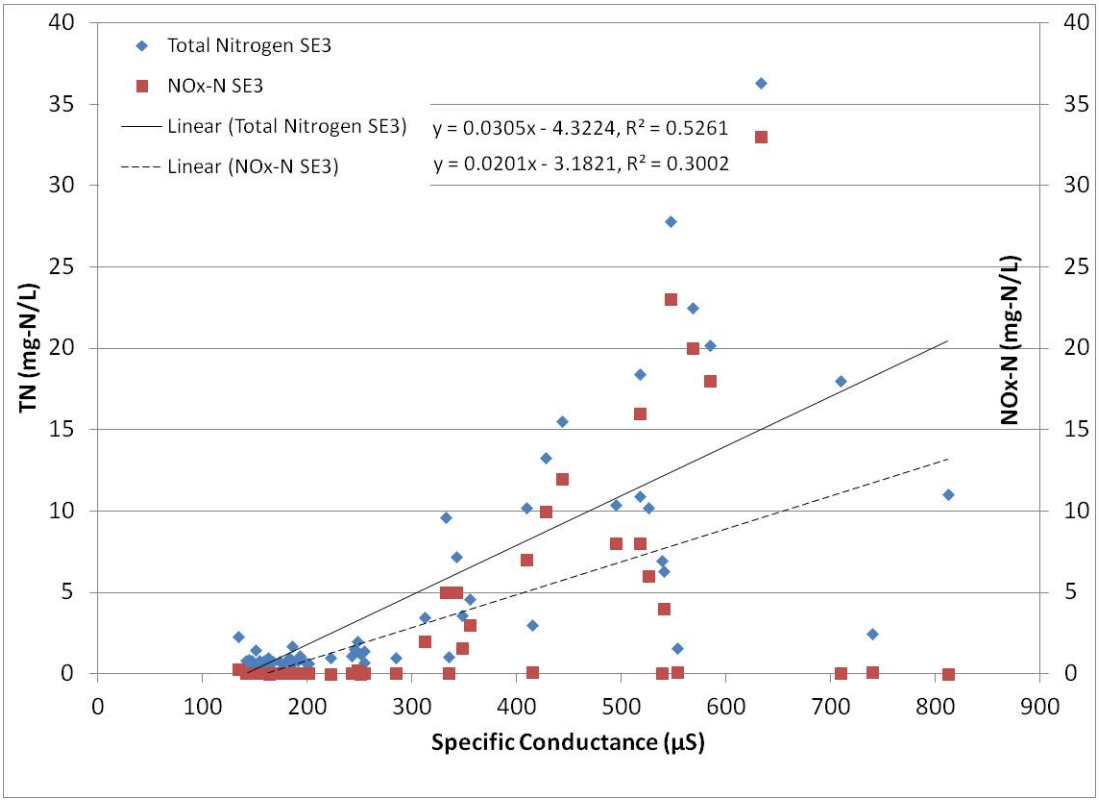


**Figure 6**
**Correlation Between the Specific Conductance (uS) and the Concentrations of Total Nitrogen (mg-N/L) and NOX (mg-N/L)**

### 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 will be gained on the transformation of nitrogen within the plume. The complete water quality analytical results for Sample Event No. 3 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 that groundwater sample was obtained are illustrated in Figures 7, 8, and 9 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 9) the plots show an apparent downward movement of the nitrogen plume relative to the first and second sampling events. The highest concentration of NOX (Figure 9) is in the drainfield area in C-HS2-BKG06-12 (33 mg-N/L) and close to the southwest corner of the mound with a maximum concentration in A07-8 (23 mg-N/L).

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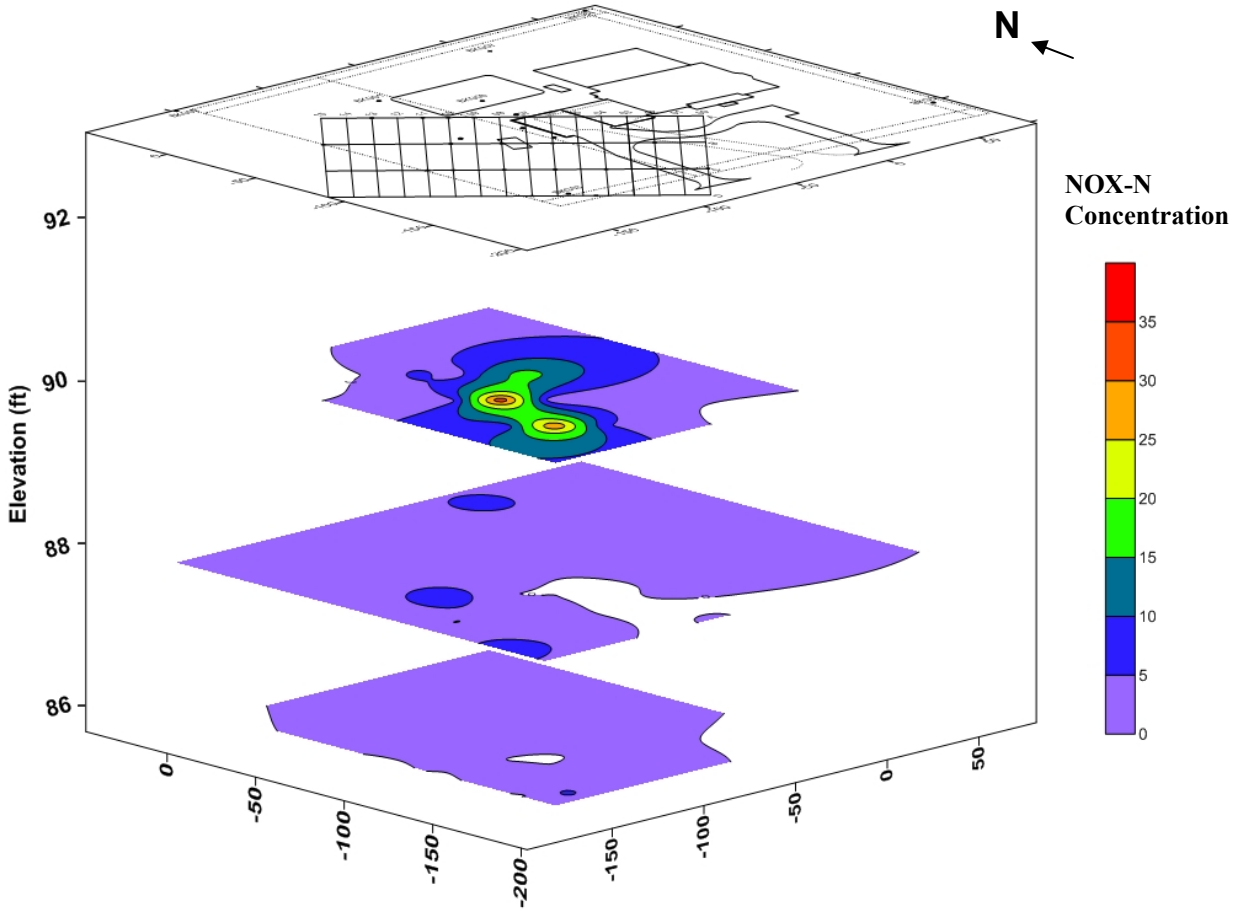


**Figure 7**
**A layered schematic (using Surfer) illustrating NOX Concentrations (mg-N/L) in the subsurface at three different elevation intervals (based on July 2011 sampling event).**

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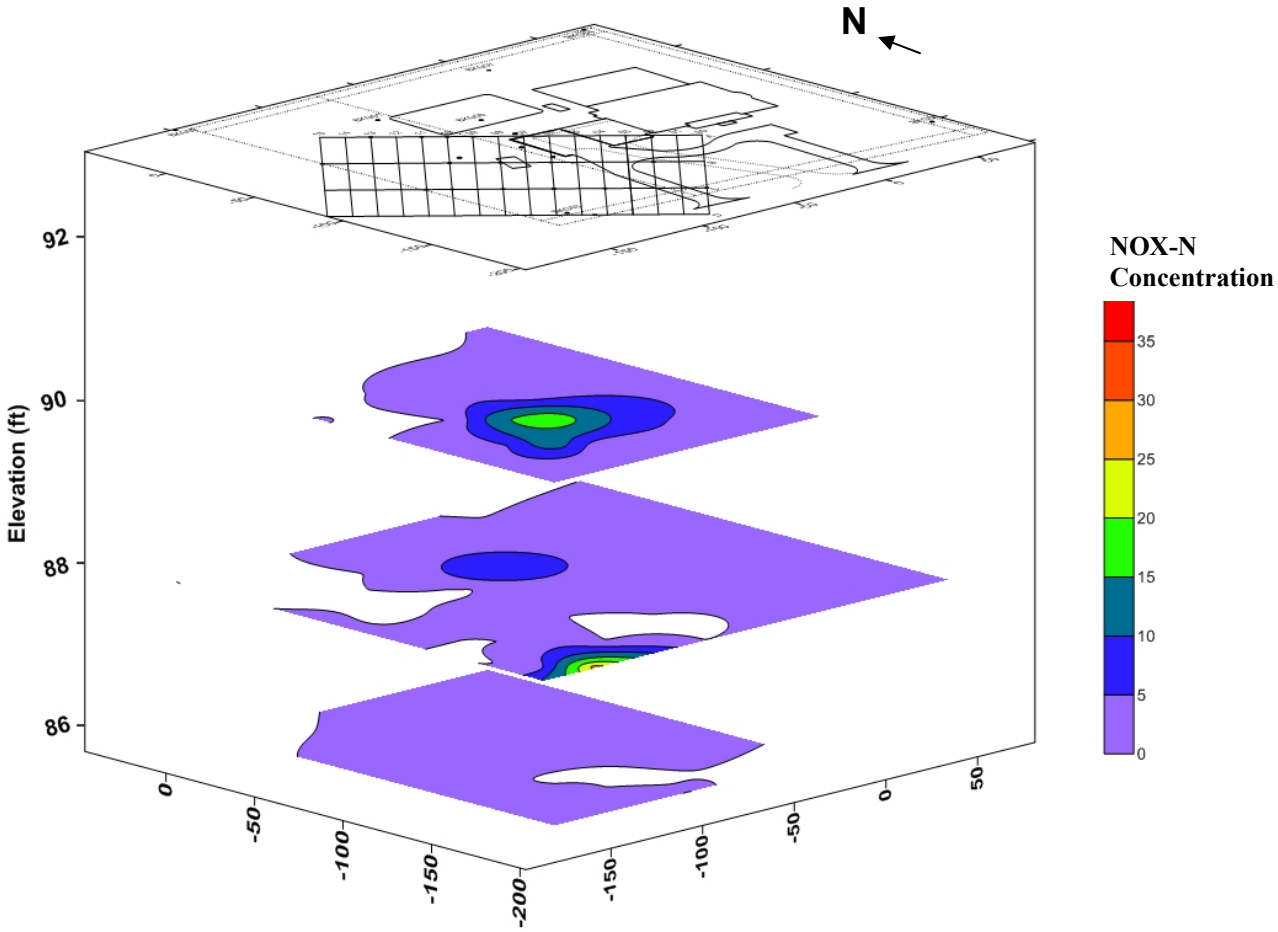


**Figure 8**

**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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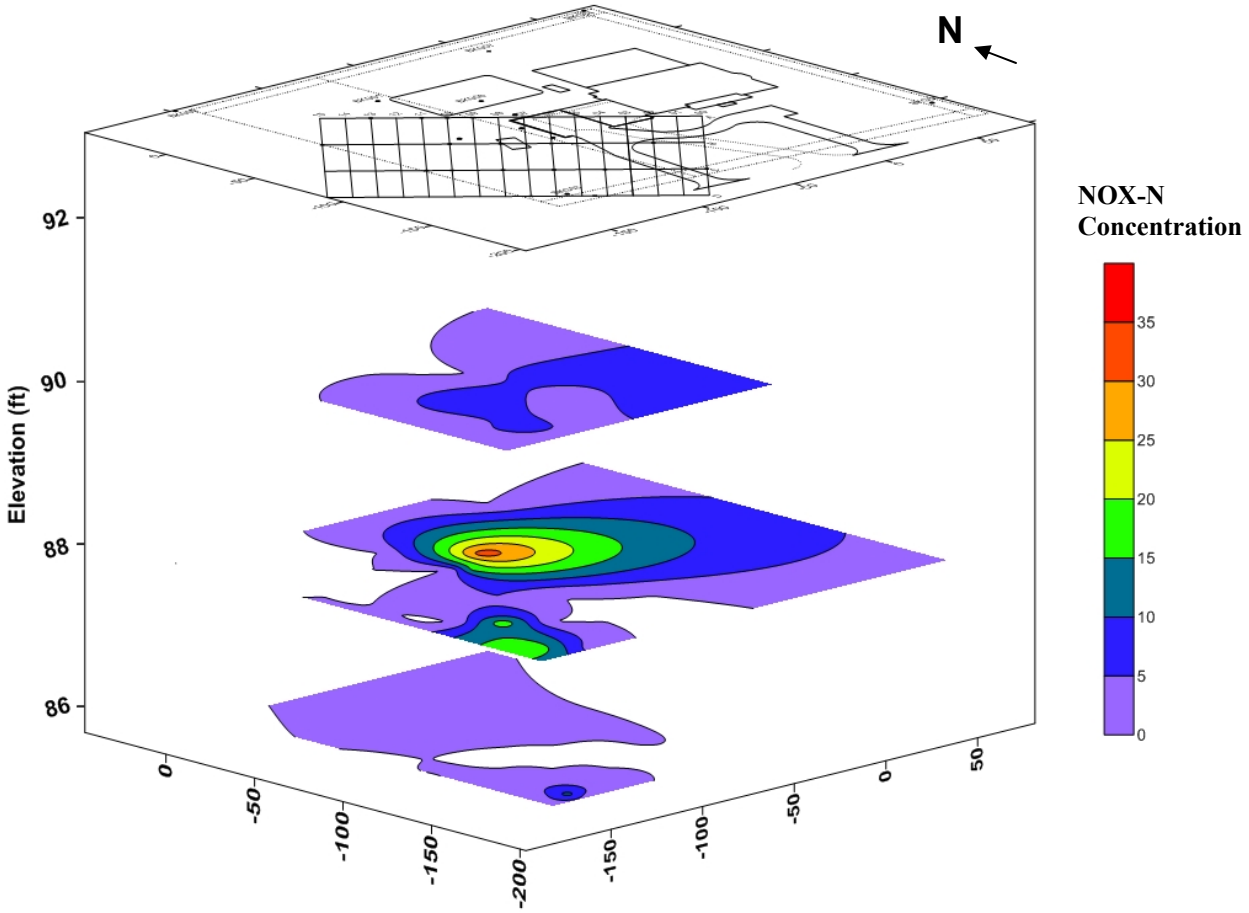


**Figure 9**
**A layered schematic (using Surfer) illustrating NOX Concentrations (mg-N/L) in the subsurface at three different elevation intervals (based on March 2012 sampling event).**

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# 5.0 C-HS2 Data Summary Report No. 3: Summary and Recommendations

## 5.1 Summary

The results of this third sampling event served to identify the general trend of the NOX plume and provide the basis upon which to make adjustments and modifications to future monitoring locations. Results of Sample Event No. 3 indicate that:

- 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. However, there is an apparent downward nitrogen movement relative to the first and second sampling events.

## 5.2 Recommendation

The following recommendation is based on the existing available information in context of the overriding goal to develop a field-monitoring framework at home sites and a simple groundwater model (Task D). The project team will continue to evaluate all results including those that result from implementation of the recommendations and make further adaptations as needed (observational method). Following is a list with select recommendations which the next sample event will address:

- Additional analyses of field parameters will give a better understanding of if and how they may correlate to nitrogen occurrence and reduction.
- Groundwater level monitoring will provide information needed to determine the necessary parameters for model development.
- Sampling of all locations will provide a snapshot of the site needed for plume identification and for nitrogen fate and transport determination.

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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 Elevation (ft) | Bottom Elevation (ft) | Surface Elevation (ft) | Bottom Elevation (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-BKG01-7 | 3/4" Standpipe Piezometer, 5' screen | 96.11 | 88.93 | 96.13 | 88.95 |
| 5 | C-HS2-BKG02-6 | 3/4" Standpipe Piezometer, 5' screen | 94.48 | 88.20 | 94.48 | 88.20 |
| 6 | C-HS2-BKG03-7 | 3/4" Standpipe Piezometer, 5' screen | 93.52 | 86.56 | NR | NR |
| 7 | C-HS2-BKG04-7 | 3/4" Standpipe Piezometer, 5' screen | 96.00 | 88.94 | NR | NR |
| 8 | C-HS2-BKG05-8 | 3/4" Standpipe Piezometer, 5' screen | 95.21 | 87.26 | NR | NR |
| 9 | C-HS2-BKG06-12 | 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 |
| 25 | C-HS2-B02-6 | 3/4" Standpipe Piezometer, 2' screen | 95.85 | 90.29 | NR | NR |

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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 Elevation (ft) | Bottom Elevation (ft) | Surface Elevation (ft) | Bottom Elevation (ft) |
| 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 |
| 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 |

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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 Elevation (ft) | Bottom Elevation (ft) | Surface Elevation (ft) | Bottom Elevation (ft) |
| 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-BKG07-5 | 3/4" Standpipe Piezometer, 2' screen | 96.01 | 91.36 | 96.02 | 91.37 |
| 67 | C-HS2-BKG07-7 | 3/4" Standpipe Piezometer, 1' screen | 96.01 | 89.43 | 96.01 | 89.43 |
| 68 | C-HS2-BKG07-10 | 3/4" Standpipe Piezometer, 1' screen | 96.01 | 86.40 | 96.01 | 86.40 |

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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 |

Source: www.wunderground.com

# Appendix D: Groundwater Elevations

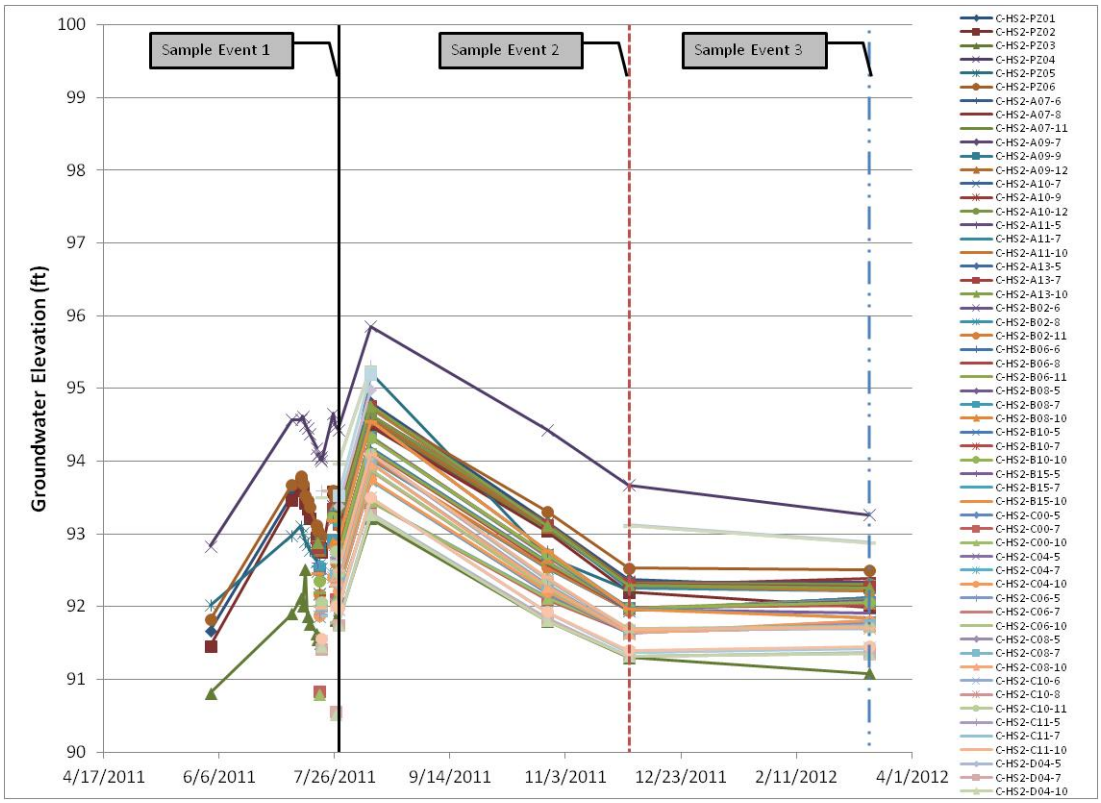


**Figure D.1**
**Groundwater Elevations**

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Table D.1
Groundwater Elevations

| ID | C-HS2-PZ01 | C-HS2-PZ02 | C-HS2-PZ03 | C-HS2-PZ04 | C-HS2-PZ05 | C-HS2-PZ06 | 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 |

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

| ID | 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 |

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

| ID | 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-C10-11 | 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 | C-HS2-BKG-5 | C-HS2-BKG-7 | C-HS2-BKG-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 | | |

# Appendix E: Water Quality Analytical Results

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Table E.1
Water Quality Analytical Results
(March 13, 2012)

| Sample ID | Sample Date/Time | Temp (°C) | pH | Total Alkalinity | DO (mg/L) | Specific Conductance | 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 | 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 | 3/13/12 15:35 | 24.1 | 6.9 | 470 | 1.2 | 1188 | 520 | 48 | | | 83.03 | 83 | 0 | 83 | 0.03 | 83.03 | 9 | 36,400 | | | 3.2 | 58 | 0.01 | | 6.1 | 0.82 | 0.057 | 40 | 0.14 | 15 | 0.027 | 19 | 54 |
| C-HS2-STE-DUP | 3/13/12 15:35 | 24.1 | 6.9 | 440 | 1.2 | 1188 | 520 | 57 | | | 81.02 | 81 | 1 | 80 | 0.02 | 80.02 | 8.6 | 34,200 | | | | 54 | | | | | | | | | | | |
| **Standpipe Piezometers** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C-HS2-BKG01-7 | 3/13/12 15:26 | 21.9 | 4.9 | 11 | 0.3 | 222 | | | | 65 | 0.97 | 0.96 | 0.67 | 0.29 | 0.01 | 0.3 | 0.044 | | | | | 47 | | | | | | | | | | | |
| C-HS2-BKG02-6 | 3/13/12 14:09 | 21.8 | 6.3 | 65 | 0.8 | 251 | | | | 75 | 1.21 | 1.2 | 0.57 | 0.63 | 0.01 | 0.64 | 0.049 | | | | | 33 | | | | | | | | | | | |
| C-HS2-BKG03-7 | 3/13/12 13:58 | 24.1 | 5.7 | 32 | 0.4 | 443 | | | | 83 | 15.5 | 3.5 | 3.472 | 0.028 | 12 | 12.028 | 0.043 | | | | | 35 | | | | | | | | | | | |
| C-HS2-BKG04-7 | 3/13/12 15:12 | 21.6 | 5.4 | 11 | 0.7 | 163 | | | | 55 | 1.02 | 0.99 | 0.58 | 0.41 | 0.03 | 0.44 | 0.08 | | | | | 37 | | | | | | | | | | | |
| C-HS2-BKG06-12 | 3/13/12 15:29 | 22.4 | 5.8 | 43 | 0.7 | 633 | | | | 61 | 36.3 | 3.3 | 3.259 | 0.041 | 33 | 33.041 | 1.6 | | | | | 50 | | | | | | | | | | | |
| C-HS2-BKG07-5 | 3/13/12 14:23 | 21.1 | 4.4 | 2 | 0.8 | 335 | | | | 53 | 1.05 | 1 | 0.62 | 0.38 | 0.05 | 0.43 | 0.04 | | | | | 80 | | | | | | | | | | | |
| C-HS2-BKG07-7 | 3/13/12 14:40 | 20.9 | 5.7 | 11 | 0.7 | 201 | | | | 44 | 0.63 | 0.61 | 0.38 | 0.23 | 0.02 | 0.25 | 0.15 | | 16 | 13 | 0.026 | 36 | 0.01 | 0.01 | 0.1 | 0.36 | 0.05 | 4.8 | 0.1 | 1.7 | 0.0071 | 1.4 | 22 |
| C-HS2-BKG07-10 | 3/13/12 14:54 | 21.2 | 5 | 5.4 | 1.3 | 164 | | | | 18 | 0.57 | 0.56 | 0.21 | 0.35 | 0.01 | 0.36 | 0.047 | | | | | 43 | | | | | | | | | | | |
| C-HS2-A07-6 | 3/13/12 8:00 | 18.5 | 6.3 | 75 | 5.2 | 409 | | | | 190 | 10.2 | 3.2 | 3.134 | 0.066 | 7 | 7.066 | 0.98 | | | | | 31 | | | | | | | | | | | |
| C-HS2-A07-8 | 3/13/12 8:31 | 20 | 5.6 | 22 | 1.6 | 547 | | | | 36 | 27.8 | 4.8 | 0.7 | 4.1 | 23 | 27.1 | 5.3 | | 17 | 17 | 0.15 | 40 | 23 | 0.01 | 4 | 32 | 0.069 | 42 | 0.096 | 9.1 | 0.0097 | 13 | 41 |
| C-HS2-A07-11 | 3/13/12 8:39 | 20 | 4.9 | 11 | 1 | 177 | | | | 24 | 0.65 | 0.63 | 0.26 | 0.37 | 0.02 | 0.39 | 0.036 | | | | | 39 | | | | | | | | | | | |
| C-HS2-A09-7 | 3/13/12 8:49 | 20.3 | 6.3 | 54 | 0.6 | 740 | | | | 40 | 2.5 | 2.4 | 2.385 | 0.015 | 0.1 | 0.115 | 0.36 | | | | | 44 | | | | | | | | | | | |
| C-HS2-A09-9 | 3/13/12 9:05 | 20.5 | 6.2 | 75 | 1.8 | 518 | | | | 61 | 18.4 | 2.4 | 2.376 | 0.024 | 16 | 16.024 | 0.15 | | | | | 41 | | | | | | | | | | | |
| C-HS2-A09-12 | 3/13/12 9:16 | 20.8 | 6.4 | 11 | 2 | 154 | | | | 28 | 0.84 | 0.8 | 0.29 | 0.51 | 0.04 | 0.55 | 0.044 | | | | | 36 | | | | | | | | | | | |
| C-HS2-A10-7 | 3/13/12 9:35 | 19.8 | 7 | 380 | 4.8 | 812 | | | | 120 | 11.01 | 11 | 1 | 10 | 0.01 | 10.01 | 0.14 | | | | | 31 | | | | | | | | | | | |
| C-HS2-A10-7-DUP | 3/13/12 9:35 | 19.8 | 7 | 370 | 4.8 | 812 | | | | 110 | 11.03 | 11 | 0 | 11 | 0.03 | 11.03 | 0.15 | | | | | 30 | | | | | | | | | | | |
| C-HS2-A10-9 | 3/13/12 9:57 | 21.2 | 7.4 | 230 | 1 | 539 | | | | 150 | 6.93 | 6.9 | 1 | 5.9 | 0.03 | 5.93 | 0.83 | | | | | 31 | | | | | | | | | | | |
| C-HS2-A10-12 | 3/13/12 10:07 | 21.5 | 7.1 | 11 | 0.7 | 149 | | | | 22 | 0.66 | 0.63 | 0.27 | 0.36 | 0.03 | 0.39 | 0.066 | | | | | 36 | | | | | | | | | | | |
| C-HS2-A11-5 | 3/13/12 8:45 | 19.3 | 6.8 | 310 | 4.7 | 709 | | | | 120 | 18.02 | 18 | 1 | 17 | 0.02 | 17.02 | 0.47 | | | | | 26 | | | | | | | | | | | |
| C-HS2-A11-7 | 3/13/12 8:56 | 21 | 5.9 | 32 | 0.4 | 254 | | | | 65 | 1.42 | 1.4 | 0.94 | 0.46 | 0.02 | 0.48 | 0.072 | | | | | 45 | | | | | | | | | | | |
| C-HS2-A11-10 | 3/13/12 9:05 | 21.5 | 5.2 | 11 | 0.4 | 149 | | | | 18 | 0.57 | 0.54 | 0.19 | 0.35 | 0.03 | 0.38 | 0.054 | | | | | 37 | | | | | | | | | | | |
| C-HS2-A13-5 | 3/13/12 8:00 | 18.8 | 5.5 | 22 | 2 | 245 | | | | 120 | 1.54 | 1.5 | 1.33 | 0.17 | 0.04 | 0.21 | 0.067 | | | | | 43 | | | | | | | | | | | |
| C-HS2-A13-7 | 3/13/12 8:12 | 19.7 | 4.8 | 2 | 0.7 | 186 | | | | 32 | 0.66 | 0.64 | 0.33 | 0.31 | 0.02 | 0.33 | 0.056 | | | | | 43 | | | | | | | | | | | |
| C-HS2-A13-10 | 3/13/12 8:29 | 20.6 | 4.7 | 2 | 0.2 | 154 | | | | 22 | 0.7 | 0.67 | 0.25 | 0.42 | 0.03 | 0.45 | 0.041 | | | | | 37 | | | | | | | | | | | |
| C-HS2-B02-6 | 3/13/12 11:07 | 21.7 | 5.6 | 54 | 0.5 | 495 | | | | 69 | 10.4 | 2.4 | 2.21 | 0.19 | 8 | 8.19 | 0.1 | | | | | 38 | | | | | | | | | | | |
| C-HS2-B02-8 | 3/13/12 11:30 | 21.6 | 6.4 | 110 | 0.3 | 553 | | | | 38 | 1.61 | 1.5 | 0.2 | 1.3 | 0.11 | 1.41 | 0.052 | | 16 | 16 | 0.031 | 81 | 0.11 | 0.01 | 0.022 | 12 | 0.05 | 65 | 0.099 | 3.1 | 0.0078 | 3.4 | 34 |
| C-HS2-B02-11 | 3/13/12 11:36 | 21.9 | 5.9 | 22 | 0.3 | 198 | | | | 28 | 0.67 | 0.62 | 0.24 | 0.38 | 0.05 | 0.43 | 0.088 | | | | | 42 | | | | | | | | | | | |
| C-HS2-B06-6 | 3/13/12 10:25 | 22.4 | 5.9 | 43 | 0.2 | 285 | | | | 90 | 1.02 | 0.98 | 0.881 | 0.099 | 0.04 | 0.139 | 1.5 | | | | | 28 | | | | | | | | | | | |
| C-HS2-B06-8 | 3/13/12 10:35 | 22.6 | 5.8 | 11 | 0.6 | 183 | | | | 36 | 0.99 | 0.96 | 0.42 | 0.54 | 0.03 | 0.57 | 0.097 | | | | | 42 | | | | | | | | | | | |
| C-HS2-B06-11 | 3/13/12 10:51 | 22.6 | 5.3 | 11 | 0.2 | 147 | | | | 32 | 0.81 | 0.77 | 0.16 | 0.61 | 0.04 | 0.65 | 0.11 | | | | | 36 | | | | | | | | | | | |
| C-HS2-B08-5 | 3/13/12 10:44 | 21.1 | 5.9 | 65 | 0.4 | 428 | | | | 130 | 13.3 | 3.3 | 3.17 | 0.13 | 10 | 10.13 | 1.4 | | 54 | 54 | 0.028 | 29 | 10 | 0.04 | 0.99 | 42 | 0.077 | 43 | 0.25 | 7.4 | 0.0091 | 13 | 30 |
| C-HS2-B08-5-DUP | 3/13/12 10:49 | 21.1 | 5.9 | 65 | 0.4 | 428 | | | | 130 | 12.9 | 3.1 | 2.97 | 0.13 | 9.8 | 9.93 | 1.4 | | 53 | 50 | 0.036 | 28 | 9.8 | 0.07 | 0.95 | 40 | 0.08 | 42 | 0.22 | 7.3 | 0.0095 | 12 | 30 |
| C-HS2-B08-7 | 3/13/12 11:07 | 21.4 | 6 | 54 | 0.5 | 342 | | | | 90 | 7.2 | 2.2 | 2.19 | 0.01 | 5 | 5.01 | 0.77 | | | | | 20 | | | | | | | | | | | |
| C-HS2-B08-10 | 3/13/12 11:18 | 21.6 | 4.9 | 11 | 0.6 | 158 | | | | 26 | 0.75 | 0.7 | 0.23 | 0.47 | 0.05 | 0.52 | 0.08 | | | | | 37 | | | | | | | | | | | |
| C-HS2-B10-5 | 3/13/12 10:03 | 20.6 | 6.6 | 130 | 0.2 | 518 | | | | 81 | 10.9 | 2.9 | 2.59 | 0.31 | 8 | 8.31 | 0.098 | | | | | 30 | | | | | | | | | | | |
| C-HS2-B10-7 | 3/13/12 10:14 | 20.8 | 6.3 | 65 | 0.3 | 355 | | | | 40 | 4.6 | 1.6 | 1.17 | 0.43 | 3 | 3.43 | 0.046 | | | | | 35 | | | | | | | | | | | |
| C-HS2-B10-10 | 3/13/12 10:32 | 21 | 4.7 | 2 | 0.2 | 144 | | | | 32 | 0.64 | 0.59 | 0.22 | 0.37 | 0.05 | 0.42 | 0.088 | | | | | 35 | | | | | | | | | | | |
| C-HS2-B15-5 | 3/13/12 9:18 | 20.4 | 4.6 | 2 | 0.4 | 182 | | | | 59 | 0.81 | 0.79 | 0.47 | 0.32 | 0.02 | 0.34 | 0.04 | | | | | 42 | | | | | | | | | | | |
| C-HS2-B15-7 | 3/13/12 9:36 | 20.6 | 4.9 | 11 | 0.2 | 167 | | | | 38 | 0.76 | 0.74 | 0.28 | 0.46 | 0.02 | 0.48 | 0.079 | | | | | 41 | | | | | | | | | | | |
| C-HS2-B15-10 | 3/13/12 9:48 | 20.9 | 4.7 | 53 | 0.5 | 144 | | | | 20 | 0.51 | 0.49 | 0.11 | 0.38 | 0.02 | 0.4 | 0.046 | | | | | 35 | | | | | | | | | | | |
| C-HS2-C04-5 | 3/13/12 11:56 | 21.6 | 5.7 | 5.4 | 0.3 | 541 | | | | 69 | 6.3 | 2.3 | 1.96 | 0.34 | 4 | 4.34 | 0.052 | | | | | 19 | | | | | | | | | | | |
| C-HS2-C04-7 | 3/13/12 11:56 | 21.7 | 5.1 | 5.4 | 0.3 | 193 | | | | 30 | 1.12 | 1.1 | 0.13 | 0.97 | 0.02 | 0.99 | 0.036 | | | | | 44 | | | | | | | | | | | |
| C-HS2-C04-10 | 3/13/12 12:25 | 21.7 | 4.9 | 5.4 | 0.2 | 151 | | | | 93 | 1.47 | 1.4 | 0.75 | 0.65 | 0.07 | 0.72 | 0.59 | | | | | 37 | | | | | | | | | | | |
| C-HS2-C06-5 | 3/13/12 12:45 | 20.5 | 5.7 | 43 | 1.1 | 332 | | | | 130 | 9.6 | 4.6 | 4.44 | 0.16 | 5 | 5.16 | 2.9 | | | | | 19 | | | | | | | | | | | |
| C-HS2-C06-7 | 3/13/12 13:02 | 20.6 | 5.9 | 32 | 0.2 | 242 | | | | 59 | 1.14 | 1.1 | 0.65 | 0.45 | 0.04 | 0.49 | 1.1 | | | | | 41 | | | | | | | | | | | |
| C-HS2-C06-10 | 3/13/12 13:18 | 21.1 | 5.1 | 11 | 0.2 | 144 | | | | 40 | 0.85 | 0.82 | 0.39 | 0.43 | 0.03 | 0.46 | 0.11 | | | | | 35 | | | | | | | | | | | |
| C-HS2-C06-10-DUP | 3/13/12 13:23 | 21.1 | 5.1 | 11 | 0.2 | 144 | | | | 40 | 0.94 | 0.89 | 0.47 | 0.42 | 0.05 | 0.47 | 0.11 | | | | | 35 | | | | | | | | | | | |
| C-HS2-C08-5 | 3/13/12 13:00 | 22.8 | 5.8 | 54 | 1.4 | 526 | | | | 100 | 10.2 | 4.2 | 4.185 | 0.015 | 6 | 6.015 | 0.35 | | | | | 16 | | | | | | | | | | | |
| C-HS2-C08-5-DUP | 3/13/12 13:00 | 22.8 | 5.8 | 54 | 1.4 | 526 | | | | 100 | 10.4 | 4.4 | 4.389 | 0.011 | 6 | 6.011 | 0.34 | | | | | 16 | | | | | | | | | | | |
| C-HS2-C08-7 | 3/13/12 13:15 | 22.8 | 6 | 65 | 1.1 | 585 | | | | 61 | 20.2 | 2.2 | 2.191 | 0.009 | 18 | 18.009 | 0.15 | | 27 | 26 | 0.034 | 31 | 18 | 0.13 | 0.14 | 61 | 0.075 | 47 | 0.082 | 9.7 | 0.0079 | 9.6 | 42 |
| C-HS2-C08-10 | 3/13/12 13:29 | 22.6 | 5 | 5.4 | 0.9 | 174 | | | | 28 | 0.78 | 0.72 | 0.26 | 0.46 | 0.06 | 0.52 | 0.065 | | | | | 34 | | | | | | | | | | | |
| C-HS2-C10-6 | 3/13/12 12:14 | 23.3 | 5.9 | 110 | 1.4 | 415 | | | | 120 | 2.98 | 2.9 | 1.5 | 1.4 | 0.08 | 1.48 | 0.084 | | | | | 32 | | | | | | | | | | | |
| C-HS2-C10-8 | 3/13/12 12:26 | 23.2 | 5.6 | 11 | 1.4 | 186 | | | | 40 | 1.72 | 1.7 | 0.3 | 1.4 | 0.02 | 1.42 | 0.041 | | | | | 33 | | | | | | | | | | | |
| C-HS2-C10-12 | 3/13/12 12:43 | 23.5 | 5 | 2 | 1.8 | 142 | | | | 69 | 0.83 | 0.78 | 0.3 | 0.48 | 0.05 | 0.53 | 0.31 | | | | | 34 | | | | | | | | | | | |

Table E.1 (con't)
Water Quality Analytical Results
(March 13, 2012)

| Sample ID | Sample Date/Time | Temp (°C) | pH | Total Alkalinity | DO (mg/L) | Specific Conductance | 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 | 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-C11-5 | 3/13/12 11:40 | 22.8 | 5 | 11 | 0.6 | 248 | | | | 150 | 2 | 1.8 | 1.58 | 0.22 | 0.2 | 0.42 | 0.72 | | | | | 33 | | | | | | | | | | | |
| C-HS2-C11-7 | 3/13/12 11:51 | 22.5 | 5 | 5.4 | 0.4 | 191 | | | | 46 | 0.84 | 0.81 | 0.48 | 0.33 | 0.03 | 0.36 | 0.072 | | | | | 41 | | | | | | | | | | | |
| C-HS2-C11-10 | 3/13/12 12:02 | 22.7 | 4.7 | 2 | 0.8 | 148 | | | | 28 | 0.55 | 0.53 | 0.18 | 0.35 | 0.02 | 0.37 | 0.046 | | | | | 36 | | | | | | | | | | | |
| C-HS2-D04-5 | 3/13/12 14:27 | 22.2 | 5.9 | 54 | 0.2 | 348 | | | | 120 | 3.6 | 2 | 1.95 | 0.05 | 1.6 | 1.65 | 1.9 | | 49 | 45 | 0.01 | 28 | 1.6 | 0.01 | 1.3 | 39 | 0.059 | 28 | 0.36 | 6.4 | 0.0062 | 6.7 | 30 |
| C-HS2-D04-7 | 3/13/12 14:57 | 22.7 | 6.1 | 43 | 0.5 | 254 | | | | 63 | 0.68 | 0.66 | 0.65 | 0.01 | 0.02 | 0.03 | 0.12 | | | | | 34 | | | | | | | | | | | |
| C-HS2-D04-10 | 3/13/12 15:15 | 22.2 | 5.7 | 11 | 0.2 | 159 | | | | 71 | 0.83 | 0.78 | 0.66 | 0.12 | 0.05 | 0.17 | 0.31 | | | | | 34 | | | | | | | | | | | |
| C-HS2-D07-6 | 3/13/12 13:50 | 21.8 | 6.2 | 75 | 0.3 | 568 | | | | 81 | 22.5 | 2.5 | 2.483 | 0.017 | 20 | 20.017 | 0.13 | | | | | 40 | | | | | | | | | | | |
| C-HS2-D07-6-DUP | 3/13/12 13:55 | 21.8 | 6.2 | 75 | 0.3 | 568 | | | | 81 | 23.7 | 2.7 | 2.686 | 0.014 | 21 | 21.014 | 0.15 | | | | | 42 | | | | | | | | | | | |
| C-HS2-D07-8 | 3/13/12 14:12 | 22 | 6.1 | 43 | 0.2 | 312 | | | | 42 | 3.5 | 1.5 | 1.28 | 0.22 | 2 | 2.22 | 0.17 | | | | | 36 | | | | | | | | | | | |
| C-HS2-D07-11 | 3/13/12 14:28 | 22.2 | 5.7 | 5.4 | 0.2 | 134 | | | | 140 | 2.3 | 2 | 1.32 | 0.68 | 0.3 | 0.98 | 1.3 | | | | | 33 | | | | | | | | | | | |
| **Storm Water Sample** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C-HS2-SW-6 inch | 3/13/12 15:40 | 22.5 | 6 | 54 | 3.4 | 373 | | | | 44 | 2.3 | 1.5 | 0.96 | 0.54 | 0.8 | 1.34 | 0.043 | | | | | 45 | | | | | | | | | | | |
| C-HS2-SW-M | 3/13/12 15:30 | 24.1 | 7 | 110 | 6.6 | 358 | | | | 28 | 1.34 | 0.94 | 0.71 | 0.23 | 0.4 | 0.63 | 0.07 | | | | | 32 | | | | | | | | | | | |
| **Blanks** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FB-Tap | 3/13/12 15:15 | 20.4 | 7.5 | 110 | 3.9 | 224 | | | | 10 | 0.07 | 0.05 | 0.016 | 0.034 | 0.02 | 0.054 | 0.054 | | | | | 5.6 | | | | | | | | | | | |
| FB-DI | 3/13/12 15:25 | 33.2 | 6 | 2 | 4.2 | 2 | | | | 10 | 0.06 | 0.05 | 0.041 | 0.009 | 0.01 | 0.019 | 0.01 | | | | | 0.05 | | | | | | | | | | | |
| EB | 3/13/12 15:20 | 33.2 | 6 | 2 | 4.2 | 2 | | | | 10 | 0.06 | 0.05 | 0.041 | 0.009 | 0.01 | 0.019 | 0.01 | | | | | 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.

# Appendix F: Summary of Water Quality Data

o:\44237-001\Wpdocs\Report

# 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 | 3 | 3 | 3 | 3 | 3 | 0 | 2 | 2 | 2 | 0 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 1 | 0 | 0 | 1 | 2 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | MEAN | 25.0 | | 386.7 | 1.1 | 1040.7 | | 260.0 | 34.0 | 65.0 | | 76.4 | 76.3 | 18.7 | 57.7 | 0.1 | 57.7 | 8.7 | | | | 3.2 | 55.5 | 0.0 | | 6.1 | 0.8 | 0.1 | 40.0 | 0.1 | 15.0 | 0.0 | 19.0 | 54.0 |
| | STD. DEV. | 4.2 | | 73.7 | 0.2 | 141.4 | | 367.7 | 19.8 | 91.9 | | 9.1 | 9.1 | 23.5 | 24.1 | 0.0 | 24.1 | 0.5 | | | | | 3.5 | | | | | | | | | | | |
| | 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 | | | 3.2 | 53.0 | 0.01 | | 6.1 | 0.8 | 0.06 | 40.0 | 0.1 | 15.0 | 0.0 | 19.0 | 54.0 |
| | MAX | 29.6 | 7.4 | 470.0 | 1.2 | 1188.0 | | 520.0 | 48.0 | 130.0 | | 83.0 | 83.0 | 45.0 | 83.0 | 0.10 | 83.0 | 9.0 | 36,400 | | | 3.2 | 58.0 | 0.01 | | 6.1 | 0.8 | 0.06 | 40.0 | 0.1 | 15.0 | 0.0 | 19.0 | 54.0 |
| **Standpipe** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C-HS2-BKG01-7 | n | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 0 | 0 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.6 | | 13.3 | 0.5 | 245.7 | | | | | 75.5 | 1.6 | 1.2 | 0.9 | 0.2 | 0.46 | 0.7 | 0.06 | | | | | 48.5 | | | | | | | | | | | |
| | STD. DEV. | 2.5 | | 5.0 | 0.3 | 22.6 | | | | | 14.8 | 0.6 | 0.3 | 0.3 | 0.0 | 0.64 | 0.6 | 0.03 | | | | | 2.1 | | | | | | | | | | | |
| | 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 | | | | | 47.0 | | | | | | | | | | | |
| | MAX | 26.5 | 5.6 | 19.0 | 0.8 | 267.0 | | | | | 86.0 | 2.2 | 1.5 | 1.3 | 0.3 | 1.20 | 1.4 | 0.08 | | | | | 50.0 | | | | | | | | | | | |
| C-HS2-BKG02-6 | n | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 0 | 0 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 23.0 | | 121.7 | 0.7 | 370.3 | | | | | 67.0 | 1.3 | 1.3 | 0.5 | 0.8 | 0.04 | 0.8 | 0.04 | | | | | 33.5 | | | | | | | | | | | |
| | STD. DEV. | 2.7 | | 53.0 | 0.6 | 104.0 | | | | | 11.3 | 0.2 | 0.2 | 0.2 | 0.1 | 0.05 | 0.2 | 0.01 | | | | | 0.7 | | | | | | | | | | | |
| | MIN | 21.1 | 6.3 | 65.0 | 0.1 | 251.0 | | | | | 59.0 | 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 | 0.7 | 0.9 | 0.10 | 1.0 | 0.05 | | | | | 34.0 | | | | | | | | | | | |
| C-HS2-BKG03-7 | n | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 0 | 0 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 1 | 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-BKG04-7 | 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-BKG06-12 | 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 | 24.0 | | 50.3 | 0.8 | 486.7 | | | | | 62.0 | 18.6 | 2.5 | 2.4 | 0.16 | 16.0 | 16.2 | 1.5 | | | | | 40.0 | | | | | | | | | | | |
| | STD. DEV. | 2.4 | | 7.5 | 0.5 | 127.2 | | | | | 1.4 | 15.5 | 0.8 | 0.9 | 0.17 | 14.8 | 14.7 | 0.2 | | | | | 14.1 | | | | | | | | | | | |
| | MIN | 22.4 | 5.8 | 43.0 | 0.3 | 402.0 | | | | | 61.0 | 7.7 | 1.8 | 1.5 | 0.04 | 5.9 | 6.3 | 1.3 | | | | | 30.0 | | | | | | | | | | | |
| | MAX | 26.7 | 6.4 | 58.0 | 1.3 | 633.0 | | | | | 63.0 | 36.3 | 3.3 | 3.3 | 0.35 | 33.0 | 33.0 | 1.6 | | | | | 50.0 | | | | | | | | | | | |
| C-HS2-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-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-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 | 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 | 21.5 | | 67.3 | 3.9 | 457.7 | | | | | 180.0 | 11.3 | 3.3 | 3.1 | 0.2 | 8.0 | 8.3 | 0.6 | | 120.0 | 110.0 | 0.2 | 24.5 | 0.4 | | 1.0 | 27.0 | 0.08 | 28.0 | 1.0 | 6.4 | 0.01 | 24.0 | 17.0 |
| | STD. DEV. | 4.0 | | 8.6 | 2.6 | 223.0 | | | | | 14.1 | 8.8 | 0.3 | 0.3 | 0.2 | 8.5 | 8.5 | 0.5 | | | | | 9.2 | | | | | | | | | | | |
| | MIN | 18.5 | 6.3 | 58.0 | 0.9 | 263.0 | | | | | 170.0 | 3.2 | 3.1 | 2.8 | 0.1 | 0.1 | 0.4 | 0.3 | | 120.0 | 110.0 | 0.2 | 18.0 | 0.4 | | 1.0 | 27.0 | 0.08 | 28.0 | 1.0 | 6.4 | 0.01 | 24.0 | 17.0 |
| | MAX | 26.1 | 6.3 | 75.0 | 5.5 | 701.0 | | | | | 190.0 | 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 | 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 | 22.9 | | 23.7 | 0.9 | 583.3 | | | | | 41.0 | 27.9 | 3.3 | 1.8 | 1.42 | 24.7 | 26.1 | 5.0 | | 17.0 | 17.0 | 0.2 | 39.5 | 23.0 | 0.0 | 4.0 | 32.0 | 0.1 | 42.0 | 0.1 | 9.1 | 0.0 | 13.0 | 41.0 |
| | STD. DEV. | 2.9 | | 4.7 | 0.7 | 98.7 | | | | | 7.1 | 11.2 | 1.4 | 1.0 | 2.32 | 11.6 | 11.5 | 0.4 | | | | | 0.7 | | | | | | | | | | |
| | MIN | 20.0 | 5.6 | 20.0 | 0.2 | 508.0 | | | | | 36.0 | 16.8 | 2.2 | 0.7 | 0.01 | 14.0 | 14.2 | 4.7 | | 17.0 | 17.0 | 0.2 | 39.0 | 23.0 | 0.01 | 4.0 | 32.0 | 0.07 | 42.0 | 0.10 | 9.1 | 0.01 | 13.0 | 41.0 |
| | MAX | 25.8 | 6.3 | 29.0 | 1.6 | 695.0 | | | | | 46.0 | 39.2 | 4.8 | 2.6 | 4.10 | 37.0 | 37.0 | 5.3 | | 17.0 | 17.0 | 0.2 | 40.0 | 23.0 | 0.01 | 4.0 | 32.0 | 0.07 | 42.0 | 0.10 | 9.1 | 0.01 | 13.0 | 41.0 |
| C-HS2-A07-11 | 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 | 22.6 | | 7.6 | 0.5 | 161.3 | | | | | 33.0 | 0.8 | 0.8 | 0.2 | 0.6 | 0.10 | 0.7 | 0.09 | | | | | 38.5 | | | | | | | | | | |
| | STD. DEV. | 2.4 | | 4.9 | 0.4 | 19.1 | | | | | 12.7 | 0.2 | 0.1 | 0.2 | 0.2 | 0.07 | 0.3 | 0.07 | | | | | 0.7 | | | | | | | | | | |
| | MIN | 20.0 | 4.9 | 2.0 | 0.2 | 140.0 | | | | | 24.0 | 0.7 | 0.6 | -0.1 | 0.4 | 0.02 | 0.4 | 0.04 | | | | | 38.0 | | | | | | | | | | |
| | MAX | 24.7 | 5.8 | 11.0 | 1.0 | 177.0 | | | | | 42.0 | 1.0 | 0.9 | 0.4 | 0.8 | 0.16 | 1.0 | 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 | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 24.1 | | 365.0 | 2.6 | 810.5 | | | | | 110.0 | 13.0 | 13.0 | 2.5 | 10.5 | 0.04 | 10.5 | 0.2 | | | | | 31 | | | | | | | | | | |
| | STD. DEV. | 6.0 | | 21.2 | 3.2 | 2.1 | | | | | 14.1 | 2.9 | 2.8 | 2.1 | 0.7 | 0.04 | 0.7 | 0.0 | | | | | | | | | | | | | | | |
| | MIN | 19.8 | 6.8 | 350.0 | 0.3 | 809.0 | | | | | 100.0 | 11.0 | 11.0 | 1.0 | 10.0 | 0.01 | 10.0 | 0.1 | | | | | 31 | | | | | | | | | | |
| | MAX | 28.3 | 7.0 | 380.0 | 4.8 | 812.0 | | | | | 120.0 | 15.1 | 15.0 | 4.0 | 11.0 | 0.06 | 11.1 | 0.2 | | | | | 31 | | | | | | | | | | |
| C-HS2-A10-9 | 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 | | 210.0 | 0.7 | 569.7 | | | | | 125.0 | 9.5 | 9.4 | 1.4 | 8.0 | 0.02 | 8.0 | 0.6 | | | | | 29.5 | | | | | | | | | | |
| | STD. DEV. | 3.0 | | 26.5 | 0.3 | 45.5 | | | | | 35.4 | 2.5 | 2.6 | 1.0 | 1.9 | 0.01 | 1.8 | 0.3 | | | | | 2.1 | | | | | | | | | | |
| | MIN | 21.2 | 6.6 | 180.0 | 0.4 | 539.0 | | | | | 100.0 | 6.9 | 6.9 | 0.7 | 5.9 | 0.01 | 5.9 | 0.5 | | | | | 28.0 | | | | | | | | | | |
| | MAX | 26.9 | 7.4 | 230.0 | 1.0 | 622.0 | | | | | 150.0 | 12.0 | 12.0 | 2.6 | 9.4 | 0.03 | 9.4 | 0.8 | | | | | 31.0 | | | | | | | | | | |
| C-HS2-A10-12 | 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 | 23.5 | | 26.7 | 0.5 | 142.7 | | | | | 28.0 | 0.7 | 0.7 | 0.3 | 0.4 | 0.03 | 0.4 | 0.1 | | | | | 36.5 | | | | | | | | | | |
| | STD. DEV. | 2.2 | | 14.6 | 0.2 | 7.8 | | | | | 8.5 | 0.1 | 0.1 | 0.1 | 0.0 | 0.01 | 0.0 | 0.0 | | | | | 0.7 | | | | | | | | | | |
| | MIN | 21.5 | 5.7 | 11.0 | 0.3 | 134.0 | | | | | 22.0 | 0.6 | 0.6 | 0.2 | 0.4 | 0.02 | 0.4 | 0.1 | | | | | 36.0 | | | | | | | | | | |
| | MAX | 25.9 | 7.1 | 40.0 | 0.7 | 149.0 | | | | | 34.0 | 0.8 | 0.8 | 0.3 | 0.4 | 0.03 | 0.5 | 0.1 | | | | | 37.0 | | | | | | | | | | |
| C-HS2-A11-5 | n | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MEAN | 24.3 | | 225.0 | 2.7 | 707.5 | | | | | 105.0 | 14.0 | 10.3 | 1.7 | 8.6 | 3.71 | 12.3 | 0.3 | | | | | 26 | | | | | | | | | | |
| | STD. DEV. | 7.1 | | 120.2 | 2.9 | 2.1 | | | | | 21.2 | 5.7 | 11.0 | 0.9 | 11.9 | 5.22 | 6.7 | 0.3 | | | | | | | | | | | | | | | |
| | MIN | 19.3 | 6.3 | 140.0 | 0.6 | 706.0 | | | | | 90.0 | 9.9 | 2.5 | 1.0 | 0.2 | 0.02 | 7.6 | 0.1 | | | | | 26 | | | | | | | | | | |
| | MAX | 29.3 | 6.8 | 310.0 | 4.7 | 709.0 | | | | | 120.0 | 18.0 | 18.0 | 2.3 | 17.0 | 7.40 | 17.0 | 0.5 | | | | | 26 | | | | | | | | | | |
| C-HS2-A11-7 | 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 | | 139.7 | 0.3 | 373.3 | | | | | 81.5 | 5.4 | 4.0 | 1.5 | 2.5 | 1.37 | 3.9 | 0.1 | | | | | 40.0 | | | | | | | | | | |
| | STD. DEV. | 3.5 | | 157.2 | 0.1 | 128.3 | | | | | 23.3 | 5.3 | 4.1 | 0.5 | 3.7 | 1.34 | 4.9 | 0.0 | | | | | | | | | | | | | | | |
| | MIN | 21.0 | 5.9 | 32.0 | 0.3 | 254.0 | | | | | 65.0 | 1.4 | 1.4 | 0.9 | 0.2 | 0.02 | 0.5 | 0.1 | | | | | 35.0 | | | | | | | | | | |
| | MAX | 27.8 | 6.3 | 320.0 | 0.4 | 509.0 | | | | | 98.0 | 11.4 | 8.7 | 1.9 | 6.8 | 2.70 | 9.5 | 0.1 | | | | | 45.0 | | | | | | | | | | |
| C-HS2-A11-10 | 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 | 24.0 | | 8.5 | 0.3 | 138.7 | | | | | 24.0 | 0.6 | 0.5 | 0.2 | 0.4 | 0.04 | 0.4 | 0.1 | | | | | 34.5 | | | | | | | | | | |
| | STD. DEV. | 2.7 | | 3.1 | 0.2 | 9.1 | | | | | 8.5 | 0.1 | 0.1 | 0.1 | 0.0 | 0.01 | 0.0 | 0.0 | | | | | 3.5 | | | | | | | | | | |
| | MIN | 21.5 | 5.2 | 5.0 | 0.1 | 132.0 | | | | | 18.0 | 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 | 149.0 | | | | | 30.0 | 0.7 | 0.6 | 0.3 | 0.4 | 0.05 | 0.4 | 0.1 | | | | | 37.0 | | | | | | | | | | |
| C-HS2-A13-5 | 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 |
| | MEAN | 23.7 | | 49.7 | 0.7 | 267.3 | | | | | 106.0 | 1.6 | 1.5 | 1.3 | 0.2 | 0.12 | 0.3 | 0.1 | | | | | 39.0 | | | | | | | | | | |
| | STD. DEV. | 5.5 | | 28.5 | 1.1 | 32.8 | | | | | 19.8 | 0.3 | 0.2 | 0.3 | 0.1 | 0.14 | 0.1 | 0.0 | | | | | 5.7 | | | | | | | | | | |
| | MIN | 18.8 | 5.5 | 22.0 | 0.1 | 245.0 | | | | | 92.0 | 1.3 | 1.3 | 1.0 | 0.1 | 0.04 | 0.2 | 0.1 | | | | | 35.0 | | | | | | | | | | |
| | 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 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | | | | $F^-$ | $Cl^-$ | $NO_3$-$N^-$ | $NO_2$-$N^-$ | $PO_4$-$P^-$ | $SO_4^-$ | B | Ca | Fe | Mg | Mn | K | Na |
| C-HS2-A13-7 | 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 | 23.8 | | 7.2 | 0.3 | 171.7 | | | | | 34.0 | 0.8 | 0.7 | 0.3 | 0.4 | 0.03 | 0.5 | 0.05 | | | | | 41.5 | | | | | | | | | | | |
| | STD. DEV. | 4.6 | | 4.5 | 0.3 | 13.6 | | | | | 2.8 | 0.1 | 0.1 | 0.0 | 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 | 186.0 | | | | | 36.0 | 0.9 | 0.8 | 0.3 | 0.5 | 0.05 | 0.6 | 0.06 | | | | | 43.0 | | | | | | | | | | | |
| C-HS2-A13-10 | 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 | 23.9 | | 5.5 | 0.1 | 137.7 | | | | | 24.0 | 0.6 | 0.6 | 0.2 | 0.4 | 0.02 | 0.4 | 0.03 | | | | | 34.5 | | | | | | | | | | | |
| | STD. DEV. | 3.7 | | 3.8 | 0.1 | 14.8 | | | | | 2.8 | 0.1 | 0.1 | 0.0 | 0.0 | 0.01 | 0.0 | 0.01 | | | | | 3.5 | | | | | | | | | | | |
| | MIN | 20.6 | 4.7 | 2.0 | 0.1 | 125.0 | | | | | 22.0 | 0.5 | 0.5 | 0.2 | 0.4 | 0.01 | 0.4 | 0.02 | | | | | 32.0 | | | | | | | | | | | |
| | MAX | 27.9 | 4.8 | 9.6 | 0.2 | 154.0 | | | | | 26.0 | 0.7 | 0.7 | 0.3 | 0.4 | 0.03 | 0.5 | 0.04 | | | | | 37.0 | | | | | | | | | | | |
| C-HS2-B02-6 | 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 | 24.0 | | 66.7 | 0.3 | 424.0 | | | | | 68.0 | 6.8 | 1.9 | 1.6 | 0.3 | 4.9 | 5.2 | 0.1 | | | | | 31.0 | | | | | | | | | | | |
| | STD. DEV. | 3.3 | | 11.7 | 0.2 | 61.6 | | | | | 1.4 | 4.3 | 0.7 | 0.7 | 0.2 | 3.6 | 3.6 | 0.0 | | | | | 9.9 | | | | | | | | | | | |
| | MIN | 21.7 | 5.6 | 54.0 | 0.1 | 385.0 | | | | | 67.0 | 2.1 | 1.1 | 0.9 | 0.2 | 1.0 | 1.2 | 0.1 | | | | | 24.0 | | | | | | | | | | | |
| | MAX | 27.8 | 6.2 | 77.0 | 0.5 | 495.0 | | | | | 69.0 | 10.4 | 2.4 | 2.2 | 0.5 | 8.0 | 8.2 | 0.1 | | | | | 38.0 | | | | | | | | | | | |
| C-HS2-B02-8 | 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 | 23.7 | | 156.7 | 0.2 | 606.0 | | | | | 40.0 | 2.0 | 2.0 | 1.0 | 1.0 | 0.05 | 1.0 | 0.05 | | 16.0 | 16.0 | 0.0 | 72.0 | 0.1 | 0.0 | 0.0 | 12.0 | 0.1 | 65.0 | 0.1 | 3.1 | 0.0 | 3.4 | 34.0 |
| | STD. DEV. | 2.8 | | 41.6 | 0.1 | 50.7 | | | | | 2.8 | 1.0 | 1.0 | 1.0 | 0.3 | 0.05 | 0.4 | 0.00 | | | | | 12.7 | | | | | | | | | | | |
| | MIN | 21.6 | 6.4 | 110.0 | 0.1 | 553.0 | | | | | 38.0 | 1.3 | 1.3 | 0.2 | 0.6 | 0.02 | 0.6 | 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 | 81.0 | 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 | 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 | | 27.0 | 0.2 | 219.3 | | | | | 29.0 | 0.8 | 0.8 | 0.3 | 0.5 | 0.03 | 0.5 | 0.06 | | | | | 40.5 | | | | | | | | | | | |
| | STD. DEV. | 2.2 | | 4.4 | 0.1 | 35.2 | | | | | 1.4 | 0.1 | 0.1 | 0.1 | 0.1 | 0.02 | 0.1 | 0.04 | | | | | 2.1 | | | | | | | | | | | |
| | MIN | 21.9 | 5.9 | 22.0 | 0.2 | 198.0 | | | | | 28.0 | 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 | 0.9 | 0.8 | 0.4 | 0.6 | 0.05 | 0.6 | 0.09 | | | | | 42.0 | | | | | | | | | | | |
| C-HS2-B06-6 | 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 | 23.7 | | 34.0 | 0.2 | 397.0 | | | | | 100.0 | 8.3 | 1.6 | 1.5 | 0.09 | 6.7 | 6.8 | 1.6 | | | | | 40.5 | | | | | | | | | | | |
| | STD. DEV. | 1.5 | | 7.8 | 0.2 | 202.7 | | | | | 14.1 | 11.6 | 1.0 | 1.0 | 0.07 | 10.7 | 10.6 | 0.1 | | | | | 17.7 | | | | | | | | | | | |
| | MIN | 22.4 | 5.6 | 29.0 | 0.1 | 275.0 | | | | | 90.0 | 1.0 | 1.0 | 0.9 | 0.02 | 0.0 | 0.1 | 1.5 | | | | | 28.0 | | | | | | | | | | | |
| | MAX | 25.4 | 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 | 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 | | 13.3 | 0.4 | 167.3 | | | | | 59.5 | 1.3 | 1.2 | 0.6 | 0.6 | 0.08 | 0.7 | 0.2 | | | | | 38.5 | | | | | | | | | | | |
| | STD. DEV. | 1.1 | | 5.0 | 0.3 | 20.6 | | | | | 33.2 | 0.3 | 0.2 | 0.1 | 0.1 | 0.05 | 0.1 | 0.2 | | | | | 4.9 | | | | | | | | | | | |
| | MIN | 22.6 | 5.7 | 9.9 | 0.1 | 144.0 | | | | | 36.0 | 1.0 | 1.0 | 0.4 | 0.5 | 0.03 | 0.6 | 0.1 | | | | | 35.0 | | | | | | | | | | | |
| | MAX | 24.8 | 5.8 | 19.0 | 0.6 | 183.0 | | | | | 83.0 | 1.5 | 1.4 | 0.7 | 0.7 | 0.12 | 0.8 | 0.3 | | | | | 42.0 | | | | | | | | | | | |
| C-HS2-B06-11 | 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 | 23.5 | | 10.2 | 0.2 | 144.7 | | | | | 38.0 | 1.0 | 0.9 | 0.3 | 0.6 | 0.06 | 0.6 | 0.1 | | | | | 34.5 | | | | | | | | | | | |
| | STD. DEV. | 0.9 | | 0.7 | 0.2 | 13.7 | | | | | 8.5 | 0.2 | 0.2 | 0.2 | 0.1 | 0.03 | 0.0 | 0.0 | | | | | 2.1 | | | | | | | | | | | |
| | MIN | 22.6 | 4.6 | 9.6 | 0.1 | 130.0 | | | | | 32.0 | 0.8 | 0.8 | 0.2 | 0.5 | 0.04 | 0.6 | 0.1 | | | | | 33.0 | | | | | | | | | | | |
| | MAX | 24.3 | 5.7 | 11.0 | 0.4 | 157.0 | | | | | 44.0 | 1.2 | 1.2 | 0.6 | 0.6 | 0.10 | 0.7 | 0.1 | | | | | 36.0 | | | | | | | | | | | |
| C-HS2-B08-5 | 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 | 23.2 | | 51.0 | 0.2 | 459.7 | | | | | 115.0 | 22.6 | 3.2 | 3.1 | 0.1 | 19.3 | 19.4 | 0.7 | | 47.5 | 46.0 | 0.1 | 26.0 | 12.5 | | 0.8 | 41.0 | 0.08 | 44.0 | 0.3 | 7.4 | 0.01 | 12.5 | 30.0 |
| | STD. DEV. | 2.8 | | 26.0 | 0.2 | 41.0 | | | | | 21.2 | 12.5 | 0.4 | 0.4 | 0.0 | 12.9 | 12.8 | 0.9 | | 9.2 | 11.3 | 0.1 | 4.2 | 3.5 | | 0.3 | 1.4 | 0.00 | 1.4 | 0.1 | 0.0 | 0.00 | 0.7 | 0.0 |
| | MIN | 21.1 | 5.5 | 21.0 | 0.1 | 428.0 | | | | | 100.0 | 13.3 | 2.8 | 2.7 | 0.1 | 10.0 | 10.1 | 0.1 | | 41.0 | 38.0 | 0.03 | 23.0 | 10.0 | | 0.6 | 40.0 | 0.08 | 43.0 | 0.3 | 7.4 | 0.01 | 12.0 | 30.0 |
| | MAX | 26.4 | 6.0 | 67.0 | 0.4 | 506.0 | | | | | 130.0 | 36.8 | 3.6 | 3.5 | 0.1 | 34.0 | 34.1 | 1.4 | | 54.0 | 54.0 | 0.12 | 29.0 | 15.0 | | 1.0 | 42.0 | 0.08 | 45.0 | 0.4 | 7.4 | 0.01 | 13.0 | 30.0 |
| C-HS2-B08-7 | 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 | 23.5 | | 50.0 | 0.2 | 380.7 | | | | | 68.0 | 7.5 | 2.1 | 2.0 | 0.04 | 5.5 | 5.5 | 0.5 | | | | | 24.5 | | | | | | | | | | | |
| | STD. DEV. | 2.7 | | 10.6 | 0.2 | 122.7 | | | | | 31.1 | 3.7 | 0.4 | 0.4 | 0.03 | 3.3 | 3.3 | 0.4 | | | | | 6.4 | | | | | | | | | | | |
| | MIN | 21.4 | 5.9 | 38.0 | 0.1 | 282.0 | | | | | 46.0 | 4.0 | 1.6 | 1.5 | 0.01 | 2.4 | 2.5 | 0.2 | | | | | 20.0 | | | | | | | | | | | |
| | MAX | 26.5 | 6.1 | 58.0 | 0.5 | 518.0 | | | | | 90.0 | 11.4 | 2.4 | 2.4 | 0.06 | 9.0 | 9.0 | 0.8 | | | | | 29.0 | | | | | | | | | | | |
| C-HS2-B08-10 | 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 | 23.7 | | 8.3 | 0.3 | 143.3 | | | | | 23.0 | 1.0 | 0.9 | 0.4 | 0.5 | 0.1 | 0.6 | 0.1 | | | | | 34.5 | | | | | | | | | | | |
| | STD. DEV. | 2.9 | | 3.6 | 0.2 | 13.3 | | | | | 4.2 | 0.2 | 0.2 | 0.2 | 0.0 | 0.0 | 0.1 | 0.0 | | | | | 3.5 | | | | | | | | | | | |
| | MIN | 21.6 | 4.9 | 4.2 | 0.2 | 132.0 | | | | | 20.0 | 0.8 | 0.7 | 0.2 | 0.5 | 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 | | | | | 37.0 | | | | | | | | | | | |
| C-HS2-B10-5 | 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 |
| | MEAN | 23.6 | | 190.0 | 0.1 | 564.0 | | | | | 87.5 | 10.7 | 7.1 | 4.0 | 3.1 | 3.5 | 6.6 | 0.1 | | | | | 27.5 | | | | | | | | | | | |
| | STD. DEV. | 3.5 | | 95.4 | 0.1 | 140.8 | | | | | 9.2 | 0.6 | 4.1 | 4.0 | 3.2 | 4.1 | 3.6 | 0.0 | | | | | 3.5 | | | | | | | | | | | |
| | MIN | 20.6 | 6.4 | 130.0 | 0.1 | 452.0 | | | | | 81.0 | 10.0 | 2.9 | 0.9 | 0.3 | 0.1 | 2.5 | 0.1 | | | | | 25.0 | | | | | | | | | | | |
| | MAX | 27.4 | 6.6 | 300.0 | 0.2 | 722.0 | | | | | 94.0 | 11.1 | 11.0 | 8.6 | 6.6 | 8.0 | 9.1 | 0.1 | | | | | 30.0 | | | | | | | | | | | |

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 | 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 | 23.7 | | 41.7 | 0.5 | 244.3 | | | | | 39.0 | 2.4 | 1.3 | 0.6 | 0.6 | 1.1 | 1.7 | 0.07 | | | | | 36.0 | | | | | | | | | | | | |
| | STD. DEV. | 3.4 | | 21.7 | 0.3 | 97.2 | | | | | 1.4 | 2.0 | 0.4 | 0.5 | 0.2 | 1.6 | 1.5 | 0.03 | | | | | 1.4 | | | | | | | | | | | | |
| | MIN | 20.8 | 6.3 | 22.0 | 0.3 | 173.0 | | | | | 38.0 | 1.0 | 0.9 | 0.2 | 0.4 | 0.1 | 0.8 | 0.05 | | | | | 35.0 | | | | | | | | | | | | |
| | MAX | 27.4 | 6.6 | 65.0 | 0.8 | 355.0 | | | | | 40.0 | 4.6 | 1.6 | 1.2 | 0.7 | 3.0 | 3.4 | 0.10 | | | | | 37.0 | | | | | | | | | | | | |
| C-HS2-B10-10 | 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 | 23.6 | | 4.5 | 0.3 | 134.7 | | | | | 27.0 | 0.8 | 0.7 | 0.3 | 0.4 | 0.1 | 0.5 | 0.1 | | | | | 34.0 | | | | | | | | | | | | |
| | STD. DEV. | 2.9 | | 4.4 | 0.3 | 10.7 | | | | | 7.1 | 0.4 | 0.4 | 0.4 | 0.0 | 0.0 | 0.1 | 0.0 | | | | | 1.4 | | | | | | | | | | | | |
| | MIN | 21.0 | 4.7 | 2.0 | 0.1 | 123.0 | | | | | 22.0 | 0.5 | 0.4 | 0.0 | 0.4 | 0.1 | 0.4 | 0.1 | | | | | 33.0 | | | | | | | | | | | | |
| | MAX | 26.7 | 5.9 | 9.6 | 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 | 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 | | 31.5 | 0.4 | 389.7 | | | | | 104.5 | 5.5 | 2.3 | 1.9 | 0.5 | 3.17 | 3.6 | 0.2 | | | | | 19.5 | | | | | | | | | | | | |
| | STD. DEV. | 2.5 | | 26.3 | 0.4 | 133.4 | | | | | 50.2 | 3.4 | 0.6 | 0.4 | 0.2 | 2.84 | 3.0 | 0.2 | | | | | 0.7 | | | | | | | | | | | | |
| | 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 | 5.8 | 58.0 | 0.8 | 541.0 | | | | | 140.0 | 8.4 | 2.9 | 2.2 | 0.7 | 5.50 | 6.2 | 0.3 | | | | | 20.0 | | | | | | | | | | | | |
| C-HS2-C04-7 | 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 | | 6.0 | 0.6 | 165.7 | | | | | 135.0 | 1.5 | 1.3 | 0.3 | 1.0 | 0.20 | 1.2 | 0.49 | | | | | 38.0 | | | | | | | | | | | | |
| | STD. DEV. | 2.2 | | 3.3 | 0.6 | 25.7 | | | | | 148.5 | 0.5 | 0.2 | 0.3 | 0.4 | 0.31 | 0.7 | 0.64 | | | | | 8.5 | | | | | | | | | | | | |
| | 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 | 5.6 | 9.6 | 1.3 | 193.0 | | | | | 240.0 | 2.1 | 1.5 | 0.6 | 1.4 | 0.56 | 2.0 | 0.94 | | | | | 44.0 | | | | | | | | | | | | |
| C-HS2-C04-10 | 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 | 23.2 | | 6.0 | 0.4 | 142.3 | | | | | 57.5 | 1.1 | 1.0 | 0.5 | 0.5 | 0.12 | 0.6 | 0.5 | | | | | 41 | | | | | | | | | | | | |
| | STD. DEV. | 1.7 | | 3.3 | 0.5 | 7.8 | | | | | 50.2 | 0.3 | 0.4 | 0.3 | 0.1 | 0.15 | 0.1 | 0.2 | | | | | 5 | | | | | | | | | | | | |
| | MIN | 21.7 | 4.9 | 3.1 | 0.1 | 136.0 | | | | | 22.0 | 0.8 | 0.6 | 0.1 | 0.5 | 0.01 | 0.5 | 0.3 | | | | | 37 | | | | | | | | | | | | |
| | MAX | 25.0 | 5.5 | 9.6 | 1.0 | 151.0 | | | | | 93.0 | 1.5 | 1.4 | 0.8 | 0.7 | 0.29 | 0.7 | 0.6 | | | | | 44 | | | | | | | | | | | | |
| C-HS2-C06-5 | 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 | 1 |
| | MEAN | 23.0 | 5.8 | 40.0 | 0.5 | 514.3 | | | | | 83.0 | 19.4 | 3.4 | 3.3 | 0.08 | 16.0 | 16.1 | 2.4 | | 31.0 | 22.0 | 0.01 | 30.5 | 21.0 | | 2.1 | 56.0 | 0.10 | 37.0 | 0.3 | 8.8 | 0.0 | 9.4 | 58.0 |
| | STD. DEV. | 3.4 | 0.2 | 9.8 | 0.6 | 160.5 | | | | | 66.5 | 11.9 | 1.1 | 1.0 | 0.07 | 12.8 | 12.7 | 0.7 | | | | | 16.3 | | | | | | | | | | | | |
| | MIN | 20.5 | 5.7 | 29.0 | 0.1 | 332.0 | | | | | 36.0 | 9.6 | 2.6 | 2.6 | 0.02 | 5.0 | 5.2 | 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 | 42.0 | 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 | 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 | 22.7 | 5.9 | 35.0 | 0.3 | 303.0 | | | | | 64.0 | 3.5 | 1.5 | 1.2 | 0.3 | 2.01 | 2.3 | 1.3 | | | | | 40.5 | | | | | | | | | | |
| | STD. DEV. | 2.7 | | 3.0 | 0.2 | 59.6 | | | | | 7.1 | 2.3 | 0.4 | 0.5 | 0.2 | 1.89 | 1.7 | 0.3 | | | | | 0.7 | | | | | | | | | | |
| | MIN | 20.6 | | 32.0 | 0.2 | 242.0 | | | | | 59.0 | 1.1 | 1.1 | 0.7 | 0.1 | 0.04 | 0.5 | 1.1 | | | | | 40.0 | | | | | | | | | | |
| | MAX | 25.7 | 6.0 | 38.0 | 0.5 | 361.0 | | | | | 69.0 | 5.6 | 1.8 | 1.7 | 0.5 | 3.80 | 3.9 | 1.5 | | | | | 41.0 | | | | | | | | | | |
| C-HS2-C06-10 | 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 | 22.8 | | 8.3 | 0.2 | 138.3 | | | | | 33.0 | 0.7 | 0.7 | 0.3 | 0.4 | 0.05 | 0.5 | 0.07 | | | | | 32.0 | | | | | | | | | | |
| | STD. DEV. | 1.8 | | 3.6 | 0.1 | 7.4 | | | | | 9.9 | 0.2 | 0.2 | 0.3 | 0.1 | 0.02 | 0.1 | 0.06 | | | | | 4.2 | | | | | | | | | | |
| | MIN | 21.1 | 5.1 | 4.2 | 0.1 | 130.0 | | | | | 26.0 | 0.5 | 0.5 | -0.1 | 0.3 | 0.03 | 0.4 | 0.03 | | | | | 29.0 | | | | | | | | | | |
| | MAX | 24.7 | 5.3 | 11.0 | 0.2 | 144.0 | | | | | 40.0 | 0.9 | 0.8 | 0.5 | 0.5 | 0.07 | 0.6 | 0.11 | | | | | 35.0 | | | | | | | | | | |
| C-HS2-C08-5 | 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 |
| | MEAN | 23.9 | | 59.7 | 0.7 | 479.0 | | | | | 99.0 | 9.1 | 3.6 | 3.4 | 0.16 | 5.5 | 5.7 | 0.2 | | | | | 22.0 | | | | | | | | | | |
| | STD. DEV. | 2.9 | | 15.3 | 0.7 | 110.3 | | | | | 1.4 | 1.1 | 0.7 | 0.7 | 0.22 | 1.2 | 1.0 | 0.1 | | | | | 8.5 | | | | | | | | | | |
| | MIN | 21.6 | 5.8 | 48.0 | 0.1 | 353.0 | | | | | 98.0 | 8.0 | 2.8 | 2.8 | 0.02 | 4.2 | 4.6 | 0.1 | | | | | 16.0 | | | | | | | | | | |
| | MAX | 27.2 | 6.0 | 77.0 | 1.4 | 558.0 | | | | | 100.0 | 10.2 | 4.2 | 4.2 | 0.41 | 6.4 | 6.4 | 0.4 | | | | | 28.0 | | | | | | | | | | |
| C-HS2-C08-7 | 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 | 23.8 | | 56.0 | 0.5 | 472.0 | | | | | 60.0 | 9.8 | 2.0 | 1.8 | 0.22 | 7.8 | 8.0 | 0.1 | | 27.0 | 26.0 | 0.0 | 34.0 | 18.0 | 0.1 | 0.1 | 61.0 | 0.1 | 47.0 | 0.1 | 9.7 | 0.0 | 9.6 | 42.0 |
| | STD. DEV. | 2.4 | | 8.5 | 0.5 | 188.0 | | | | | 1.4 | 9.5 | 0.3 | 0.6 | 0.33 | 9.2 | 9.0 | 0.0 | | | | | 4.2 | | | | | | | | | | |
| | MIN | 22.1 | 6.0 | 48.0 | 0.1 | 255.0 | | | | | 59.0 | 1.8 | 1.7 | 1.1 | 0.01 | 0.1 | 0.7 | 0.1 | | 27.0 | 26.0 | 0.03 | 31.0 | 18.0 | 0.1 | 0.1 | 61.0 | 0.08 | 47.0 | 0.08 | 9.7 | 0.01 | 9.6 | 42.0 |
| | MAX | 26.6 | 6.3 | 65.0 | 1.1 | 585.0 | | | | | 61.0 | 20.2 | 2.2 | 2.2 | 0.60 | 18.0 | 18.0 | 0.2 | | 27.0 | 26.0 | 0.03 | 37.0 | 18.0 | 0.1 | 0.1 | 61.0 | 0.08 | 47.0 | 0.08 | 9.7 | 0.01 | 9.6 | 42.0 |
| C-HS2-C08-10 | 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 | 23.6 | | 6.4 | 0.4 | 143.7 | | | | | 32.0 | 0.9 | 0.8 | 0.4 | 0.5 | 0.06 | 0.5 | 0.1 | | | | | 33.0 | | | | | | | | | | |
| | STD. DEV. | 2.0 | | 2.8 | 0.4 | 26.8 | | | | | 5.7 | 0.1 | 0.1 | 0.1 | 0.0 | 0.03 | 0.0 | 0.0 | | | | | 1.4 | | | | | | | | | | |
| | MIN | 22.4 | 5.0 | 4.2 | 0.1 | 123.0 | | | | | 28.0 | 0.8 | 0.7 | 0.3 | 0.4 | 0.03 | 0.5 | 0.1 | | | | | 32.0 | | | | | | | | | | |
| | MAX | 25.9 | 6.0 | 9.6 | 0.9 | 174.0 | | | | | 36.0 | 1.0 | 1.0 | 0.5 | 0.5 | 0.09 | 0.5 | 0.1 | | | | | 34.0 | | | | | | | | | | |
| C-HS2-C10-6 | 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 | 24.3 | | 48.0 | 0.5 | 296.3 | | | | | 107.0 | 6.2 | 2.8 | 2.1 | 0.7 | 3.4 | 4.1 | 0.1 | | 61.0 | 44.0 | 0.4 | 31.5 | 1.1 | | 0.01 | 13.0 | 0.05 | 21.0 | 0.4 | 2.7 | 0.0 | 4.0 | 17.0 |
| | STD. DEV. | 2.2 | | 53.7 | 0.8 | 106.3 | | | | | 18.4 | 4.9 | 0.1 | 0.6 | 0.6 | 5.0 | 4.7 | 0.0 | | | | | 0.7 | | | | | | | | | | |
| | MIN | 22.8 | 5.1 | 15.0 | 0.1 | 210.0 | | | | | 94.0 | 3.0 | 2.7 | 1.5 | 0.3 | 0.1 | 1.3 | 0.1 | | 61.0 | 44.0 | 0.4 | 31.0 | 1.1 | | 0.01 | 13.0 | 0.05 | 21.0 | 0.4 | 2.7 | 0.0 | 4.0 | 17.0 |
| | MAX | 26.9 | 5.9 | 110.0 | 1.4 | 415.0 | | | | | 120.0 | 11.9 | 2.9 | 2.5 | 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 | 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 | 24.2 | | 10.2 | 0.5 | 162.0 | | | | | 45.5 | 1.2 | 1.2 | 0.4 | 0.8 | 0.04 | 0.8 | 0.08 | | | | | 36.5 | | | | | | | | | | |
| | STD. DEV. | 1.8 | | 0.7 | 0.8 | 23.1 | | | | | 7.8 | 0.4 | 0.4 | 0.1 | 0.5 | 0.03 | 0.5 | 0.06 | | | | | 4.9 | | | | | | | | | | |
| | MIN | 23.1 | 5.1 | 9.6 | 0.1 | 140.0 | | | | | 40.0 | 0.9 | 0.9 | 0.3 | 0.4 | 0.02 | 0.5 | 0.04 | | | | | 33.0 | | | | | | | | | | |
| | MAX | 26.3 | 5.6 | 11.0 | 1.4 | 186.0 | | | | | 51.0 | 1.7 | 1.7 | 0.5 | 1.4 | 0.07 | 1.4 | 0.12 | | | | | 40.0 | | | | | | | | | | |
| C-HS2-C10-11 | 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 | 24.4 | | 4.9 | 0.9 | 132.0 | | | | | 60.0 | 1.1 | 1.0 | 0.5 | 0.5 | 0.07 | 0.5 | 0.2 | | | | | 32.5 | | | | | | | | | | |
| | STD. DEV. | 1.2 | | 4.1 | 0.9 | 9.2 | | | | | 12.7 | 0.6 | 0.5 | 0.4 | 0.1 | 0.08 | 0.2 | 0.2 | | | | | 2.1 | | | | | | | | | | |
| | MIN | 23.5 | 4.7 | 2.0 | 0.1 | 124.0 | | | | | 51.0 | 0.6 | 0.6 | 0.2 | 0.3 | 0.01 | 0.3 | 0.1 | | | | | 31.0 | | | | | | | | | | |
| | MAX | 25.7 | 5.2 | 9.6 | 1.8 | 142.0 | | | | | 69.0 | 1.8 | 1.6 | 1.0 | 0.6 | 0.16 | 0.8 | 0.3 | | | | | 34.0 | | | | | | | | | | |
| C-HS2-C11-5 | 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 |
| | MEAN | 23.8 | | 11.4 | 0.5 | 228.3 | | | | | 101.5 | 5.0 | 2.0 | 1.8 | 0.2 | 3.0 | 3.1 | 0.4 | | | | | 19.4 | | | | | | | | | | |
| | STD. DEV. | 2.7 | | 7.4 | 0.3 | 87.2 | | | | | 68.6 | 3.7 | 0.8 | 0.9 | 0.0 | 4.2 | 4.2 | 0.5 | | | | | 19.3 | | | | | | | | | | |
| | 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 | 26.9 | 5.3 | 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 | 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 | | 7.1 | 0.4 | 205.0 | | | | | 59.0 | 1.5 | 1.4 | 0.9 | 0.5 | 0.17 | 0.7 | 0.1 | | | | | 41.0 | | | | | | | | | | |
| | STD. DEV. | 2.1 | | 2.2 | 0.3 | 25.1 | | | | | 18.4 | 1.0 | 0.9 | 0.7 | 0.2 | 0.12 | 0.3 | 0.0 | | | | | 0.0 | | | | | | | | | | |
| | MIN | 22.4 | 5.0 | 5.4 | 0.1 | 190.0 | | | | | 46.0 | 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 | | | | | 41.0 | | | | | | | | | | |
| C-HS2-C11-10 | 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 | | 2.0 | 0.4 | 135.3 | | | | | 31.0 | 0.7 | 0.7 | 0.4 | 0.28 | 0.03 | 0.3 | 0.05 | | | | | 32.0 | | | | | | | | | | |
| | STD. DEV. | 1.4 | | 0.1 | 0.4 | 11.7 | | | | | 4.2 | 0.3 | 0.3 | 0.2 | 0.22 | 0.01 | 0.2 | 0.01 | | | | | 5.7 | | | | | | | | | | |
| | MIN | 22.7 | 4.7 | 2.0 | 0.1 | 125.0 | | | | | 28.0 | 0.6 | 0.5 | 0.2 | 0.03 | 0.02 | 0.1 | 0.05 | | | | | 28.0 | | | | | | | | | | |
| | MAX | 25.2 | 5.2 | 2.1 | 0.8 | 148.0 | | | | | 34.0 | 1.0 | 1.0 | 0.5 | 0.46 | 0.04 | 0.5 | 0.06 | | | | | 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 |
| 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 | 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 | | 47.3 | 4.1 | 320.3 | | | | | 42.0 | 2.5 | 1.7 | 1.2 | 0.5 | 0.8 | 1.3 | 0.04 | | | | | 47.5 | | | | | | | | | | | |
| | STD. DEV. | 3.6 | | 7.0 | 1.3 | 46.7 | | | | | 2.8 | 0.4 | 0.8 | 0.8 | 0.0 | 0.4 | 0.4 | 0.01 | | | | | 3.5 | | | | | | | | | | | |
| | MIN | 21.1 | 5.9 | 40.0 | 3.4 | 284.0 | | | | | 40.0 | 2.2 | 1.0 | 0.6 | 0.5 | 0.4 | 0.8 | 0.03 | | | | | 45.0 | | | | | | | | | | | |
| | MAX | 28.0 | 6.5 | 54.0 | 5.6 | 373.0 | | | | | 44.0 | 3.0 | 2.6 | 2.1 | 0.5 | 1.2 | 1.7 | 0.04 | | | | | 50.0 | | | | | | | | | | | |
| C-HS2-SW-M | 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 | 24.1 | | 105.3 | 5.9 | 364.0 | | | | | 26.0 | 1.8 | 0.9 | 0.6 | 0.3 | 0.9 | 1.2 | 0.1 | | | | | 31.5 | | | | | | | | | | | |
| | STD. DEV. | 4.3 | | 8.1 | 1.0 | 22.6 | | | | | 2.8 | 0.5 | 0.2 | 0.2 | 0.1 | 0.7 | 0.7 | 0.0 | | | | | 0.7 | | | | | | | | | | | |
| | MIN | 19.8 | 6.9 | 96.0 | 4.8 | 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 | | | | | 28.0 | 2.3 | 1.1 | 0.8 | 0.4 | 1.6 | 2.0 | 0.1 | | | | | 32.0 | | | | | | | | | | | |

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** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FB-EB | 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 | 25.7 | | 2.0 | 3.8 | 3.0 | | | | | 10.0 | 0.1 | 0.05 | 0.04 | 0.01 | 0.01 | 0.02 | 0.03 | | | | | 0.05 | | | | | | | | | | | |
| | STD. DEV. | 10.9 | | 0.0 | 1.6 | 1.0 | | | | | 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 | 7.7 | 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 | 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 | 25.1 | | 2.0 | 4.9 | 3.0 | | | | | 10.0 | 0.1 | 0.05 | 0.04 | 0.01 | 0.01 | 0.02 | 0.19 | | | | | 0.05 | | | | | | | | | | | |
| | STD. DEV. | 8.5 | | 0.0 | 3.3 | 1.0 | | | | | 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 | 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 | | 116.7 | 4.7 | 292.7 | | | | | 10.0 | 0.1 | 0.05 | 0.03 | 0.02 | 0.01 | 0.03 | 0.18 | | | | | 12.8 | | | | | | | | | | | |
| | STD. DEV. | 5.2 | | 5.8 | 0.7 | 59.5 | | | | | 0.0 | 0.0 | 0.00 | 0.02 | 0.02 | 0.01 | 0.02 | 0.17 | | | | | 10.2 | | | | | | | | | | | |
| | MIN | 20.4 | 6.9 | 110.0 | 3.9 | 224.0 | | | | | 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 | 0.05 | 0.05 | 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**

**April 13, 2012**
**Work Order: 1201896**
**Revised Report**

## 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 | | **1201896-01** | | | | | | |
| Date/Time Collected | | **03/13/12 15:35** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 6.9 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 15:40 | SAS |
| Water Temperature | °C | 24.1 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 15:40 | SAS |
| Specific conductance | umhos/cm | 1,188 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 15:40 | SAS |
| Dissolved Oxygen | mg/L | 1.2 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 15:40 | SAS |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 83 | EPA 350.1 | 4.0 | 0.95 | | 03/20/12 12:09 | MMF |
| Carbonaceous BOD | mg/L | 140 | SM 5210B | 2 | 2 | 03/14/12 14:58 | 03/19/12 13:22 | MEJ |
| Chloride | mg/L | 58 | EPA 300.0 | 0.20 | 0.050 | | 03/17/12 00:10 | JAG |
| Fluoride | mg/L | 3.2 | EPA 300.0 | 0.040 | 0.010 | | 03/14/12 11:51 | JAG |
| Nitrate (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 03/14/12 11:51 | JAG |
| Nitrate+Nitrite (N) | mg/L | 0.03 I | EPA 353.2 | 0.04 | 0.01 | | 03/19/12 11:53 | MMF |
| Orthophosphate as P | mg/L | 6.1 | EPA 300.0 | 0.040 | 0.010 | | 03/14/12 11:51 | JAG |
| Phosphorous - Total as P | mg/L | 9.0 | SM 4500P-E | 0.20 | 0.050 | 03/15/12 09:48 | 03/16/12 11:32 | MMF |
| Sulfate | mg/L | 0.82 | EPA 300.0 | 0.60 | 0.20 | | 03/14/12 11:51 | JAG |
| Total Alkalinity | mg/L | 470 | SM 2320B | 8.0 | 2.0 | | 03/15/12 12:00 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 83 | EPA 351.2 | 0.20 | 0.05 | 03/15/12 14:42 | 03/19/12 13:11 | MMF |
| Total Solids | mg/L | 520 | SM 2540B | 10 | 10 | 03/16/12 16:30 | 03/19/12 13:49 | LAS |
| Total Suspended Solids | mg/L | 48 | SM 2540D | 1 | 1 | 03/14/12 10:51 | 03/15/12 09:10 | AES |
| **Metals** | | | | | | | | |
| Boron | mg/L | 0.057 I | EPA 200.7 | 0.10 | 0.050 | 03/16/12 13:21 | 03/16/12 16:33 | VWC |
| Calcium | mg/L | 40 | EPA 200.7 | 0.50 | 0.042 | 03/16/12 13:21 | 03/16/12 16:33 | VWC |
| Iron | mg/L | 0.14 | EPA 200.7 | 0.10 | 0.020 | 03/16/12 13:21 | 03/16/12 16:33 | VWC |
| Magnesium | mg/L | 15 | EPA 200.7 | 0.50 | 0.020 | 03/16/12 13:21 | 03/16/12 16:33 | VWC |
| Manganese | mg/L | 0.027 | EPA 200.7 | 0.010 | 0.0010 | 03/16/12 13:21 | 03/16/12 16:33 | VWC |
| Potassium | mg/L | 19 | EPA 200.7 | 0.050 | 0.010 | 03/16/12 13:21 | 03/16/12 16:33 | VWC |
| Sodium | mg/L | 54 | EPA 200.7 | 0.50 | 0.13 | 03/16/12 13:21 | 03/16/12 16:33 | VWC |
| **Microbiology** | | | | | | | | |
| Fecal Coliforms | CFU/100 ml | 36,400 Q | SM 9222D | 1 | 1 | 03/14/12 09:45 | 03/15/12 08:45 | HKG |
| Sample Description | | **C-HS2-STE-DUP** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-02** | | | | | | |
| Date/Time Collected | | **03/13/12 15:35** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 6.9 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 15:35 | SAS |

**FDOH Laboratory No.E84129**
**NELAP Accredited**

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

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

**April 13, 2012**
**Work Order: 1201896**
**Revised Report**

## 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 | | **1201896-02** | | | | | | |
| Date/Time Collected | | **03/13/12 15:35** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| Water Temperature | °C | 24.1 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 15:35 | SAS |
| Specific conductance | umhos/cm | 1,188 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 15:35 | SAS |
| Dissolved Oxygen | mg/L | 1.2 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 15:35 | SAS |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 80 | EPA 350.1 | 4.0 | 0.95 | | 03/20/12 12:11 | MMF |
| Carbonaceous BOD | mg/L | 160 | SM 5210B | 2 | 2 | 03/14/12 14:58 | 03/19/12 13:22 | MEJ |
| Chloride | mg/L | 54 | EPA 300.0 | 0.20 | 0.050 | | 04/02/12 12:51 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 0.02 I | EPA 353.2 | 0.04 | 0.01 | | 03/19/12 11:55 | MMF |
| Phosphorous - Total as P | mg/L | 8.6 | SM 4500P-E | 0.20 | 0.050 | 03/15/12 09:48 | 03/16/12 11:33 | MMF |
| Total Alkalinity | mg/L | 440 | SM 2320B | 8.0 | 2.0 | | 03/15/12 12:00 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 81 | EPA 351.2 | 0.20 | 0.05 | 03/15/12 14:42 | 03/19/12 13:13 | MMF |
| Total Solids | mg/L | 520 | SM 2540B | 10 | 10 | 03/16/12 16:30 | 03/19/12 13:49 | LAS |
| Total Suspended Solids | mg/L | 57 | SM 2540D | 1 | 1 | 03/14/12 10:51 | 03/15/12 09:10 | AES |
| **Microbiology** | | | | | | | | |
| Fecal Coliforms | CFU/100 ml | 34,200 Q | SM 9222D | 1 | 1 | 03/14/12 09:45 | 03/15/12 08:45 | HKG |
| Sample Description | | **C-HS2-SW-6 inch** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-03** | | | | | | |
| Date/Time Collected | | **03/13/12 15:40** | | | | | | |
| Collected by | | **Sean Harmon** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 6.0 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 15:40 | SDH |
| Water Temperature | °C | 22.5 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 15:40 | SDH |
| Specific conductance | umhos/cm | 373 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 15:40 | SDH |
| Dissolved Oxygen | mg/L | 3.4 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 15:40 | SDH |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.54 | EPA 350.1 | 0.040 | 0.009 | | 03/20/12 12:13 | MMF |
| Chemical Oxygen Demand | mg/L | 44 | EPA 410.4 | 25 | 10 | 03/15/12 07:32 | 03/15/12 15:35 | LAS |
| Chloride | mg/L | 45 | EPA 300.0 | 0.20 | 0.050 | | 04/02/12 12:51 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 0.84 | EPA 353.2 | 0.04 | 0.01 | | 03/19/12 11:57 | MMF |
| Phosphorous - Total as P | mg/L | 0.043 | SM 4500P-E | 0.040 | 0.010 | 03/15/12 09:48 | 03/16/12 10:55 | MMF |
| Total Alkalinity | mg/L | 54 | SM 2320B | 8.0 | 2.0 | | 03/15/12 12:00 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 1.5 | EPA 351.2 | 0.20 | 0.05 | 03/15/12 14:42 | 03/19/12 12:04 | MMF |

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**Tampa, FL 33619**

**April 13, 2012**
**Work Order: 1201896**
**Revised Report**

## Laboratory Report

**Project Name** **Seminole County C-HS2**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | By |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **C-HS2-SW-M** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-04** | | | | | | |
| Date/Time Collected | | **03/13/12 15:30** | | | | | | |
| Collected by | | **Sean Harmon** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 7.0 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 15:30 | SDH |
| Water Temperature | °C | 24.1 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 15:30 | SDH |
| Specific conductance | umhos/cm | 358 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 15:30 | SDH |
| Dissolved Oxygen | mg/L | 6.6 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 15:30 | SDH |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.23 | EPA 350.1 | 0.040 | 0.009 | | 03/20/12 12:15 | MMF |
| Chemical Oxygen Demand | mg/L | 28 | EPA 410.4 | 25 | 10 | 03/15/12 07:32 | 03/15/12 15:35 | LAS |
| Chloride | mg/L | 32 | EPA 300.0 | 0.20 | 0.050 | | 04/02/12 12:51 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 0.40 | EPA 353.2 | 0.04 | 0.01 | | 03/19/12 11:59 | MMF |
| Phosphorous - Total as P | mg/L | 0.070 | SM 4500P-E | 0.040 | 0.010 | 03/15/12 09:48 | 03/16/12 10:56 | MMF |
| Total Alkalinity | mg/L | 110 | SM 2320B | 8.0 | 2.0 | | 03/15/12 12:00 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 0.94 | EPA 351.2 | 0.20 | 0.05 | 03/15/12 14:42 | 03/19/12 12:06 | MMF |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **C-HS2-BKG01-7** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-05** | | | | | | |
| Date/Time Collected | | **03/13/12 15:26** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 4.9 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 15:26 | SAS |
| Water Temperature | °C | 21.9 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 15:26 | SAS |
| Specific conductance | umhos/cm | 222 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 15:26 | SAS |
| Dissolved Oxygen | mg/L | 0.3 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 15:26 | SAS |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.29 | EPA 350.1 | 0.040 | 0.009 | | 03/19/12 10:58 | MMF |
| Chemical Oxygen Demand | mg/L | 65 | EPA 410.4 | 25 | 10 | 03/15/12 07:32 | 03/15/12 15:35 | LAS |
| Chloride | mg/L | 47 | EPA 300.0 | 0.20 | 0.050 | | 04/02/12 12:51 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 0.01 U | EPA 353.2 | 0.04 | 0.01 | | 03/19/12 12:01 | MMF |
| Phosphorous - Total as P | mg/L | 0.044 | SM 4500P-E | 0.040 | 0.010 | 03/15/12 09:48 | 03/16/12 10:57 | MMF |
| Total Alkalinity | mg/L | 11 | SM 2320B | 8.0 | 2.0 | | 03/15/12 12:00 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 0.96 | EPA 351.2 | 0.20 | 0.05 | 03/15/12 14:42 | 03/19/12 12:07 | MMF |

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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-BKG02-6** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-06** | | | | | | |
| Date/Time Collected | | **03/13/12 14:09** | | | | | | |
| Collected by | | **Sean Harmon** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 6.3 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 14:09 | SDH |
| Water Temperature | °C | 21.8 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 14:09 | SDH |
| Specific conductance | umhos/cm | 251 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 14:09 | SDH |
| Dissolved Oxygen | mg/L | 0.8 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 14:09 | SDH |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.63 | EPA 350.1 | 0.040 | 0.009 | | 03/19/12 11:00 | MMF |
| Chemical Oxygen Demand | mg/L | 75 | EPA 410.4 | 25 | 10 | 03/15/12 07:32 | 03/15/12 15:35 | LAS |
| Chloride | mg/L | 33 | EPA 300.0 | 0.20 | 0.050 | | 04/02/12 12:51 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 0.01 U | EPA 353.2 | 0.04 | 0.01 | | 03/19/12 12:04 | MMF |
| Phosphorous - Total as P | mg/L | 0.049 | SM 4500P-E | 0.040 | 0.010 | 03/15/12 09:48 | 03/16/12 10:59 | MMF |
| Total Alkalinity | mg/L | 65 | SM 2320B | 8.0 | 2.0 | | 03/15/12 12:00 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 1.2 | EPA 351.2 | 0.20 | 0.05 | 03/15/12 14:42 | 03/19/12 12:09 | MMF |

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|---|---|---|---|---|---|---|---|---|
| Sample Description | | **C-HS2-BKG03-7** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-07** | | | | | | |
| Date/Time Collected | | **03/13/12 13:58** | | | | | | |
| Collected by | | **Sean Harmon** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 5.7 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 13:58 | SDH |
| Water Temperature | °C | 24.1 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 13:58 | SDH |
| Specific conductance | umhos/cm | 443 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 13:58 | SDH |
| Dissolved Oxygen | mg/L | 0.4 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 13:58 | SDH |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.028 I | EPA 350.1 | 0.040 | 0.009 | | 03/19/12 11:03 | MMF |
| Chemical Oxygen Demand | mg/L | 83 | EPA 410.4 | 25 | 10 | 03/15/12 07:32 | 03/15/12 15:35 | LAS |
| Chloride | mg/L | 35 | EPA 300.0 | 0.20 | 0.050 | | 04/02/12 12:51 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 12 | EPA 353.2 | 1.0 | 0.25 | | 03/19/12 15:04 | MMF |
| Phosphorous - Total as P | mg/L | 0.043 | SM 4500P-E | 0.040 | 0.010 | 03/15/12 09:48 | 03/16/12 11:00 | MMF |
| Total Alkalinity | mg/L | 32 | SM 2320B | 8.0 | 2.0 | | 03/15/12 12:00 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 3.5 | EPA 351.2 | 0.20 | 0.05 | 03/15/12 14:42 | 03/19/12 12:11 | MMF |

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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-BKG04-7** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-08** | | | | | | |
| Date/Time Collected | | **03/13/12 15:12** | | | | | | |
| Collected by | | **Sean Harmon** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 5.4 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 15:12 | SDH |
| Water Temperature | °C | 21.6 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 15:12 | SDH |
| Specific conductance | umhos/cm | 163 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 15:12 | SDH |
| Dissolved Oxygen | mg/L | 0.7 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 15:12 | SDH |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.41 | EPA 350.1 | 0.040 | 0.009 | | 03/19/12 11:05 | MMF |
| Chemical Oxygen Demand | mg/L | 55 | EPA 410.4 | 25 | 10 | 03/15/12 07:32 | 03/15/12 15:35 | LAS |
| Chloride | mg/L | 37 | EPA 300.0 | 0.20 | 0.050 | | 04/02/12 12:51 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 0.03 I | EPA 353.2 | 0.04 | 0.01 | | 03/19/12 12:08 | MMF |
| Phosphorous - Total as P | mg/L | 0.080 | SM 4500P-E | 0.040 | 0.010 | 03/15/12 09:48 | 03/16/12 11:01 | MMF |
| Total Alkalinity | mg/L | 11 | SM 2320B | 8.0 | 2.0 | | 03/15/12 12:00 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 0.99 | EPA 351.2 | 0.20 | 0.05 | 03/15/12 14:42 | 03/19/12 12:12 | MMF |

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|---|---|---|---|---|---|---|---|---|
| Sample Description | | **C-HS2-BKG06-12** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-09** | | | | | | |
| Date/Time Collected | | **03/13/12 15:29** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 5.8 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 15:39 | SAS |
| Water Temperature | °C | 22.4 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 15:39 | SAS |
| Specific conductance | umhos/cm | 633 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 15:39 | SAS |
| Dissolved Oxygen | mg/L | 0.7 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 15:39 | SAS |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.041 | EPA 350.1 | 0.040 | 0.009 | | 03/19/12 11:07 | MMF |
| Chemical Oxygen Demand | mg/L | 61 | EPA 410.4 | 25 | 10 | 03/15/12 07:32 | 03/15/12 15:35 | LAS |
| Chloride | mg/L | 50 | EPA 300.0 | 0.20 | 0.050 | | 04/02/12 12:51 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 33 | EPA 353.2 | 1.0 | 0.25 | | 03/19/12 15:06 | MMF |
| Phosphorous - Total as P | mg/L | 1.6 | SM 4500P-E | 0.040 | 0.010 | 03/15/12 09:48 | 03/16/12 11:02 | MMF |
| Total Alkalinity | mg/L | 43 | SM 2320B | 8.0 | 2.0 | | 03/15/12 12:00 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 3.3 | EPA 351.2 | 0.20 | 0.05 | 03/15/12 14:42 | 03/19/12 12:17 | MMF |

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**Tampa, FL 33619**

**April 13, 2012**
**Work Order: 1201896**
**Revised Report**

## Laboratory Report

**Project Name** **Seminole County C-HS2**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | By |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **C-HS2-BKG07-5** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-10** | | | | | | |
| Date/Time Collected | | **03/13/12 14:23** | | | | | | |
| Collected by | | **Sean Harmon** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 4.4 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 14:23 | SDH |
| Water Temperature | °C | 21.1 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 14:23 | SDH |
| Specific conductance | umhos/cm | 335 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 14:23 | SDH |
| Dissolved Oxygen | mg/L | 0.8 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 14:23 | SDH |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.38 | EPA 350.1 | 0.040 | 0.009 | | 03/19/12 11:09 | MMF |
| Chemical Oxygen Demand | mg/L | 53 | EPA 410.4 | 25 | 10 | 03/15/12 07:32 | 03/15/12 15:35 | LAS |
| Chloride | mg/L | 80 | EPA 300.0 | 0.20 | 0.050 | | 04/02/12 12:51 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 0.05 | EPA 353.2 | 0.04 | 0.01 | | 03/19/12 12:12 | MMF |
| Phosphorous - Total as P | mg/L | 0.040 | SM 4500P-E | 0.040 | 0.010 | 03/15/12 09:48 | 03/16/12 11:03 | MMF |
| Total Alkalinity | mg/L | 2.0 U | SM 2320B | 8.0 | 2.0 | | 03/15/12 12:00 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 1.0 | EPA 351.2 | 0.20 | 0.05 | 03/15/12 14:42 | 03/19/12 12:19 | MMF |

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|---|---|---|---|---|---|---|---|---|
| Sample Description | | **C-HS2-BKG07-7** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-11** | | | | | | |
| Date/Time Collected | | **03/13/12 14:40** | | | | | | |
| Collected by | | **Sean Harmon** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 5.7 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 14:40 | SDH |
| Water Temperature | °C | 20.9 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 14:40 | SDH |
| Specific conductance | umhos/cm | 201 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 14:40 | SDH |
| Dissolved Oxygen | mg/L | 0.7 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 14:40 | SDH |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.23 | EPA 350.1 | 0.040 | 0.009 | | 03/19/12 11:11 | MMF |
| Chemical Oxygen Demand | mg/L | 44 | EPA 410.4 | 25 | 10 | 03/15/12 07:32 | 03/15/12 15:35 | LAS |
| Chloride | mg/L | 36 | EPA 300.0 | 0.20 | 0.050 | | 03/17/12 00:10 | JAG |
| Fluoride | mg/L | 0.026 I | EPA 300.0 | 0.040 | 0.010 | | 03/14/12 11:51 | JAG |
| Nitrate (as N) | mg/L | 0.01 I | EPA 300.0 | 0.04 | 0.01 | | 03/14/12 11:51 | JAG |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 03/14/12 11:51 | JAG |
| Orthophosphate as P | mg/L | 0.10 | EPA 300.0 | 0.040 | 0.010 | | 03/14/12 11:51 | JAG |
| Phosphorous - Total as P | mg/L | 0.15 | SM 4500P-E | 0.040 | 0.010 | 03/15/12 09:48 | 03/16/12 11:07 | MMF |
| Sulfate | mg/L | 0.36 I | EPA 300.0 | 0.60 | 0.20 | | 03/14/12 11:51 | JAG |
| Total Alkalinity | mg/L | 11 | SM 2320B | 8.0 | 2.0 | | 03/15/12 12:00 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 0.61 | EPA 351.2 | 0.20 | 0.05 | 03/15/12 14:42 | 03/19/12 12:21 | MMF |
| Total Organic Carbon | mg/L | 16 | SM 5310B | 1.0 | 0.50 | 03/20/12 08:00 | 03/20/12 15:21 | ARP |

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**April 13, 2012**
**Work Order: 1201896**
**Revised Report**

## Laboratory Report

**Project Name** **Seminole County C-HS2**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | By |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **C-HS2-BKG07-7** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-11** | | | | | | |
| Date/Time Collected | | **03/13/12 14:40** | | | | | | |
| Collected by | | **Sean Harmon** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| Nitrate+Nitrite (N) | mg/L | 0.02 U | EPA 300.0 | 0.08 | 0.02 | | 03/14/12 11:51 | JAG |
| **Inorganic, Dissolved** | | | | | | | | |
| Dissolved Organic Carbon | mg/L | 13 | SM 5310B | 1.0 | 0.50 | 03/20/12 13:00 | 03/21/12 10:16 | ARP |
| **Metals** | | | | | | | | |
| Boron | mg/L | 0.050 U | EPA 200.7 | 0.10 | 0.050 | 03/16/12 13:21 | 03/16/12 16:44 | VWC |
| Calcium | mg/L | 4.8 | EPA 200.7 | 0.50 | 0.042 | 03/16/12 13:21 | 03/16/12 16:44 | VWC |
| Iron | mg/L | 0.10 | EPA 200.7 | 0.10 | 0.020 | 03/16/12 13:21 | 03/16/12 16:44 | VWC |
| Magnesium | mg/L | 1.7 | EPA 200.7 | 0.50 | 0.020 | 03/16/12 13:21 | 03/16/12 16:44 | VWC |
| Manganese | mg/L | 0.0071 I | EPA 200.7 | 0.010 | 0.0010 | 03/16/12 13:21 | 03/16/12 16:44 | VWC |
| Potassium | mg/L | 1.4 | EPA 200.7 | 0.050 | 0.010 | 03/16/12 13:21 | 03/16/12 16:44 | VWC |
| Sodium | mg/L | 22 | EPA 200.7 | 0.50 | 0.13 | 03/16/12 13:21 | 03/16/12 16:44 | VWC |
| Sample Description | | **C-HS2-BKG07-10** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-12** | | | | | | |
| Date/Time Collected | | **03/13/12 14:54** | | | | | | |
| Collected by | | **Sean Harmon** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 5.0 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 14:54 | SDH |
| Water Temperature | °C | 21.2 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 14:54 | SDH |
| Specific conductance | umhos/cm | 164 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 14:54 | SDH |
| Dissolved Oxygen | mg/L | 1.3 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 14:54 | SDH |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.35 | EPA 350.1 | 0.040 | 0.009 | | 03/19/12 11:13 | MMF |
| Chemical Oxygen Demand | mg/L | 18 I | EPA 410.4 | 25 | 10 | 03/15/12 07:32 | 03/15/12 15:35 | LAS |
| Chloride | mg/L | 43 | EPA 300.0 | 0.20 | 0.050 | | 04/02/12 22:21 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 0.01 U | EPA 353.2 | 0.04 | 0.01 | | 03/19/12 12:19 | MMF |
| Phosphorous - Total as P | mg/L | 0.047 | SM 4500P-E | 0.040 | 0.010 | 03/15/12 09:48 | 03/16/12 11:08 | MMF |
| Total Alkalinity | mg/L | 5.4 I | SM 2320B | 8.0 | 2.0 | | 03/15/12 12:00 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 0.56 | EPA 351.2 | 0.20 | 0.05 | 03/15/12 14:40 | 03/19/12 10:17 | MMF |

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

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**Tampa, FL 33619**

**April 13, 2012**
**Work Order: 1201896**
**Revised Report**

## Laboratory Report

**Project Name** **Seminole County C-HS2**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | By |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **C-HS2-A07-6** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-13** | | | | | | |
| Date/Time Collected | | **03/13/12 08:00** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 6.3 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 08:06 | SAS |
| Water Temperature | °C | 18.5 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 08:06 | SAS |
| Specific conductance | umhos/cm | 409 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 08:06 | SAS |
| Dissolved Oxygen | mg/L | 5.2 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 08:06 | SAS |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.066 | EPA 350.1 | 0.040 | 0.009 | | 03/19/12 11:15 | MMF |
| Chemical Oxygen Demand | mg/L | 190 | EPA 410.4 | 25 | 10 | 03/15/12 07:32 | 03/15/12 15:35 | LAS |
| Chloride | mg/L | 31 | EPA 300.0 | 0.20 | 0.050 | | 04/02/12 22:21 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 7.3 | EPA 353.2 | 0.20 | 0.05 | | 03/19/12 14:55 | MMF |
| Phosphorous - Total as P | mg/L | 0.98 | SM 4500P-E | 0.040 | 0.010 | 03/15/12 09:48 | 03/16/12 11:09 | MMF |
| Total Alkalinity | mg/L | 75 | SM 2320B | 8.0 | 2.0 | | 03/15/12 12:00 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 3.2 | EPA 351.2 | 0.20 | 0.05 | 03/15/12 14:40 | 03/19/12 10:19 | MMF |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **C-HS2-A07-8** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-14** | | | | | | |
| Date/Time Collected | | **03/13/12 08:31** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 5.6 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 08:21 | SAS |
| Water Temperature | °C | 20.0 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 08:21 | SAS |
| Specific conductance | umhos/cm | 547 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 08:21 | SAS |
| Dissolved Oxygen | mg/L | 1.6 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 08:21 | SAS |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 4.1 | EPA 350.1 | 0.40 | 0.095 | | 03/19/12 16:05 | MMF |
| Chemical Oxygen Demand | mg/L | 36 | EPA 410.4 | 25 | 10 | 03/15/12 07:32 | 03/15/12 15:35 | LAS |
| Chloride | mg/L | 40 | EPA 300.0 | 0.20 | 0.050 | | 03/17/12 00:10 | JAG |
| Fluoride | mg/L | 0.15 | EPA 300.0 | 0.040 | 0.010 | | 03/14/12 11:51 | JAG |
| Nitrate (as N) | mg/L | 23 | EPA 300.0 | 0.04 | 0.01 | | 03/14/12 11:51 | JAG |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 03/14/12 11:51 | JAG |
| Orthophosphate as P | mg/L | 4.0 | EPA 300.0 | 0.040 | 0.010 | | 03/14/12 11:51 | JAG |
| Phosphorous - Total as P | mg/L | 5.3 | SM 4500P-E | 0.20 | 0.050 | 03/15/12 09:48 | 03/16/12 11:34 | MMF |
| Sulfate | mg/L | 32 | EPA 300.0 | 0.60 | 0.20 | | 03/14/12 11:51 | JAG |
| Total Alkalinity | mg/L | 22 | SM 2320B | 8.0 | 2.0 | | 03/15/12 12:00 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 4.8 | EPA 351.2 | 0.20 | 0.05 | 03/15/12 14:40 | 03/19/12 15:33 | MMF |
| Total Organic Carbon | mg/L | 17 | SM 5310B | 1.0 | 0.50 | 03/20/12 09:00 | 03/20/12 15:21 | ARP |

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**Revised Report**

## Laboratory Report

**Project Name** **Seminole County C-HS2**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | By |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **C-HS2-A07-8** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-14** | | | | | | |
| Date/Time Collected | | **03/13/12 08:31** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| Nitrate+Nitrite (N) | mg/L | 23 | EPA 300.0 | 0.08 | 0.02 | | 03/14/12 11:51 | JAG |
| **Inorganic, Dissolved** | | | | | | | | |
| Dissolved Organic Carbon | mg/L | 17 | SM 5310B | 1.0 | 0.50 | 03/20/12 13:00 | 03/21/12 10:16 | ARP |
| **Metals** | | | | | | | | |
| Boron | mg/L | 0.069 I | EPA 200.7 | 0.10 | 0.050 | 03/16/12 13:21 | 03/16/12 16:48 | VWC |
| Calcium | mg/L | 42 | EPA 200.7 | 0.50 | 0.042 | 03/16/12 13:21 | 03/16/12 16:48 | VWC |
| Iron | mg/L | 0.096 I | EPA 200.7 | 0.10 | 0.020 | 03/16/12 13:21 | 03/16/12 16:48 | VWC |
| Magnesium | mg/L | 9.1 | EPA 200.7 | 0.50 | 0.020 | 03/16/12 13:21 | 03/16/12 16:48 | VWC |
| Manganese | mg/L | 0.0097 I | EPA 200.7 | 0.010 | 0.0010 | 03/16/12 13:21 | 03/16/12 16:48 | VWC |
| Potassium | mg/L | 13 | EPA 200.7 | 0.050 | 0.010 | 03/16/12 13:21 | 03/16/12 16:48 | VWC |
| Sodium | mg/L | 41 | EPA 200.7 | 0.50 | 0.13 | 03/16/12 13:21 | 03/16/12 16:48 | VWC |
| Sample Description | | **C-HS2-A07-11** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-15** | | | | | | |
| Date/Time Collected | | **03/13/12 08:39** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 4.9 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 08:39 | SAS |
| Water Temperature | °C | 20.0 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 08:39 | SAS |
| Specific conductance | umhos/cm | 177 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 08:39 | SAS |
| Dissolved Oxygen | mg/L | 1.0 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 08:39 | SAS |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.37 | EPA 350.1 | 0.040 | 0.009 | | 03/19/12 11:23 | MMF |
| Chemical Oxygen Demand | mg/L | 24 I | EPA 410.4 | 25 | 10 | 03/15/12 07:32 | 03/15/12 15:35 | LAS |
| Chloride | mg/L | 39 | EPA 300.0 | 0.20 | 0.050 | | 04/02/12 22:21 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 0.02 I | EPA 353.2 | 0.04 | 0.01 | | 03/19/12 12:23 | MMF |
| Phosphorous - Total as P | mg/L | 0.036 I | SM 4500P-E | 0.040 | 0.010 | 03/15/12 09:48 | 03/16/12 11:11 | MMF |
| Total Alkalinity | mg/L | 11 | SM 2320B | 8.0 | 2.0 | | 03/15/12 12:00 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 0.63 | EPA 351.2 | 0.20 | 0.05 | 03/15/12 14:40 | 03/19/12 10:22 | MMF |

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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-A09-7** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-16** | | | | | | |
| Date/Time Collected | | **03/13/12 08:49** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 6.3 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 08:49 | SAS |
| Water Temperature | °C | 20.3 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 08:49 | SAS |
| Specific conductance | umhos/cm | 740 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 08:49 | SAS |
| Dissolved Oxygen | mg/L | 0.6 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 08:49 | SAS |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.015 I | EPA 350.1 | 0.040 | 0.009 | | 03/19/12 11:25 | MMF |
| Chemical Oxygen Demand | mg/L | 40 | EPA 410.4 | 25 | 10 | 03/15/12 07:32 | 03/15/12 15:35 | LAS |
| Chloride | mg/L | 44 | EPA 300.0 | 0.20 | 0.050 | | 04/02/12 22:21 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 0.25 U | EPA 353.2 | 1.0 | 0.25 | | 03/19/12 15:07 | MMF |
| Phosphorous - Total as P | mg/L | 0.36 | SM 4500P-E | 0.040 | 0.010 | 03/15/12 09:48 | 03/16/12 11:12 | MMF |
| Total Alkalinity | mg/L | 54 | SM 2320B | 8.0 | 2.0 | | 03/15/12 12:00 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 2.4 | EPA 351.2 | 0.20 | 0.05 | 03/15/12 14:40 | 03/19/12 10:23 | MMF |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **C-HS2-A09-9** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-17** | | | | | | |
| Date/Time Collected | | **03/13/12 09:05** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 6.2 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 09:05 | SAS |
| Water Temperature | °C | 20.5 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 09:05 | SAS |
| Specific conductance | umhos/cm | 518 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 09:05 | SAS |
| Dissolved Oxygen | mg/L | 1.8 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 09:05 | SAS |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.024 I | EPA 350.1 | 0.040 | 0.009 | | 03/19/12 11:27 | MMF |
| Chemical Oxygen Demand | mg/L | 61 | EPA 410.4 | 25 | 10 | 03/15/12 12:00 | 03/15/12 15:33 | LAS |
| Chloride | mg/L | 41 | EPA 300.0 | 0.20 | 0.050 | | 04/02/12 22:21 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 17 | EPA 353.2 | 1.0 | 0.25 | | 03/19/12 15:08 | MMF |
| Phosphorous - Total as P | mg/L | 0.15 | SM 4500P-E | 0.040 | 0.010 | 03/15/12 09:48 | 03/16/12 11:13 | MMF |
| Total Alkalinity | mg/L | 75 | SM 2320B | 8.0 | 2.0 | | 03/15/12 12:00 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 2.4 | EPA 351.2 | 0.20 | 0.05 | 03/15/12 14:40 | 03/19/12 10:25 | MMF |

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**April 13, 2012**
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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-A09-12** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-18** | | | | | | |
| Date/Time Collected | | **03/13/12 09:16** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 6.4 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 09:14 | SAS |
| Water Temperature | °C | 20.8 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 09:14 | SAS |
| Specific conductance | umhos/cm | 154 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 09:14 | SAS |
| Dissolved Oxygen | mg/L | 2.0 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 09:14 | SAS |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.51 | EPA 350.1 | 0.040 | 0.009 | | 03/19/12 11:29 | MMF |
| Chemical Oxygen Demand | mg/L | 28 | EPA 410.4 | 25 | 10 | 03/15/12 12:00 | 03/15/12 15:33 | LAS |
| Chloride | mg/L | 36 | EPA 300.0 | 0.20 | 0.050 | | 04/02/12 22:21 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 0.04 | EPA 353.2 | 0.04 | 0.01 | | 03/19/12 12:30 | MMF |
| Phosphorous - Total as P | mg/L | 0.044 | SM 4500P-E | 0.040 | 0.010 | 03/15/12 09:48 | 03/16/12 11:14 | MMF |
| Total Alkalinity | mg/L | 11 | SM 2320B | 8.0 | 2.0 | | 03/15/12 12:00 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 0.80 | EPA 351.2 | 0.20 | 0.05 | 03/15/12 14:40 | 03/19/12 10:27 | MMF |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **C-HS2-A10-7** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-19** | | | | | | |
| Date/Time Collected | | **03/13/12 09:35** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 7.0 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 09:35 | SAS |
| Water Temperature | °C | 19.8 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 09:35 | SAS |
| Specific conductance | umhos/cm | 812 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 09:35 | SAS |
| Dissolved Oxygen | mg/L | 4.8 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 09:35 | SAS |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 10 | EPA 350.1 | 0.80 | 0.19 | | 03/19/12 16:07 | MMF |
| Chemical Oxygen Demand | mg/L | 120 | EPA 410.4 | 25 | 10 | 03/15/12 12:00 | 03/15/12 15:33 | LAS |
| Chloride | mg/L | 31 | EPA 300.0 | 0.20 | 0.050 | | 04/02/12 22:21 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 0.01 U | EPA 353.2 | 0.04 | 0.01 | | 03/19/12 12:32 | MMF |
| Phosphorous - Total as P | mg/L | 0.14 | SM 4500P-E | 0.040 | 0.010 | 03/15/12 09:48 | 03/16/12 11:15 | MMF |
| Total Alkalinity | mg/L | 380 | SM 2320B | 8.0 | 2.0 | | 03/15/12 12:00 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 11 | EPA 351.2 | 0.20 | 0.05 | 03/15/12 14:40 | 03/19/12 15:34 | MMF |

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**April 13, 2012**
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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-A10-7-DUP** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-20** | | | | | | |
| Date/Time Collected | | **03/13/12 09:35** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 7.0 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 09:35 | SAS |
| Water Temperature | °C | 19.8 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 09:35 | SAS |
| Specific conductance | umhos/cm | 812 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 09:35 | SAS |
| Dissolved Oxygen | mg/L | 4.8 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 09:35 | SAS |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 11 | EPA 350.1 | 1.0 | 0.24 | | 03/19/12 12:24 | MMF |
| Chemical Oxygen Demand | mg/L | 110 | EPA 410.4 | 25 | 10 | 03/15/12 12:00 | 03/15/12 15:33 | LAS |
| Chloride | mg/L | 30 | EPA 300.0 | 0.20 | 0.050 | | 04/02/12 22:21 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 0.03 I | EPA 353.2 | 0.04 | 0.01 | | 03/15/12 14:45 | MMF |
| Phosphorous - Total as P | mg/L | 0.15 | SM 4500P-E | 0.040 | 0.010 | 03/15/12 09:48 | 03/16/12 11:16 | MMF |
| Total Alkalinity | mg/L | 370 | SM 2320B | 8.0 | 2.0 | | 03/15/12 12:00 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 11 | EPA 351.2 | 0.20 | 0.05 | 03/15/12 14:40 | 03/19/12 15:35 | MMF |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **C-HS2-A10-9** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-21** | | | | | | |
| Date/Time Collected | | **03/13/12 09:57** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 7.4 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 09:57 | SAS |
| Water Temperature | °C | 21.2 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 09:57 | SAS |
| Specific conductance | umhos/cm | 539 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 09:57 | SAS |
| Dissolved Oxygen | mg/L | 1.0 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 09:57 | SAS |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 5.9 | EPA 350.1 | 0.40 | 0.095 | | 03/19/12 12:05 | MMF |
| Chemical Oxygen Demand | mg/L | 150 | EPA 410.4 | 25 | 10 | 03/15/12 12:00 | 03/15/12 15:33 | LAS |
| Chloride | mg/L | 31 | EPA 300.0 | 0.20 | 0.050 | | 04/02/12 22:21 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 0.03 I | EPA 353.2 | 0.04 | 0.01 | | 03/15/12 14:47 | MMF |
| Phosphorous - Total as P | mg/L | 0.83 | SM 4500P-E | 0.040 | 0.010 | 03/15/12 09:50 | 03/16/12 14:10 | MMF |
| Total Alkalinity | mg/L | 230 | SM 2320B | 8.0 | 2.0 | 03/19/12 14:30 | 03/19/12 17:00 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 6.9 | EPA 351.2 | 0.20 | 0.05 | 03/15/12 14:40 | 03/19/12 15:36 | MMF |

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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-A10-12** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-22** | | | | | | |
| Date/Time Collected | | **03/13/12 10:07** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 7.1 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 10:07 | SAS |
| Water Temperature | °C | 21.5 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 10:07 | SAS |
| Specific conductance | umhos/cm | 149 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 10:07 | SAS |
| Dissolved Oxygen | mg/L | 0.7 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 10:07 | SAS |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.36 | EPA 350.1 | 0.040 | 0.009 | | 03/15/12 11:59 | MMF |
| Chemical Oxygen Demand | mg/L | 22 I | EPA 410.4 | 25 | 10 | 03/15/12 12:00 | 03/15/12 15:33 | LAS |
| Chloride | mg/L | 36 | EPA 300.0 | 0.20 | 0.050 | | 04/02/12 22:21 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 0.03 I | EPA 353.2 | 0.04 | 0.01 | | 03/15/12 14:50 | MMF |
| Phosphorous - Total as P | mg/L | 0.066 | SM 4500P-E | 0.040 | 0.010 | 03/15/12 09:50 | 03/16/12 14:11 | MMF |
| Total Alkalinity | mg/L | 11 | SM 2320B | 8.0 | 2.0 | 03/19/12 14:30 | 03/19/12 17:00 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 0.63 | EPA 351.2 | 0.20 | 0.05 | 03/15/12 14:40 | 03/19/12 10:37 | MMF |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **C-HS2-A11-5** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-23** | | | | | | |
| Date/Time Collected | | **03/13/12 08:45** | | | | | | |
| Collected by | | **Sean Harmon** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 6.8 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 08:45 | SDH |
| Water Temperature | °C | 19.3 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 08:45 | SDH |
| Specific conductance | umhos/cm | 709 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 08:45 | SDH |
| Dissolved Oxygen | mg/L | 4.7 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 08:45 | SDH |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 17 | EPA 350.1 | 4.0 | 0.95 | | 03/15/12 14:20 | MMF |
| Chemical Oxygen Demand | mg/L | 120 | EPA 410.4 | 25 | 10 | 03/15/12 12:00 | 03/15/12 15:33 | LAS |
| Chloride | mg/L | 26 | EPA 300.0 | 0.20 | 0.050 | | 04/02/12 22:21 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 0.02 I | EPA 353.2 | 0.04 | 0.01 | | 03/15/12 14:52 | MMF |
| Phosphorous - Total as P | mg/L | 0.47 | SM 4500P-E | 0.040 | 0.010 | 03/15/12 09:50 | 03/16/12 14:12 | MMF |
| Total Alkalinity | mg/L | 310 | SM 2320B | 8.0 | 2.0 | 03/19/12 14:30 | 03/19/12 17:00 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 18 | EPA 351.2 | 0.20 | 0.05 | 03/15/12 14:40 | 03/19/12 15:38 | MMF |

**Hazen and Sawyer**
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**Tampa, FL 33619**

**April 13, 2012**
**Work Order: 1201896**
**Revised Report**

## Laboratory Report

**Project Name** **Seminole County C-HS2**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | By |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **C-HS2-A11-7** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-24** | | | | | | |
| Date/Time Collected | | **03/13/12 08:56** | | | | | | |
| Collected by | | **Sean Harmon** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 5.9 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 08:56 | SDH |
| Water Temperature | °C | 21.0 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 08:56 | SDH |
| Specific conductance | umhos/cm | 254 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 08:56 | SDH |
| Dissolved Oxygen | mg/L | 0.4 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 08:56 | SDH |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.46 | EPA 350.1 | 0.040 | 0.009 | | 03/15/12 12:03 | MMF |
| Chemical Oxygen Demand | mg/L | 65 | EPA 410.4 | 25 | 10 | 03/15/12 12:00 | 03/15/12 15:33 | LAS |
| Chloride | mg/L | 45 | EPA 300.0 | 0.20 | 0.050 | | 04/02/12 22:21 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 0.02 I | EPA 353.2 | 0.04 | 0.01 | | 03/15/12 14:54 | MMF |
| Phosphorous - Total as P | mg/L | 0.072 | SM 4500P-E | 0.040 | 0.010 | 03/15/12 09:50 | 03/16/12 14:13 | MMF |
| Total Alkalinity | mg/L | 32 | SM 2320B | 8.0 | 2.0 | 03/19/12 14:30 | 03/19/12 17:00 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 1.4 | EPA 351.2 | 0.20 | 0.05 | 03/15/12 14:40 | 03/19/12 10:40 | MMF |

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|---|---|---|---|---|---|---|---|---|
| Sample Description | | **C-HS2-A11-10** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-25** | | | | | | |
| Date/Time Collected | | **03/13/12 09:05** | | | | | | |
| Collected by | | **Sean Harmon** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 5.2 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 09:05 | SDH |
| Water Temperature | °C | 21.5 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 09:05 | SDH |
| Specific conductance | umhos/cm | 149 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 09:05 | SDH |
| Dissolved Oxygen | mg/L | 0.4 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 09:05 | SDH |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.35 | EPA 350.1 | 0.040 | 0.009 | | 03/15/12 12:05 | MMF |
| Chemical Oxygen Demand | mg/L | 18 I | EPA 410.4 | 25 | 10 | 03/15/12 12:00 | 03/15/12 15:33 | LAS |
| Chloride | mg/L | 37 | EPA 300.0 | 0.20 | 0.050 | | 04/03/12 16:08 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 0.03 I | EPA 353.2 | 0.04 | 0.01 | | 03/15/12 14:56 | MMF |
| Phosphorous - Total as P | mg/L | 0.054 | SM 4500P-E | 0.040 | 0.010 | 03/15/12 09:50 | 03/16/12 14:14 | MMF |
| Total Alkalinity | mg/L | 11 | SM 2320B | 8.0 | 2.0 | 03/19/12 14:30 | 03/19/12 17:00 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 0.54 | EPA 351.2 | 0.20 | 0.05 | 03/15/12 14:40 | 03/19/12 10:41 | MMF |

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**April 13, 2012**
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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-A13-5** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-26** | | | | | | |
| Date/Time Collected | | **03/13/12 08:00** | | | | | | |
| Collected by | | **Sean Harmon** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 5.5 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 08:00 | SDH |
| Water Temperature | °C | 18.8 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 08:00 | SDH |
| Specific conductance | umhos/cm | 245 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 08:00 | SDH |
| Dissolved Oxygen | mg/L | 2.0 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 08:00 | SDH |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.17 | EPA 350.1 | 0.040 | 0.009 | | 03/15/12 12:07 | MMF |
| Chemical Oxygen Demand | mg/L | 120 | EPA 410.4 | 25 | 10 | 03/15/12 12:00 | 03/15/12 15:33 | LAS |
| Chloride | mg/L | 43 | EPA 300.0 | 0.20 | 0.050 | | 04/03/12 16:08 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 0.04 | EPA 353.2 | 0.04 | 0.01 | | 03/15/12 14:58 | MMF |
| Phosphorous - Total as P | mg/L | 0.067 | SM 4500P-E | 0.040 | 0.010 | 03/15/12 09:50 | 03/16/12 14:16 | MMF |
| Total Alkalinity | mg/L | 22 | SM 2320B | 8.0 | 2.0 | 03/19/12 14:30 | 03/19/12 17:00 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 1.5 | EPA 351.2 | 0.20 | 0.05 | 03/15/12 14:40 | 03/19/12 10:43 | MMF |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **C-HS2-A13-7** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-27** | | | | | | |
| Date/Time Collected | | **03/13/12 08:12** | | | | | | |
| Collected by | | **Sean Harmon** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 4.8 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 08:12 | SDH |
| Water Temperature | °C | 19.7 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 08:12 | SDH |
| Specific conductance | umhos/cm | 186 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 08:12 | SDH |
| Dissolved Oxygen | mg/L | 0.7 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 08:12 | SDH |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.31 | EPA 350.1 | 0.040 | 0.009 | | 03/15/12 12:10 | MMF |
| Chemical Oxygen Demand | mg/L | 32 | EPA 410.4 | 25 | 10 | 03/15/12 12:00 | 03/15/12 15:33 | LAS |
| Chloride | mg/L | 43 | EPA 300.0 | 0.20 | 0.050 | | 04/04/12 22:13 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 0.02 I | EPA 353.2 | 0.04 | 0.01 | | 03/15/12 15:00 | MMF |
| Phosphorous - Total as P | mg/L | 0.056 | SM 4500P-E | 0.040 | 0.010 | 03/15/12 09:50 | 03/16/12 14:17 | MMF |
| Total Alkalinity | mg/L | 2.0 U | SM 2320B | 8.0 | 2.0 | 03/19/12 14:30 | 03/19/12 17:00 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 0.64 | EPA 351.2 | 0.20 | 0.05 | 03/15/12 14:40 | 03/19/12 10:44 | MMF |

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**April 13, 2012**
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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-A13-10** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-28** | | | | | | |
| Date/Time Collected | | **03/13/12 08:29** | | | | | | |
| Collected by | | **Sean Harmon** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 4.7 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 08:29 | SDH |
| Water Temperature | °C | 20.6 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 08:29 | SDH |
| Specific conductance | umhos/cm | 154 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 08:29 | SDH |
| Dissolved Oxygen | mg/L | 0.2 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 08:29 | SDH |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.42 | EPA 350.1 | 0.040 | 0.009 | | 03/15/12 12:12 | MMF |
| Chemical Oxygen Demand | mg/L | 22 I | EPA 410.4 | 25 | 10 | 03/15/12 12:00 | 03/15/12 15:33 | LAS |
| Chloride | mg/L | 37 | EPA 300.0 | 0.20 | 0.050 | | 04/04/12 22:13 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 0.03 I | EPA 353.2 | 0.04 | 0.01 | | 03/15/12 15:03 | MMF |
| Phosphorous - Total as P | mg/L | 0.041 | SM 4500P-E | 0.040 | 0.010 | 03/15/12 09:50 | 03/16/12 14:18 | MMF |
| Total Alkalinity | mg/L | 2.0 U | SM 2320B | 8.0 | 2.0 | 03/19/12 14:30 | 03/19/12 17:00 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 0.67 | EPA 351.2 | 0.20 | 0.05 | 03/15/12 14:40 | 03/19/12 10:45 | MMF |

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|---|---|---|---|---|---|---|---|---|
| Sample Description | | **C-HS2-B02-6** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-29** | | | | | | |
| Date/Time Collected | | **03/13/12 11:07** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 5.6 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 11:07 | SAS |
| Water Temperature | °C | 21.7 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 11:07 | SAS |
| Specific conductance | umhos/cm | 495 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 11:07 | SAS |
| Dissolved Oxygen | mg/L | 0.5 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 11:07 | SAS |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.19 | EPA 350.1 | 0.040 | 0.009 | | 03/15/12 12:14 | MMF |
| Chemical Oxygen Demand | mg/L | 69 | EPA 410.4 | 25 | 10 | 03/15/12 12:00 | 03/15/12 15:33 | LAS |
| Chloride | mg/L | 38 | EPA 300.0 | 0.20 | 0.050 | | 04/04/12 22:13 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 7.9 | EPA 353.2 | 0.20 | 0.05 | | 03/15/12 15:52 | MMF |
| Phosphorous - Total as P | mg/L | 0.10 | SM 4500P-E | 0.040 | 0.010 | 03/15/12 09:50 | 03/16/12 14:19 | MMF |
| Total Alkalinity | mg/L | 54 | SM 2320B | 8.0 | 2.0 | 03/19/12 14:30 | 03/19/12 17:00 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 2.4 | EPA 351.2 | 0.20 | 0.05 | 03/15/12 14:40 | 03/19/12 10:47 | MMF |

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**April 13, 2012**
**Work Order: 1201896**
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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-B02-8** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-30** | | | | | | |
| Date/Time Collected | | **03/13/12 11:30** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 6.4 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 11:20 | SAS |
| Water Temperature | °C | 21.6 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 11:20 | SAS |
| Specific conductance | umhos/cm | 553 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 11:20 | SAS |
| Dissolved Oxygen | mg/L | 0.3 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 11:20 | SAS |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 1.3 | EPA 350.1 | 0.40 | 0.095 | | 03/15/12 14:00 | MMF |
| Chemical Oxygen Demand | mg/L | 38 | EPA 410.4 | 25 | 10 | 03/15/12 12:00 | 03/15/12 15:33 | LAS |
| Chloride | mg/L | 81 | EPA 300.0 | 0.20 | 0.050 | | 03/17/12 00:10 | JAG |
| Fluoride | mg/L | 0.031 I | EPA 300.0 | 0.040 | 0.010 | | 03/14/12 11:51 | JAG |
| Nitrate (as N) | mg/L | 0.11 | EPA 300.0 | 0.04 | 0.01 | | 03/14/12 11:51 | JAG |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 03/14/12 11:51 | JAG |
| Orthophosphate as P | mg/L | 0.022 I | EPA 300.0 | 0.040 | 0.010 | | 03/14/12 11:51 | JAG |
| Phosphorous - Total as P | mg/L | 0.052 | SM 4500P-E | 0.040 | 0.010 | 03/15/12 09:50 | 03/16/12 14:20 | MMF |
| Sulfate | mg/L | 12 | EPA 300.0 | 0.60 | 0.20 | | 03/14/12 11:51 | JAG |
| Total Alkalinity | mg/L | 110 | SM 2320B | 8.0 | 2.0 | 03/19/12 14:30 | 03/19/12 17:00 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 1.5 | EPA 351.2 | 0.20 | 0.05 | 03/14/12 14:11 | 03/16/12 14:28 | MMF |
| Total Organic Carbon | mg/L | 16 | SM 5310B | 1.0 | 0.50 | 03/20/12 09:00 | 03/20/12 15:21 | ARP |
| Nitrate+Nitrite (N) | mg/L | 0.11 | EPA 300.0 | 0.08 | 0.02 | | 03/14/12 11:51 | JAG |
| **Inorganic, Dissolved** | | | | | | | | |
| Dissolved Organic Carbon | mg/L | 16 | SM 5310B | 1.0 | 0.50 | 03/20/12 13:00 | 03/21/12 10:16 | ARP |
| **Metals** | | | | | | | | |
| Boron | mg/L | 0.050 U | EPA 200.7 | 0.10 | 0.050 | 03/16/12 13:21 | 03/16/12 16:52 | VWC |
| Calcium | mg/L | 65 | EPA 200.7 | 0.50 | 0.042 | 03/16/12 13:21 | 03/16/12 16:52 | VWC |
| Iron | mg/L | 0.099 I | EPA 200.7 | 0.10 | 0.020 | 03/16/12 13:21 | 03/16/12 16:52 | VWC |
| Magnesium | mg/L | 3.1 | EPA 200.7 | 0.50 | 0.020 | 03/16/12 13:21 | 03/16/12 16:52 | VWC |
| Manganese | mg/L | 0.0078 I | EPA 200.7 | 0.010 | 0.0010 | 03/16/12 13:21 | 03/16/12 16:52 | VWC |
| Potassium | mg/L | 3.4 | EPA 200.7 | 0.050 | 0.010 | 03/16/12 13:21 | 03/16/12 16:52 | VWC |
| Sodium | mg/L | 34 | EPA 200.7 | 0.50 | 0.13 | 03/16/12 13:21 | 03/16/12 16:52 | VWC |
| Sample Description | | **C-HS2-B02-11** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-31** | | | | | | |
| Date/Time Collected | | **03/13/12 11:36** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 5.9 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 11:36 | SAS |

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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-B02-11** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-31** | | | | | | |
| Date/Time Collected | | **03/13/12 11:36** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| Water Temperature | °C | 21.9 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 11:36 | SAS |
| Specific conductance | umhos/cm | 198 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 11:36 | SAS |
| Dissolved Oxygen | mg/L | 0.3 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 11:36 | SAS |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.38 | EPA 350.1 | 0.040 | 0.009 | | 03/15/12 12:18 | MMF |
| Chemical Oxygen Demand | mg/L | 28 | EPA 410.4 | 25 | 10 | 03/15/12 12:00 | 03/15/12 15:33 | LAS |
| Chloride | mg/L | 42 | EPA 300.0 | 0.20 | 0.050 | | 04/04/12 22:13 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 0.05 | EPA 353.2 | 0.04 | 0.01 | | 03/15/12 15:11 | MMF |
| Phosphorous - Total as P | mg/L | 0.088 | SM 4500P-E | 0.040 | 0.010 | 03/15/12 09:50 | 03/16/12 14:24 | MMF |
| Total Alkalinity | mg/L | 22 | SM 2320B | 8.0 | 2.0 | 03/19/12 14:30 | 03/19/12 17:00 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 0.62 | EPA 351.2 | 0.20 | 0.05 | 03/14/12 14:11 | 03/16/12 14:30 | MMF |
| Sample Description | | **C-HS2-B06-6** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-32** | | | | | | |
| Date/Time Collected | | **03/13/12 10:25** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 5.9 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 10:25 | SAS |
| Water Temperature | °C | 22.4 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 10:25 | SAS |
| Specific conductance | umhos/cm | 285 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 10:25 | SAS |
| Dissolved Oxygen | mg/L | 0.2 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 10:25 | SAS |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.099 | EPA 350.1 | 0.040 | 0.009 | | 03/15/12 12:24 | MMF |
| Chemical Oxygen Demand | mg/L | 90 | EPA 410.4 | 25 | 10 | 03/15/12 12:00 | 03/15/12 15:33 | LAS |
| Chloride | mg/L | 28 | EPA 300.0 | 0.20 | 0.050 | | 04/04/12 22:13 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 0.04 | EPA 353.2 | 0.04 | 0.01 | | 03/15/12 15:14 | MMF |
| Phosphorous - Total as P | mg/L | 1.5 | SM 4500P-E | 0.040 | 0.010 | 03/15/12 09:50 | 03/16/12 14:25 | MMF |
| Total Alkalinity | mg/L | 43 | SM 2320B | 8.0 | 2.0 | 03/19/12 14:30 | 03/19/12 17:00 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 0.98 | EPA 351.2 | 0.20 | 0.05 | 03/14/12 14:11 | 03/16/12 14:32 | MMF |

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

**April 13, 2012**
**Work Order: 1201896**
**Revised Report**

## Laboratory Report

**Project Name** **Seminole County C-HS2**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | By |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **C-HS2-B06-8** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-33** | | | | | | |
| Date/Time Collected | | **03/13/12 10:35** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 5.8 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 10:35 | SAS |
| Water Temperature | °C | 22.6 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 10:35 | SAS |
| Specific conductance | umhos/cm | 183 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 10:35 | SAS |
| Dissolved Oxygen | mg/L | 0.6 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 10:35 | SAS |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.54 | EPA 350.1 | 0.040 | 0.009 | | 03/15/12 12:26 | MMF |
| Chemical Oxygen Demand | mg/L | 36 | EPA 410.4 | 25 | 10 | 03/15/12 12:00 | 03/15/12 15:33 | LAS |
| Chloride | mg/L | 42 | EPA 300.0 | 0.20 | 0.050 | | 04/04/12 22:13 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 0.03 I | EPA 353.2 | 0.04 | 0.01 | | 03/15/12 15:16 | MMF |
| Phosphorous - Total as P | mg/L | 0.097 | SM 4500P-E | 0.040 | 0.010 | 03/15/12 09:50 | 03/16/12 14:26 | MMF |
| Total Alkalinity | mg/L | 11 | SM 2320B | 8.0 | 2.0 | 03/19/12 14:30 | 03/19/12 17:00 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 0.96 | EPA 351.2 | 0.20 | 0.05 | 03/14/12 14:11 | 03/16/12 14:33 | MMF |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **C-HS2-B06-11** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-34** | | | | | | |
| Date/Time Collected | | **03/13/12 10:51** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 5.3 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 10:51 | SAS |
| Water Temperature | °C | 22.6 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 10:51 | SAS |
| Specific conductance | umhos/cm | 147 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 10:51 | SAS |
| Dissolved Oxygen | mg/L | 0.2 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 10:51 | SAS |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.61 | EPA 350.1 | 0.040 | 0.009 | | 03/15/12 12:28 | MMF |
| Chemical Oxygen Demand | mg/L | 32 | EPA 410.4 | 25 | 10 | 03/15/12 12:00 | 03/15/12 15:33 | LAS |
| Chloride | mg/L | 36 | EPA 300.0 | 0.20 | 0.050 | | 04/04/12 22:13 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 0.04 | EPA 353.2 | 0.04 | 0.01 | | 03/15/12 15:18 | MMF |
| Phosphorous - Total as P | mg/L | 0.11 | SM 4500P-E | 0.040 | 0.010 | 03/15/12 09:50 | 03/16/12 14:27 | MMF |
| Total Alkalinity | mg/L | 11 | SM 2320B | 8.0 | 2.0 | 03/19/12 14:30 | 03/19/12 17:00 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 0.77 | EPA 351.2 | 0.20 | 0.05 | 03/14/12 14:11 | 03/16/12 14:35 | MMF |

**Hazen and Sawyer**
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**April 13, 2012**
**Work Order: 1201896**
**Revised Report**

## Laboratory Report

**Project Name** **Seminole County C-HS2**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | By |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **C-HS2-B08-5** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-35** | | | | | | |
| Date/Time Collected | | **03/13/12 10:44** | | | | | | |
| Collected by | | **Sean Harmon** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 5.9 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 10:44 | SDH |
| Water Temperature | °C | 21.1 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 10:44 | SDH |
| Specific conductance | umhos/cm | 428 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 10:44 | SDH |
| Dissolved Oxygen | mg/L | 0.4 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 10:44 | SDH |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.13 | EPA 350.1 | 0.040 | 0.009 | | 03/15/12 12:30 | MMF |
| Chemical Oxygen Demand | mg/L | 130 | EPA 410.4 | 25 | 10 | 03/16/12 08:00 | 03/19/12 13:19 | LAS |
| Chloride | mg/L | 29 | EPA 300.0 | 0.20 | 0.050 | | 03/20/12 11:55 | JAG |
| Fluoride | mg/L | 0.028 I | EPA 300.0 | 0.040 | 0.010 | | 03/14/12 11:51 | JAG |
| Nitrate (as N) | mg/L | 10 | EPA 300.0 | 0.04 | 0.01 | | 03/14/12 11:51 | JAG |
| Nitrite (as N) | mg/L | 0.04 | EPA 300.0 | 0.04 | 0.01 | | 03/14/12 11:51 | JAG |
| Orthophosphate as P | mg/L | 0.99 | EPA 300.0 | 0.040 | 0.010 | | 03/14/12 11:51 | JAG |
| Phosphorous - Total as P | mg/L | 1.4 | SM 4500P-E | 0.040 | 0.010 | 03/15/12 09:50 | 03/16/12 14:28 | MMF |
| Sulfate | mg/L | 42 | EPA 300.0 | 0.60 | 0.20 | | 03/14/12 11:51 | JAG |
| Total Alkalinity | mg/L | 65 | SM 2320B | 8.0 | 2.0 | 03/19/12 14:30 | 03/19/12 17:00 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 3.3 | EPA 351.2 | 0.20 | 0.05 | 03/14/12 14:11 | 03/16/12 14:37 | MMF |
| Total Organic Carbon | mg/L | 54 | SM 5310B | 1.0 | 0.50 | 03/20/12 09:00 | 03/20/12 15:21 | ARP |
| Nitrate+Nitrite (N) | mg/L | 10 | EPA 300.0 | 0.08 | 0.02 | | 03/14/12 11:51 | JAG |
| **Inorganic, Dissolved** | | | | | | | | |
| Dissolved Organic Carbon | mg/L | 54 | SM 5310B | 1.0 | 0.50 | 03/20/12 13:00 | 03/21/12 10:16 | ARP |
| **Metals** | | | | | | | | |
| Boron | mg/L | 0.077 I | EPA 200.7 | 0.10 | 0.050 | 03/16/12 13:21 | 03/16/12 16:55 | VWC |
| Calcium | mg/L | 43 | EPA 200.7 | 0.50 | 0.042 | 03/16/12 13:21 | 03/16/12 16:55 | VWC |
| Iron | mg/L | 0.25 | EPA 200.7 | 0.10 | 0.020 | 03/16/12 13:21 | 03/16/12 16:55 | VWC |
| Magnesium | mg/L | 7.4 | EPA 200.7 | 0.50 | 0.020 | 03/16/12 13:21 | 03/16/12 16:55 | VWC |
| Manganese | mg/L | 0.0091 I | EPA 200.7 | 0.010 | 0.0010 | 03/16/12 13:21 | 03/16/12 16:55 | VWC |
| Potassium | mg/L | 13 | EPA 200.7 | 0.050 | 0.010 | 03/16/12 13:21 | 03/16/12 16:55 | VWC |
| Sodium | mg/L | 30 | EPA 200.7 | 0.50 | 0.13 | 03/16/12 13:21 | 03/16/12 16:55 | VWC |
| Sample Description | | **C-HS2-B08-5-DUP** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-36** | | | | | | |
| Date/Time Collected | | **03/13/12 10:49** | | | | | | |
| Collected by | | **Sean Harmon** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 5.9 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 10:44 | SDH |

**Hazen and Sawyer**
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**April 13, 2012**
**Work Order: 1201896**
**Revised Report**

## Laboratory Report

**Project Name** **Seminole County C-HS2**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | By |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **C-HS2-B08-5-DUP** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-36** | | | | | | |
| Date/Time Collected | | **03/13/12 10:49** | | | | | | |
| Collected by | | **Sean Harmon** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| Water Temperature | °C | 21.1 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 10:44 | SDH |
| Specific conductance | umhos/cm | 428 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 10:44 | SDH |
| Dissolved Oxygen | mg/L | 0.4 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 10:44 | SDH |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.13 | EPA 350.1 | 0.040 | 0.009 | | 03/15/12 12:32 | MMF |
| Chemical Oxygen Demand | mg/L | 130 | EPA 410.4 | 25 | 10 | 03/16/12 08:00 | 03/19/12 13:19 | LAS |
| Chloride | mg/L | 28 | EPA 300.0 | 0.20 | 0.050 | | 03/14/12 11:51 | JAG |
| Fluoride | mg/L | 0.036 I | EPA 300.0 | 0.040 | 0.010 | | 03/14/12 11:51 | JAG |
| Nitrate (as N) | mg/L | 9.8 | EPA 300.0 | 0.04 | 0.01 | | 03/14/12 11:51 | JAG |
| Nitrite (as N) | mg/L | 0.07 | EPA 300.0 | 0.04 | 0.01 | | 03/14/12 11:51 | JAG |
| Orthophosphate as P | mg/L | 0.95 | EPA 300.0 | 0.040 | 0.010 | | 03/14/12 11:51 | JAG |
| Phosphorous - Total as P | mg/L | 1.4 | SM 4500P-E | 0.040 | 0.010 | 03/15/12 09:50 | 03/16/12 14:30 | MMF |
| Sulfate | mg/L | 40 | EPA 300.0 | 0.60 | 0.20 | | 03/14/12 11:51 | JAG |
| Total Alkalinity | mg/L | 65 | SM 2320B | 8.0 | 2.0 | 03/19/12 14:30 | 03/19/12 17:00 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 3.1 | EPA 351.2 | 0.20 | 0.05 | 03/14/12 14:11 | 03/16/12 14:38 | MMF |
| Total Organic Carbon | mg/L | 53 | SM 5310B | 1.0 | 0.50 | 03/20/12 09:00 | 03/20/12 15:21 | ARP |
| Nitrate+Nitrite (N) | mg/L | 9.8 | EPA 300.0 | 0.08 | 0.02 | | 03/14/12 11:51 | JAG |
| **Inorganic, Dissolved** | | | | | | | | |
| Dissolved Organic Carbon | mg/L | 50 | SM 5310B | 1.0 | 0.50 | 03/20/12 13:00 | 03/21/12 10:16 | ARP |
| **Metals** | | | | | | | | |
| Boron | mg/L | 0.080 I | EPA 200.7 | 0.10 | 0.050 | 03/16/12 13:21 | 03/16/12 17:06 | VWC |
| Calcium | mg/L | 42 | EPA 200.7 | 0.50 | 0.042 | 03/16/12 13:21 | 03/16/12 17:06 | VWC |
| Iron | mg/L | 0.22 | EPA 200.7 | 0.10 | 0.020 | 03/16/12 13:21 | 03/26/12 11:39 | VWC |
| Magnesium | mg/L | 7.3 | EPA 200.7 | 0.50 | 0.020 | 03/16/12 13:21 | 03/16/12 17:06 | VWC |
| Manganese | mg/L | 0.0095 I | EPA 200.7 | 0.010 | 0.0010 | 03/16/12 13:21 | 03/16/12 17:06 | VWC |
| Potassium | mg/L | 12 | EPA 200.7 | 0.050 | 0.010 | 03/16/12 13:21 | 03/16/12 17:06 | VWC |
| Sodium | mg/L | 30 | EPA 200.7 | 0.50 | 0.13 | 03/16/12 13:21 | 03/16/12 17:06 | VWC |
| Sample Description | | **C-HS2-B08-7** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-37** | | | | | | |
| Date/Time Collected | | **03/13/12 11:07** | | | | | | |
| Collected by | | **Sean Harmon** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 6.0 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 11:07 | SDH |
| Water Temperature | °C | 21.4 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 11:07 | SDH |
| Specific conductance | umhos/cm | 342 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 11:07 | SDH |

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**April 13, 2012**
**Work Order: 1201896**
**Revised Report**

## Laboratory Report

**Project Name** **Seminole County C-HS2**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | By |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **C-HS2-B08-7** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-37** | | | | | | |
| Date/Time Collected | | **03/13/12 11:07** | | | | | | |
| Collected by | | **Sean Harmon** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| Dissolved Oxygen | mg/L | 0.5 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 11:07 | SDH |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.010 I | EPA 350.1 | 0.040 | 0.009 | | 03/15/12 12:34 | MMF |
| Chemical Oxygen Demand | mg/L | 90 | EPA 410.4 | 25 | 10 | 03/16/12 08:00 | 03/19/12 13:19 | LAS |
| Chloride | mg/L | 20 | EPA 300.0 | 0.20 | 0.050 | | 04/04/12 22:13 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 4.3 | EPA 353.2 | 0.20 | 0.05 | | 03/15/12 15:54 | MMF |
| Phosphorous - Total as P | mg/L | 0.77 | SM 4500P-E | 0.040 | 0.010 | 03/15/12 09:50 | 03/16/12 14:31 | MMF |
| Total Alkalinity | mg/L | 54 | SM 2320B | 8.0 | 2.0 | 03/19/12 14:30 | 03/19/12 17:00 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 2.2 | EPA 351.2 | 0.20 | 0.05 | 03/14/12 14:11 | 03/16/12 14:40 | MMF |
| Sample Description | | **C-HS2-B08-10** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-38** | | | | | | |
| Date/Time Collected | | **03/13/12 11:18** | | | | | | |
| Collected by | | **Sean Harmon** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 4.9 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 11:18 | SDH |
| Water Temperature | °C | 21.6 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 11:18 | SDH |
| Specific conductance | umhos/cm | 158 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 11:18 | SDH |
| Dissolved Oxygen | mg/L | 0.6 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 11:18 | SDH |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.47 | EPA 350.1 | 0.040 | 0.009 | | 03/15/12 12:36 | MMF |
| Chemical Oxygen Demand | mg/L | 26 | EPA 410.4 | 25 | 10 | 03/16/12 08:00 | 03/19/12 13:19 | LAS |
| Chloride | mg/L | 37 | EPA 300.0 | 0.20 | 0.050 | | 04/04/12 22:13 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 0.05 | EPA 353.2 | 0.04 | 0.01 | | 03/15/12 15:22 | MMF |
| Phosphorous - Total as P | mg/L | 0.080 | SM 4500P-E | 0.040 | 0.010 | 03/15/12 09:50 | 03/16/12 14:32 | MMF |
| Total Alkalinity | mg/L | 11 | SM 2320B | 8.0 | 2.0 | 03/19/12 14:30 | 03/19/12 17:00 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 0.70 | EPA 351.2 | 0.20 | 0.05 | 03/14/12 14:11 | 03/16/12 14:42 | MMF |
| Sample Description | | **C-HS2-B10-5** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-39** | | | | | | |
| Date/Time Collected | | **03/13/12 10:03** | | | | | | |
| Collected by | | **Sean Harmon** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |

**Hazen and Sawyer**
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**Tampa, FL 33619**

**April 13, 2012**
**Work Order: 1201896**
**Revised Report**

## Laboratory Report

**Project Name** **Seminole County C-HS2**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | By |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **C-HS2-B10-5** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-39** | | | | | | |
| Date/Time Collected | | **03/13/12 10:03** | | | | | | |
| Collected by | | **Sean Harmon** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| pH | SU | 6.6 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 10:03 | SDH |
| Water Temperature | °C | 20.6 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 10:03 | SDH |
| Specific conductance | umhos/cm | 518 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 10:03 | SDH |
| Dissolved Oxygen | mg/L | 0.2 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 10:03 | SDH |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.31 | EPA 350.1 | 0.040 | 0.009 | | 03/15/12 12:38 | MMF |
| Chemical Oxygen Demand | mg/L | 81 | EPA 410.4 | 25 | 10 | 03/16/12 08:00 | 03/19/12 13:19 | LAS |
| Chloride | mg/L | 30 | EPA 300.0 | 0.20 | 0.050 | | 04/04/12 22:13 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 7.7 | EPA 353.2 | 0.20 | 0.05 | | 03/15/12 15:55 | MMF |
| Phosphorous - Total as P | mg/L | 0.098 | SM 4500P-E | 0.040 | 0.010 | 03/15/12 09:50 | 03/16/12 14:33 | MMF |
| Total Alkalinity | mg/L | 130 | SM 2320B | 8.0 | 2.0 | 03/19/12 14:30 | 03/19/12 17:00 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 2.9 | EPA 351.2 | 0.20 | 0.05 | 03/14/12 14:11 | 03/16/12 14:44 | MMF |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **C-HS2-B10-7** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-40** | | | | | | |
| Date/Time Collected | | **03/13/12 10:14** | | | | | | |
| Collected by | | **Sean Harmon** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 6.3 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 10:14 | SDH |
| Water Temperature | °C | 20.8 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 10:14 | SDH |
| Specific conductance | umhos/cm | 355 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 10:14 | SDH |
| Dissolved Oxygen | mg/L | 0.3 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 10:14 | SDH |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.43 | EPA 350.1 | 0.040 | 0.009 | | 03/15/12 12:40 | MMF |
| Chemical Oxygen Demand | mg/L | 40 | EPA 410.4 | 25 | 10 | 03/16/12 08:00 | 03/19/12 13:19 | LAS |
| Chloride | mg/L | 35 | EPA 300.0 | 0.20 | 0.050 | | 04/04/12 22:13 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 3.1 | EPA 353.2 | 0.20 | 0.05 | | 03/15/12 15:56 | MMF |
| Phosphorous - Total as P | mg/L | 0.046 | SM 4500P-E | 0.040 | 0.010 | 03/15/12 09:50 | 03/16/12 14:34 | MMF |
| Total Alkalinity | mg/L | 65 | SM 2320B | 8.0 | 2.0 | | 03/20/12 11:57 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 1.6 | EPA 351.2 | 0.20 | 0.05 | 03/14/12 14:11 | 03/16/12 14:48 | MMF |

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

**April 13, 2012**
**Work Order: 1201896**
**Revised Report**

## Laboratory Report

**Project Name** **Seminole County C-HS2**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | By |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **C-HS2-B10-10** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-41** | | | | | | |
| Date/Time Collected | | **03/13/12 10:32** | | | | | | |
| Collected by | | **Sean Harmon** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 4.7 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 10:32 | SDH |
| Water Temperature | °C | 21.0 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 10:32 | SDH |
| Specific conductance | umhos/cm | 144 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 10:32 | SDH |
| Dissolved Oxygen | mg/L | 0.2 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 10:32 | SDH |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.37 | EPA 350.1 | 0.040 | 0.009 | | 03/15/12 12:42 | MMF |
| Chemical Oxygen Demand | mg/L | 32 | EPA 410.4 | 25 | 10 | 03/16/12 08:00 | 03/19/12 13:19 | LAS |
| Chloride | mg/L | 35 | EPA 300.0 | 0.20 | 0.050 | | 04/04/12 22:13 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 0.05 | EPA 353.2 | 0.04 | 0.01 | | 03/15/12 15:29 | MMF |
| Phosphorous - Total as P | mg/L | 0.088 | SM 4500P-E | 0.040 | 0.010 | 03/15/12 09:52 | 03/16/12 14:42 | MMF |
| Total Alkalinity | mg/L | 2.0 U | SM 2320B | 8.0 | 2.0 | | 03/20/12 11:57 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 0.59 | EPA 351.2 | 0.20 | 0.05 | 03/14/12 14:11 | 03/16/12 14:49 | MMF |

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|---|---|---|---|---|---|---|---|---|
| Sample Description | | **C-HS2-B15-5** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-42** | | | | | | |
| Date/Time Collected | | **03/13/12 09:18** | | | | | | |
| Collected by | | **Sean Harmon** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 4.6 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 09:18 | SDH |
| Water Temperature | °C | 20.4 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 09:18 | SDH |
| Specific conductance | umhos/cm | 182 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 09:18 | SDH |
| Dissolved Oxygen | mg/L | 0.4 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 09:18 | SDH |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.32 | EPA 350.1 | 0.040 | 0.009 | | 03/15/12 12:56 | MMF |
| Chemical Oxygen Demand | mg/L | 59 | EPA 410.4 | 25 | 10 | 03/16/12 08:00 | 03/19/12 13:19 | LAS |
| Chloride | mg/L | 42 | EPA 300.0 | 0.20 | 0.050 | | 04/05/12 16:52 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 0.02 I | EPA 353.2 | 0.04 | 0.01 | | 03/15/12 15:31 | MMF |
| Phosphorous - Total as P | mg/L | 0.040 | SM 4500P-E | 0.040 | 0.010 | 03/15/12 09:52 | 03/16/12 14:44 | MMF |
| Total Alkalinity | mg/L | 2.0 U | SM 2320B | 8.0 | 2.0 | | 03/20/12 11:57 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 0.79 | EPA 351.2 | 0.20 | 0.05 | 03/14/12 14:11 | 03/16/12 14:51 | MMF |

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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-B15-7** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-43** | | | | | | |
| Date/Time Collected | | **03/13/12 09:36** | | | | | | |
| Collected by | | **Sean Harmon** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 4.9 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 09:36 | SDH |
| Water Temperature | °C | 20.6 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 09:36 | SDH |
| Specific conductance | umhos/cm | 167 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 09:36 | SDH |
| Dissolved Oxygen | mg/L | 0.2 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 09:36 | SDH |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.46 | EPA 350.1 | 0.040 | 0.009 | | 03/15/12 12:58 | MMF |
| Chemical Oxygen Demand | mg/L | 38 | EPA 410.4 | 25 | 10 | 03/16/12 08:00 | 03/19/12 13:19 | LAS |
| Chloride | mg/L | 41 | EPA 300.0 | 0.20 | 0.050 | | 04/04/12 22:13 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 0.02 I | EPA 353.2 | 0.04 | 0.01 | | 03/15/12 13:43 | MMF |
| Phosphorous - Total as P | mg/L | 0.079 | SM 4500P-E | 0.040 | 0.010 | 03/15/12 09:52 | 03/16/12 14:45 | MMF |
| Total Alkalinity | mg/L | 11 | SM 2320B | 8.0 | 2.0 | | 03/20/12 11:57 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 0.74 | EPA 351.2 | 0.20 | 0.05 | 03/14/12 14:11 | 03/16/12 14:52 | MMF |

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|---|---|---|---|---|---|---|---|---|
| Sample Description | | **C-HS2-B15-10** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-44** | | | | | | |
| Date/Time Collected | | **03/13/12 09:48** | | | | | | |
| Collected by | | **Sean Harmon** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 4.7 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 09:48 | SDH |
| Water Temperature | °C | 20.9 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 09:48 | SDH |
| Specific conductance | umhos/cm | 144 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 09:48 | SDH |
| Dissolved Oxygen | mg/L | 0.5 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 09:48 | SDH |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.38 | EPA 350.1 | 0.040 | 0.009 | | 03/15/12 13:00 | MMF |
| Chemical Oxygen Demand | mg/L | 20 I | EPA 410.4 | 25 | 10 | 03/16/12 08:00 | 03/19/12 13:19 | LAS |
| Chloride | mg/L | 35 | EPA 300.0 | 0.20 | 0.050 | | 04/04/12 22:13 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 0.02 I | EPA 353.2 | 0.04 | 0.01 | | 03/15/12 13:46 | MMF |
| Phosphorous - Total as P | mg/L | 0.046 | SM 4500P-E | 0.040 | 0.010 | 03/15/12 09:52 | 03/16/12 14:46 | MMF |
| Total Alkalinity | mg/L | 53 | SM 2320B | 8.0 | 2.0 | | 03/20/12 11:57 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 0.49 | EPA 351.2 | 0.20 | 0.05 | 03/14/12 14:11 | 03/16/12 14:53 | MMF |

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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-C04-5** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-48** | | | | | | |
| Date/Time Collected | | **03/13/12 11:56** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 5.7 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 11:56 | SAS |
| Water Temperature | °C | 21.6 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 11:56 | SAS |
| Specific conductance | umhos/cm | 541 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 11:56 | SAS |
| Dissolved Oxygen | mg/L | 0.3 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 11:56 | SAS |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.34 | EPA 350.1 | 0.040 | 0.009 | | 03/15/12 13:03 | MMF |
| Chemical Oxygen Demand | mg/L | 69 | EPA 410.4 | 25 | 10 | 03/16/12 08:00 | 03/19/12 13:19 | LAS |
| Chloride | mg/L | 19 | EPA 300.0 | 0.20 | 0.050 | | 04/04/12 22:13 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 4.2 | EPA 353.2 | 0.20 | 0.05 | | 03/15/12 15:40 | MMF |
| Phosphorous - Total as P | mg/L | 0.052 | SM 4500P-E | 0.040 | 0.010 | 03/15/12 09:52 | 03/16/12 14:47 | MMF |
| Total Alkalinity | mg/L | 5.4 I | SM 2320B | 8.0 | 2.0 | | 03/20/12 11:57 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 2.3 | EPA 351.2 | 0.20 | 0.05 | 03/14/12 14:11 | 03/16/12 14:54 | MMF |

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|---|---|---|---|---|---|---|---|---|
| Sample Description | | **C-HS2-C04-7** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-49** | | | | | | |
| Date/Time Collected | | **03/13/12 11:56** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 5.1 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 12:07 | SAS |
| Water Temperature | °C | 21.7 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 12:07 | SAS |
| Specific conductance | umhos/cm | 193 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 12:07 | SAS |
| Dissolved Oxygen | mg/L | 0.3 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 12:07 | SAS |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.97 | EPA 350.1 | 0.040 | 0.009 | | 03/15/12 13:05 | MMF |
| Chemical Oxygen Demand | mg/L | 30 | EPA 410.4 | 25 | 10 | 03/16/12 08:00 | 03/19/12 13:19 | LAS |
| Chloride | mg/L | 44 | EPA 300.0 | 0.20 | 0.050 | | 04/04/12 22:13 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 0.02 I | EPA 353.2 | 0.04 | 0.01 | | 03/15/12 13:50 | MMF |
| Phosphorous - Total as P | mg/L | 0.036 I | SM 4500P-E | 0.040 | 0.010 | 03/15/12 09:52 | 03/16/12 14:48 | MMF |
| Total Alkalinity | mg/L | 5.4 I | SM 2320B | 8.0 | 2.0 | | 03/20/12 11:57 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 1.1 | EPA 351.2 | 0.20 | 0.05 | 03/14/12 14:11 | 03/16/12 14:56 | MMF |

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**April 13, 2012**
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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-C04-10** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-50** | | | | | | |
| Date/Time Collected | | **03/13/12 12:25** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 4.9 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 12:25 | SAS |
| Water Temperature | °C | 21.7 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 12:25 | SAS |
| Specific conductance | umhos/cm | 151 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 12:25 | SAS |
| Dissolved Oxygen | mg/L | 0.2 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 12:25 | SAS |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.65 | EPA 350.1 | 0.040 | 0.009 | | 03/15/12 13:07 | MMF |
| Chemical Oxygen Demand | mg/L | 93 | EPA 410.4 | 25 | 10 | 03/16/12 08:00 | 03/19/12 13:19 | LAS |
| Chloride | mg/L | 37 | EPA 300.0 | 0.20 | 0.050 | | 04/04/12 22:13 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 0.07 | EPA 353.2 | 0.04 | 0.01 | | 03/15/12 13:52 | MMF |
| Phosphorous - Total as P | mg/L | 0.59 | SM 4500P-E | 0.040 | 0.010 | 03/15/12 09:52 | 03/16/12 14:50 | MMF |
| Total Alkalinity | mg/L | 5.4 I | SM 2320B | 8.0 | 2.0 | | 03/20/12 11:57 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 1.4 | EPA 351.2 | 0.20 | 0.05 | 03/14/12 14:08 | 03/16/12 13:41 | MMF |

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|---|---|---|---|---|---|---|---|---|
| Sample Description | | **C-HS2-C06-5** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-51** | | | | | | |
| Date/Time Collected | | **03/13/12 12:45** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 5.7 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 12:45 | SAS |
| Water Temperature | °C | 20.5 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 12:45 | SAS |
| Specific conductance | umhos/cm | 332 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 12:45 | SAS |
| Dissolved Oxygen | mg/L | 1.1 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 12:45 | SAS |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.16 | EPA 350.1 | 0.040 | 0.009 | | 03/15/12 13:09 | MMF |
| Chemical Oxygen Demand | mg/L | 130 | EPA 410.4 | 25 | 10 | 03/16/12 08:00 | 03/19/12 13:19 | LAS |
| Chloride | mg/L | 19 | EPA 300.0 | 0.20 | 0.050 | | 04/04/12 22:13 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 4.6 | EPA 353.2 | 0.20 | 0.05 | | 03/15/12 15:42 | MMF |
| Phosphorous - Total as P | mg/L | 2.9 | SM 4500P-E | 0.20 | 0.050 | 03/15/12 09:52 | 03/16/12 15:18 | MMF |
| Total Alkalinity | mg/L | 43 | SM 2320B | 8.0 | 2.0 | | 03/20/12 11:57 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 4.6 | EPA 351.2 | 0.20 | 0.05 | 03/14/12 14:08 | 03/16/12 13:43 | MMF |

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**April 13, 2012**
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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-C06-7** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-52** | | | | | | |
| Date/Time Collected | | **03/13/12 13:02** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 5.9 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 13:02 | SAS |
| Water Temperature | °C | 20.6 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 13:02 | SAS |
| Specific conductance | umhos/cm | 242 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 13:02 | SAS |
| Dissolved Oxygen | mg/L | 0.2 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 13:02 | SAS |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.45 | EPA 350.1 | 0.040 | 0.009 | | 03/15/12 13:11 | MMF |
| Chemical Oxygen Demand | mg/L | 59 | EPA 410.4 | 25 | 10 | 03/16/12 08:00 | 03/19/12 13:19 | LAS |
| Chloride | mg/L | 41 | EPA 300.0 | 0.20 | 0.050 | | 04/04/12 22:13 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 0.04 | EPA 353.2 | 0.04 | 0.01 | | 03/15/12 13:57 | MMF |
| Phosphorous - Total as P | mg/L | 1.1 | SM 4500P-E | 0.040 | 0.010 | 03/15/12 09:52 | 03/16/12 14:52 | MMF |
| Total Alkalinity | mg/L | 32 | SM 2320B | 8.0 | 2.0 | | 03/20/12 11:57 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 1.1 | EPA 351.2 | 0.20 | 0.05 | 03/14/12 14:08 | 03/16/12 13:45 | MMF |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **C-HS2-C06-10** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-53** | | | | | | |
| Date/Time Collected | | **03/13/12 13:18** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 5.1 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 13:18 | SAS |
| Water Temperature | °C | 21.1 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 13:18 | SAS |
| Specific conductance | umhos/cm | 144 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 13:18 | SAS |
| Dissolved Oxygen | mg/L | 0.2 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 13:18 | SAS |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.43 | EPA 350.1 | 0.040 | 0.009 | | 03/15/12 13:13 | MMF |
| Chemical Oxygen Demand | mg/L | 40 | EPA 410.4 | 25 | 10 | 03/16/12 08:00 | 03/19/12 13:19 | LAS |
| Chloride | mg/L | 35 | EPA 300.0 | 0.20 | 0.050 | | 04/04/12 15:16 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 0.03 I | EPA 353.2 | 0.04 | 0.01 | | 03/15/12 13:59 | MMF |
| Phosphorous - Total as P | mg/L | 0.11 | SM 4500P-E | 0.040 | 0.010 | 03/15/12 09:52 | 03/16/12 14:53 | MMF |
| Total Alkalinity | mg/L | 11 | SM 2320B | 8.0 | 2.0 | | 03/20/12 11:57 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 0.82 | EPA 351.2 | 0.20 | 0.05 | 03/14/12 14:08 | 03/16/12 13:47 | MMF |

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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-C06-10-DUP** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-54** | | | | | | |
| Date/Time Collected | | **03/13/12 13:23** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 5.1 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 13:18 | SAS |
| Water Temperature | °C | 21.1 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 13:18 | SAS |
| Specific conductance | umhos/cm | 144 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 13:18 | SAS |
| Dissolved Oxygen | mg/L | 0.2 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 13:18 | SAS |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.42 | EPA 350.1 | 0.040 | 0.009 | | 03/15/12 13:15 | MMF |
| Chemical Oxygen Demand | mg/L | 40 | EPA 410.4 | 25 | 10 | 03/16/12 12:00 | 03/19/12 13:15 | LAS |
| Chloride | mg/L | 35 | EPA 300.0 | 0.20 | 0.050 | | 04/04/12 15:16 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 0.05 | EPA 353.2 | 0.04 | 0.01 | | 03/15/12 14:01 | MMF |
| Phosphorous - Total as P | mg/L | 0.11 | SM 4500P-E | 0.040 | 0.010 | 03/15/12 09:52 | 03/16/12 14:57 | MMF |
| Total Alkalinity | mg/L | 11 | SM 2320B | 8.0 | 2.0 | | 03/20/12 11:57 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 0.89 | EPA 351.2 | 0.20 | 0.05 | 03/14/12 14:08 | 03/16/12 13:48 | MMF |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **C-HS2-C08-5** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-55** | | | | | | |
| Date/Time Collected | | **03/13/12 13:00** | | | | | | |
| Collected by | | **Sean Harmon** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 5.8 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 13:00 | SDH |
| Water Temperature | °C | 22.8 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 13:00 | SDH |
| Specific conductance | umhos/cm | 526 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 13:00 | SDH |
| Dissolved Oxygen | mg/L | 1.4 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 13:00 | SDH |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.015 I | EPA 350.1 | 0.040 | 0.009 | | 03/15/12 13:21 | MMF |
| Chemical Oxygen Demand | mg/L | 100 | EPA 410.4 | 25 | 10 | 03/16/12 12:00 | 03/19/12 13:15 | LAS |
| Chloride | mg/L | 16 | EPA 300.0 | 0.20 | 0.050 | | 04/06/12 21:45 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 6.3 | EPA 353.2 | 0.20 | 0.05 | | 03/15/12 15:45 | MMF |
| Phosphorous - Total as P | mg/L | 0.35 | SM 4500P-E | 0.040 | 0.010 | 03/15/12 09:52 | 03/16/12 14:58 | MMF |
| Total Alkalinity | mg/L | 54 | SM 2320B | 8.0 | 2.0 | | 03/20/12 11:57 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 4.2 | EPA 351.2 | 0.20 | 0.05 | 03/14/12 14:08 | 03/16/12 13:50 | MMF |

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

**April 13, 2012**
**Work Order: 1201896**
**Revised Report**

## Laboratory Report

**Project Name** **Seminole County C-HS2**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | By |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **C-HS2-C08-5-DUP** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-56** | | | | | | |
| Date/Time Collected | | **03/13/12 13:00** | | | | | | |
| Collected by | | **Sean Harmon** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 5.8 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 13:00 | SDH |
| Water Temperature | °C | 22.8 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 13:00 | SDH |
| Specific conductance | umhos/cm | 526 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 13:00 | SDH |
| Dissolved Oxygen | mg/L | 1.4 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 13:00 | SDH |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.011 I | EPA 350.1 | 0.040 | 0.009 | | 03/15/12 13:23 | MMF |
| Chemical Oxygen Demand | mg/L | 100 | EPA 410.4 | 25 | 10 | 03/16/12 12:00 | 03/19/12 13:15 | LAS |
| Chloride | mg/L | 16 | EPA 300.0 | 0.20 | 0.050 | | 04/06/12 21:45 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 6.4 | EPA 353.2 | 0.20 | 0.05 | | 03/15/12 15:47 | MMF |
| Phosphorous - Total as P | mg/L | 0.34 | SM 4500P-E | 0.040 | 0.010 | 03/15/12 09:52 | 03/16/12 14:59 | MMF |
| Total Alkalinity | mg/L | 54 | SM 2320B | 8.0 | 2.0 | | 03/20/12 11:57 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 4.4 | EPA 351.2 | 0.20 | 0.05 | 03/14/12 14:08 | 03/16/12 13:52 | MMF |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **C-HS2-C08-7** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-57** | | | | | | |
| Date/Time Collected | | **03/13/12 13:15** | | | | | | |
| Collected by | | **Sean Harmon** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 6.0 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 13:15 | SDH |
| Water Temperature | °C | 22.8 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 13:15 | SDH |
| Specific conductance | umhos/cm | 585 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 13:15 | SDH |
| Dissolved Oxygen | mg/L | 1.1 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 13:15 | SDH |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.009 U | EPA 350.1 | 0.040 | 0.009 | | 03/15/12 13:25 | MMF |
| Chemical Oxygen Demand | mg/L | 61 | EPA 410.4 | 25 | 10 | 03/16/12 12:00 | 03/19/12 13:15 | LAS |
| Chloride | mg/L | 31 | EPA 300.0 | 0.20 | 0.050 | | 03/14/12 11:51 | JAG |
| Fluoride | mg/L | 0.034 I | EPA 300.0 | 0.040 | 0.010 | | 03/14/12 11:51 | JAG |
| Nitrate (as N) | mg/L | 18 | EPA 300.0 | 0.04 | 0.01 | | 03/14/12 11:51 | JAG |
| Nitrate+Nitrite (N) | mg/L | 17 | EPA 353.2 | 1.0 | 0.25 | | 03/15/12 16:00 | MMF |
| Nitrite (as N) | mg/L | 0.13 | EPA 300.0 | 0.04 | 0.01 | | 03/14/12 11:51 | JAG |
| Orthophosphate as P | mg/L | 0.14 | EPA 300.0 | 0.040 | 0.010 | | 03/14/12 11:51 | JAG |
| Phosphorous - Total as P | mg/L | 0.15 | SM 4500P-E | 0.040 | 0.010 | 03/15/12 09:52 | 03/16/12 15:00 | MMF |
| Sulfate | mg/L | 61 | EPA 300.0 | 0.60 | 0.20 | | 03/14/12 11:51 | JAG |
| Total Alkalinity | mg/L | 65 | SM 2320B | 8.0 | 2.0 | | 03/20/12 11:57 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 2.2 | EPA 351.2 | 0.20 | 0.05 | 03/14/12 14:08 | 03/16/12 13:53 | MMF |

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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-C08-7** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-57** | | | | | | |
| Date/Time Collected | | **03/13/12 13:15** | | | | | | |
| Collected by | | **Sean Harmon** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| Total Organic Carbon | mg/L | 27 | SM 5310B | 1.0 | 0.50 | 03/20/12 09:00 | 03/20/12 15:21 | ARP |
| Nitrate+Nitrite (N) | mg/L | 18 | EPA 300.0 | 0.08 | 0.02 | | 03/14/12 11:51 | JAG |
| **Inorganic, Dissolved** | | | | | | | | |
| Dissolved Organic Carbon | mg/L | 26 | SM 5310B | 1.0 | 0.50 | 03/20/12 13:00 | 03/21/12 10:16 | ARP |
| **Metals** | | | | | | | | |
| Boron | mg/L | 0.075 I | EPA 200.7 | 0.10 | 0.050 | 03/16/12 13:21 | 03/16/12 17:09 | VWC |
| Calcium | mg/L | 47 | EPA 200.7 | 0.50 | 0.042 | 03/16/12 13:21 | 03/16/12 17:09 | VWC |
| Iron | mg/L | 0.082 I | EPA 200.7 | 0.10 | 0.020 | 03/16/12 13:21 | 03/16/12 17:09 | VWC |
| Magnesium | mg/L | 9.7 | EPA 200.7 | 0.50 | 0.020 | 03/16/12 13:21 | 03/16/12 17:09 | VWC |
| Manganese | mg/L | 0.0079 I | EPA 200.7 | 0.010 | 0.0010 | 03/16/12 13:21 | 03/16/12 17:09 | VWC |
| Potassium | mg/L | 9.6 | EPA 200.7 | 0.050 | 0.010 | 03/16/12 13:21 | 03/16/12 17:09 | VWC |
| Sodium | mg/L | 42 | EPA 200.7 | 0.50 | 0.13 | 03/16/12 13:21 | 03/16/12 17:09 | VWC |
| Sample Description | | **C-HS2-C08-10** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-58** | | | | | | |
| Date/Time Collected | | **03/13/12 13:29** | | | | | | |
| Collected by | | **Sean Harmon** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 5.0 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 13:29 | SDH |
| Water Temperature | °C | 22.6 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 13:29 | SDH |
| Specific conductance | umhos/cm | 174 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 13:29 | SDH |
| Dissolved Oxygen | mg/L | 0.9 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 13:29 | SDH |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.46 | EPA 350.1 | 0.040 | 0.009 | | 03/15/12 13:27 | MMF |
| Chemical Oxygen Demand | mg/L | 28 | EPA 410.4 | 25 | 10 | 03/16/12 12:00 | 03/19/12 13:15 | LAS |
| Chloride | mg/L | 34 | EPA 300.0 | 0.20 | 0.050 | | 04/06/12 21:45 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 0.06 | EPA 353.2 | 0.04 | 0.01 | | 03/15/12 14:14 | MMF |
| Phosphorous - Total as P | mg/L | 0.065 | SM 4500P-E | 0.040 | 0.010 | 03/15/12 09:52 | 03/16/12 15:01 | MMF |
| Total Alkalinity | mg/L | 5.4 I | SM 2320B | 8.0 | 2.0 | | 03/20/12 11:57 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 0.72 | EPA 351.2 | 0.20 | 0.05 | 03/14/12 14:08 | 03/16/12 13:55 | MMF |

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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-C10-6** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-59** | | | | | | |
| Date/Time Collected | | **03/13/12 12:14** | | | | | | |
| Collected by | | **Sean Harmon** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 5.9 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 12:14 | SDH |
| Water Temperature | °C | 23.3 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 12:14 | SDH |
| Specific conductance | umhos/cm | 415 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 12:14 | SDH |
| Dissolved Oxygen | mg/L | 1.4 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 12:14 | SDH |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 1.4 | EPA 350.1 | 0.40 | 0.095 | | 03/15/12 14:02 | MMF |
| Chemical Oxygen Demand | mg/L | 120 | EPA 410.4 | 25 | 10 | 03/16/12 12:00 | 03/19/12 13:15 | LAS |
| Chloride | mg/L | 32 | EPA 300.0 | 0.20 | 0.050 | | 04/06/12 21:45 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 0.08 | EPA 353.2 | 0.04 | 0.01 | | 03/15/12 14:16 | MMF |
| Phosphorous - Total as P | mg/L | 0.084 | SM 4500P-E | 0.040 | 0.010 | 03/15/12 09:52 | 03/16/12 15:02 | MMF |
| Total Alkalinity | mg/L | 110 | SM 2320B | 8.0 | 2.0 | | 03/20/12 11:57 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 2.9 | EPA 351.2 | 0.20 | 0.05 | 03/14/12 14:08 | 03/16/12 13:57 | MMF |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **C-HS2-C10-8** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-60** | | | | | | |
| Date/Time Collected | | **03/13/12 12:26** | | | | | | |
| Collected by | | **Sean Harmon** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 5.6 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 12:26 | SDH |
| Water Temperature | °C | 23.2 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 12:26 | SDH |
| Specific conductance | umhos/cm | 186 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 12:26 | SDH |
| Dissolved Oxygen | mg/L | 1.4 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 12:26 | SDH |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 1.4 | EPA 350.1 | 0.40 | 0.095 | | 03/15/12 14:03 | MMF |
| Chemical Oxygen Demand | mg/L | 40 | EPA 410.4 | 25 | 10 | 03/16/12 12:00 | 03/19/12 13:15 | LAS |
| Chloride | mg/L | 33 | EPA 300.0 | 0.20 | 0.050 | | 04/06/12 21:45 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 0.02 I | EPA 353.2 | 0.04 | 0.01 | | 03/15/12 14:19 | MMF |
| Phosphorous - Total as P | mg/L | 0.041 | SM 4500P-E | 0.040 | 0.010 | 03/15/12 09:52 | 03/16/12 15:03 | MMF |
| Total Alkalinity | mg/L | 11 | SM 2320B | 8.0 | 2.0 | | 03/22/12 10:37 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 1.7 | EPA 351.2 | 0.20 | 0.05 | 03/14/12 14:08 | 03/16/12 14:02 | MMF |

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**April 13, 2012**
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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-C10-12** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-61** | | | | | | |
| Date/Time Collected | | **03/13/12 12:43** | | | | | | |
| Collected by | | **Sean Harmon** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 5.0 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 12:43 | SDH |
| Water Temperature | °C | 23.5 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 12:43 | SDH |
| Specific conductance | umhos/cm | 142 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 12:43 | SDH |
| Dissolved Oxygen | mg/L | 1.8 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 12:43 | SDH |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.48 | EPA 350.1 | 0.040 | 0.009 | | 03/15/12 13:32 | MMF |
| Chemical Oxygen Demand | mg/L | 69 | EPA 410.4 | 25 | 10 | 03/16/12 12:00 | 03/19/12 13:15 | LAS |
| Chloride | mg/L | 34 | EPA 300.0 | 0.20 | 0.050 | | 04/06/12 21:45 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 0.05 | EPA 353.2 | 0.04 | 0.01 | | 03/15/12 14:21 | MMF |
| Phosphorous - Total as P | mg/L | 0.31 | SM 4500P-E | 0.040 | 0.010 | 03/15/12 09:52 | 03/16/12 15:04 | MMF |
| Total Alkalinity | mg/L | 2.0 U | SM 2320B | 8.0 | 2.0 | | 03/27/12 13:30 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 0.78 | EPA 351.2 | 0.20 | 0.05 | 03/14/12 14:08 | 03/16/12 14:03 | MMF |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **C-HS2-C11-5** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-62** | | | | | | |
| Date/Time Collected | | **03/13/12 11:40** | | | | | | |
| Collected by | | **Sean Harmon** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 5.0 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 11:40 | SDH |
| Water Temperature | °C | 22.8 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 11:40 | SDH |
| Specific conductance | umhos/cm | 248 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 11:40 | SDH |
| Dissolved Oxygen | mg/L | 0.6 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 11:40 | SDH |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.22 | EPA 350.1 | 0.040 | 0.009 | | 03/15/12 13:34 | MMF |
| Chemical Oxygen Demand | mg/L | 150 | EPA 410.4 | 25 | 10 | 03/16/12 12:00 | 03/19/12 13:15 | LAS |
| Chloride | mg/L | 33 | EPA 300.0 | 0.20 | 0.050 | | 04/06/12 21:45 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 0.22 | EPA 353.2 | 0.04 | 0.01 | | 03/15/12 14:23 | MMF |
| Phosphorous - Total as P | mg/L | 0.72 | SM 4500P-E | 0.040 | 0.010 | 03/15/12 09:52 | 03/16/12 15:05 | MMF |
| Total Alkalinity | mg/L | 11 | SM 2320B | 8.0 | 2.0 | | 03/22/12 10:37 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 1.8 | EPA 351.2 | 0.20 | 0.05 | 03/14/12 14:08 | 03/16/12 14:05 | MMF |

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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-C11-7** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-63** | | | | | | |
| Date/Time Collected | | **03/13/12 11:51** | | | | | | |
| Collected by | | **Sean Harmon** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 5.0 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 11:51 | SDH |
| Water Temperature | °C | 22.5 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 11:51 | SDH |
| Specific conductance | umhos/cm | 191 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 11:51 | SDH |
| Dissolved Oxygen | mg/L | 0.4 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 11:51 | SDH |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.33 | EPA 350.1 | 0.040 | 0.009 | | 03/15/12 13:36 | MMF |
| Chemical Oxygen Demand | mg/L | 46 | EPA 410.4 | 25 | 10 | 03/16/12 12:00 | 03/19/12 13:15 | LAS |
| Chloride | mg/L | 41 | EPA 300.0 | 0.20 | 0.050 | | 04/06/12 21:45 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 0.03 I | EPA 353.2 | 0.04 | 0.01 | | 03/15/12 14:25 | MMF |
| Phosphorous - Total as P | mg/L | 0.072 | SM 4500P-E | 0.040 | 0.010 | 03/15/12 09:52 | 03/16/12 15:05 | MMF |
| Total Alkalinity | mg/L | 5.4 I | SM 2320B | 8.0 | 2.0 | | 03/22/12 10:37 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 0.81 | EPA 351.2 | 0.20 | 0.05 | 03/14/12 14:08 | 03/16/12 14:07 | MMF |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **C-HS2-C11-10** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-64** | | | | | | |
| Date/Time Collected | | **03/13/12 12:02** | | | | | | |
| Collected by | | **Sean Harmon** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 4.7 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 12:02 | SDH |
| Water Temperature | °C | 22.7 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 12:02 | SDH |
| Specific conductance | umhos/cm | 148 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 12:02 | SDH |
| Dissolved Oxygen | mg/L | 0.8 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 12:02 | SDH |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.35 | EPA 350.1 | 0.040 | 0.009 | | 03/15/12 13:37 | MMF |
| Chemical Oxygen Demand | mg/L | 28 | EPA 410.4 | 25 | 10 | 03/16/12 12:00 | 03/19/12 13:15 | LAS |
| Chloride | mg/L | 36 | EPA 300.0 | 0.20 | 0.050 | | 04/06/12 21:45 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 0.02 I | EPA 353.2 | 0.04 | 0.01 | | 03/15/12 14:28 | MMF |
| Phosphorous - Total as P | mg/L | 0.046 | SM 4500P-E | 0.040 | 0.010 | 03/16/12 15:59 | 03/20/12 12:13 | MMF |
| Total Alkalinity | mg/L | 2.0 U | SM 2320B | 8.0 | 2.0 | | 03/27/12 13:30 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 0.53 | EPA 351.2 | 0.20 | 0.05 | 03/14/12 14:08 | 03/16/12 14:08 | MMF |

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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-D04-5** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-65** | | | | | | |
| Date/Time Collected | | **03/13/12 14:27** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 5.9 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 14:47 | SDH |
| Water Temperature | °C | 22.2 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 14:47 | SDH |
| Specific conductance | umhos/cm | 348 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 14:47 | SDH |
| Dissolved Oxygen | mg/L | 0.2 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 14:47 | SDH |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.050 | EPA 350.1 | 0.040 | 0.009 | | 03/15/12 09:43 | MMF |
| Chemical Oxygen Demand | mg/L | 120 | EPA 410.4 | 25 | 10 | 03/16/12 12:00 | 03/19/12 13:15 | LAS |
| Chloride | mg/L | 28 | EPA 300.0 | 0.20 | 0.050 | | 03/14/12 11:51 | JAG |
| Fluoride | mg/L | 0.010 U | EPA 300.0 | 0.040 | 0.010 | | 03/14/12 11:51 | JAG |
| Nitrate (as N) | mg/L | 1.6 | EPA 300.0 | 0.04 | 0.01 | | 03/14/12 11:51 | JAG |
| Nitrate+Nitrite (N) | mg/L | 1.4 | EPA 353.2 | 0.04 | 0.01 | | 03/15/12 14:30 | MMF |
| Nitrite (as N) | mg/L | 0.01 U | EPA 300.0 | 0.04 | 0.01 | | 03/14/12 11:51 | JAG |
| Orthophosphate as P | mg/L | 1.3 | EPA 300.0 | 0.040 | 0.010 | | 03/14/12 11:51 | JAG |
| Phosphorous - Total as P | mg/L | 1.9 | SM 4500P-E | 0.040 | 0.010 | 03/16/12 15:59 | 03/20/12 12:14 | MMF |
| Sulfate | mg/L | 39 | EPA 300.0 | 0.60 | 0.20 | | 03/14/12 11:51 | JAG |
| Total Alkalinity | mg/L | 54 | SM 2320B | 8.0 | 2.0 | | 03/22/12 10:37 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 2.0 | EPA 351.2 | 0.20 | 0.05 | 03/14/12 14:08 | 03/16/12 14:10 | MMF |
| Total Organic Carbon | mg/L | 49 | SM 5310B | 1.0 | 0.50 | 03/20/12 09:00 | 03/20/12 15:21 | ARP |
| Nitrate+Nitrite (N) | mg/L | 1.6 | EPA 300.0 | 0.08 | 0.02 | | 03/14/12 11:51 | JAG |
| **Inorganic, Dissolved** | | | | | | | | |
| Dissolved Organic Carbon | mg/L | 45 | SM 5310B | 1.0 | 0.50 | 03/20/12 13:00 | 03/21/12 10:16 | ARP |
| **Metals** | | | | | | | | |
| Boron | mg/L | 0.059 I | EPA 200.7 | 0.10 | 0.050 | 03/16/12 13:21 | 03/16/12 17:13 | VWC |
| Calcium | mg/L | 28 | EPA 200.7 | 0.50 | 0.042 | 03/16/12 13:21 | 03/16/12 17:13 | VWC |
| Iron | mg/L | 0.36 | EPA 200.7 | 0.10 | 0.020 | 03/16/12 13:21 | 03/16/12 17:13 | VWC |
| Magnesium | mg/L | 6.4 | EPA 200.7 | 0.50 | 0.020 | 03/16/12 13:21 | 03/16/12 17:13 | VWC |
| Manganese | mg/L | 0.0062 I | EPA 200.7 | 0.010 | 0.0010 | 03/16/12 13:21 | 03/16/12 17:13 | VWC |
| Potassium | mg/L | 6.7 | EPA 200.7 | 0.050 | 0.010 | 03/16/12 13:21 | 03/16/12 17:13 | VWC |
| Sodium | mg/L | 30 | EPA 200.7 | 0.50 | 0.13 | 03/16/12 13:21 | 03/16/12 17:13 | VWC |

| | |
|---|---|
| Sample Description | **C-HS2-D04-7** |
| Matrix | **Groundwater** |
| SAL Sample Number | **1201896-66** |
| Date/Time Collected | **03/13/12 14:57** |
| Collected by | **Sean Schmidt** |
| Date/Time Received | **03/14/12 08:00** |

**Field Parameters**

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

**April 13, 2012**
**Work Order: 1201896**
**Revised Report**

## Laboratory Report

**Project Name** **Seminole County C-HS2**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | By |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **C-HS2-D04-7** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-66** | | | | | | |
| Date/Time Collected | | **03/13/12 14:57** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| pH | SU | 6.1 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 14:57 | SAS |
| Water Temperature | °C | 22.7 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 14:57 | SAS |
| Specific conductance | umhos/cm | 254 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 14:57 | SAS |
| Dissolved Oxygen | mg/L | 0.5 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 14:57 | SAS |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.010 I | EPA 350.1 | 0.040 | 0.009 | | 03/15/12 09:45 | MMF |
| Chemical Oxygen Demand | mg/L | 63 | EPA 410.4 | 25 | 10 | 03/16/12 12:00 | 03/19/12 13:15 | LAS |
| Chloride | mg/L | 34 | EPA 300.0 | 0.20 | 0.050 | | 04/06/12 21:45 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 0.02 I | EPA 353.2 | 0.04 | 0.01 | | 03/15/12 10:18 | KTC |
| Phosphorous - Total as P | mg/L | 0.12 | SM 4500P-E | 0.040 | 0.010 | 03/16/12 15:59 | 03/20/12 12:16 | MMF |
| Total Alkalinity | mg/L | 43 | SM 2320B | 8.0 | 2.0 | | 03/22/12 10:37 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 0.66 | EPA 351.2 | 0.20 | 0.05 | 03/14/12 14:08 | 03/16/12 14:12 | MMF |
| Sample Description | | **C-HS2-D04-10** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-67** | | | | | | |
| Date/Time Collected | | **03/13/12 15:15** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 5.7 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 15:15 | SAS |
| Water Temperature | °C | 22.2 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 15:15 | SAS |
| Specific conductance | umhos/cm | 159 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 15:15 | SAS |
| Dissolved Oxygen | mg/L | 0.2 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 15:15 | SAS |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.12 | EPA 350.1 | 0.040 | 0.009 | | 03/15/12 09:47 | MMF |
| Chemical Oxygen Demand | mg/L | 71 | EPA 410.4 | 25 | 10 | 03/16/12 12:00 | 03/19/12 13:15 | LAS |
| Chloride | mg/L | 34 | EPA 300.0 | 0.20 | 0.050 | | 04/06/12 21:45 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 0.05 | EPA 353.2 | 0.04 | 0.01 | | 03/15/12 10:20 | KTC |
| Phosphorous - Total as P | mg/L | 0.31 | SM 4500P-E | 0.040 | 0.010 | 03/16/12 15:59 | 03/20/12 12:17 | MMF |
| Total Alkalinity | mg/L | 11 | SM 2320B | 8.0 | 2.0 | | 03/22/12 10:37 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 0.78 | EPA 351.2 | 0.20 | 0.05 | 03/14/12 14:08 | 03/16/12 14:13 | MMF |

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**April 13, 2012**
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**Revised Report**

## Laboratory Report

**Project Name** **Seminole County C-HS2**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | By |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **C-HS2-D07-6** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-68** | | | | | | |
| Date/Time Collected | | **03/13/12 13:50** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 6.2 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 13:50 | SAS |
| Water Temperature | °C | 21.8 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 13:50 | SAS |
| Specific conductance | umhos/cm | 568 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 13:50 | SAS |
| Dissolved Oxygen | mg/L | 0.3 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 13:50 | SAS |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.017 I | EPA 350.1 | 0.040 | 0.009 | | 03/15/12 09:49 | MMF |
| Chemical Oxygen Demand | mg/L | 81 | EPA 410.4 | 25 | 10 | 03/16/12 12:00 | 03/19/12 13:15 | LAS |
| Chloride | mg/L | 40 | EPA 300.0 | 0.20 | 0.050 | | 04/06/12 21:45 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 20 | EPA 353.2 | 1.0 | 0.25 | | 03/15/12 11:19 | KTC |
| Phosphorous - Total as P | mg/L | 0.13 | SM 4500P-E | 0.040 | 0.010 | 03/16/12 15:59 | 03/20/12 12:18 | MMF |
| Total Alkalinity | mg/L | 75 | SM 2320B | 8.0 | 2.0 | | 03/22/12 10:37 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 2.5 | EPA 351.2 | 0.20 | 0.05 | 03/14/12 14:08 | 03/16/12 14:15 | MMF |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **C-HS2-D07-6-DUP** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-69** | | | | | | |
| Date/Time Collected | | **03/13/12 13:55** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 6.2 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 13:50 | SAS |
| Water Temperature | °C | 21.8 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 13:50 | SAS |
| Specific conductance | umhos/cm | 568 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 13:50 | SAS |
| Dissolved Oxygen | mg/L | 0.3 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 13:50 | SAS |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.014 I | EPA 350.1 | 0.040 | 0.009 | | 03/15/12 09:51 | MMF |
| Chemical Oxygen Demand | mg/L | 81 | EPA 410.4 | 25 | 10 | 03/16/12 12:00 | 03/19/12 13:15 | LAS |
| Chloride | mg/L | 42 | EPA 300.0 | 0.20 | 0.050 | | 04/06/12 21:45 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 21 | EPA 353.2 | 1.0 | 0.25 | | 03/15/12 11:20 | KTC |
| Phosphorous - Total as P | mg/L | 0.15 | SM 4500P-E | 0.040 | 0.010 | 03/16/12 15:59 | 03/20/12 12:19 | MMF |
| Total Alkalinity | mg/L | 75 | SM 2320B | 8.0 | 2.0 | | 03/22/12 10:37 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 2.7 | EPA 351.2 | 0.20 | 0.05 | 03/14/12 14:08 | 03/16/12 14:17 | MMF |

**Hazen and Sawyer**
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**April 13, 2012**
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**Revised Report**

## Laboratory Report

**Project Name** **Seminole County C-HS2**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | By |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **C-HS2-D07-8** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-70** | | | | | | |
| Date/Time Collected | | **03/13/12 14:12** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 6.1 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 14:12 | SAS |
| Water Temperature | °C | 22.0 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 14:12 | SAS |
| Specific conductance | umhos/cm | 312 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 14:12 | SAS |
| Dissolved Oxygen | mg/L | 0.2 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 14:12 | SAS |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.22 | EPA 350.1 | 0.040 | 0.009 | | 03/15/12 09:53 | MMF |
| Chemical Oxygen Demand | mg/L | 42 | EPA 410.4 | 25 | 10 | 03/16/12 12:00 | 03/19/12 13:15 | LAS |
| Chloride | mg/L | 36 | EPA 300.0 | 0.20 | 0.050 | | 04/06/12 21:45 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 1.7 | EPA 353.2 | 0.04 | 0.01 | | 03/15/12 10:27 | KTC |
| Phosphorous - Total as P | mg/L | 0.17 | SM 4500P-E | 0.040 | 0.010 | 03/16/12 15:59 | 03/20/12 12:20 | MMF |
| Total Alkalinity | mg/L | 43 | SM 2320B | 8.0 | 2.0 | | 03/22/12 10:37 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 1.5 | EPA 351.2 | 0.20 | 0.05 | 03/14/12 14:06 | 03/16/12 10:23 | MMF |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **C-HS2-D07-11** | | | | | | |
| Matrix | | **Groundwater** | | | | | | |
| SAL Sample Number | | **1201896-71** | | | | | | |
| Date/Time Collected | | **03/13/12 14:28** | | | | | | |
| Collected by | | **Sean Schmidt** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 5.7 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 14:28 | SAS |
| Water Temperature | °C | 22.2 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 14:28 | SAS |
| Specific conductance | umhos/cm | 134 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 14:28 | SAS |
| Dissolved Oxygen | mg/L | 0.2 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 14:28 | SAS |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.68 | EPA 350.1 | 0.040 | 0.009 | | 03/15/12 09:55 | MMF |
| Chemical Oxygen Demand | mg/L | 140 | EPA 410.4 | 25 | 10 | 03/19/12 08:00 | 03/20/12 08:43 | LAS |
| Chloride | mg/L | 33 | EPA 300.0 | 0.20 | 0.050 | | 04/06/12 21:45 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 0.29 | EPA 353.2 | 0.04 | 0.01 | | 03/15/12 10:29 | KTC |
| Phosphorous - Total as P | mg/L | 1.3 | SM 4500P-E | 0.040 | 0.010 | 03/16/12 15:59 | 03/20/12 12:21 | MMF |
| Total Alkalinity | mg/L | 5.4 I | SM 2320B | 8.0 | 2.0 | | 03/22/12 10:37 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 2.0 | EPA 351.2 | 0.20 | 0.05 | 03/14/12 14:06 | 03/16/12 10:24 | MMF |

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## Laboratory Report

**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 | | **1201896-72** | | | | | | |
| Date/Time Collected | | **03/13/12 15:15** | | | | | | |
| Collected by | | **Sean Harmon** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 7.5 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 15:15 | SDH |
| Water Temperature | °C | 20.4 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 15:15 | SDH |
| Specific conductance | umhos/cm | 224 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 15:15 | SDH |
| Dissolved Oxygen | mg/L | 3.9 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 15:15 | SDH |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.034 I | EPA 350.1 | 0.040 | 0.009 | | 03/15/12 09:57 | MMF |
| Chemical Oxygen Demand | mg/L | 10 U | EPA 410.4 | 25 | 10 | 03/19/12 08:00 | 03/20/12 08:43 | LAS |
| Chloride | mg/L | 5.6 | EPA 300.0 | 0.20 | 0.050 | | 04/06/12 21:45 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 0.02 I | EPA 353.2 | 0.04 | 0.01 | | 03/15/12 10:31 | KTC |
| Phosphorous - Total as P | mg/L | 0.054 | SM 4500P-E | 0.040 | 0.010 | 03/16/12 15:59 | 03/20/12 12:25 | MMF |
| Total Alkalinity | mg/L | 110 | SM 2320B | 8.0 | 2.0 | | 03/22/12 10:37 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 0.05 U | EPA 351.2 | 0.20 | 0.05 | 03/14/12 14:06 | 03/16/12 10:26 | MMF |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **FB-DI** | | | | | | |
| Matrix | | **Reagent Water** | | | | | | |
| SAL Sample Number | | **1201896-73** | | | | | | |
| Date/Time Collected | | **03/13/12 15:25** | | | | | | |
| Collected by | | **Sean Harmon** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 6.0 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 15:25 | SDH |
| Water Temperature | °C | 33.2 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 15:25 | SDH |
| Specific conductance | umhos/cm | 2 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 15:25 | SDH |
| Dissolved Oxygen | mg/L | 4.2 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 15:25 | SDH |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.009 U | EPA 350.1 | 0.040 | 0.009 | | 03/15/12 09:59 | MMF |
| Chemical Oxygen Demand | mg/L | 10 U | EPA 410.4 | 25 | 10 | 03/19/12 08:00 | 03/20/12 08:43 | LAS |
| Chloride | mg/L | 0.050 U | EPA 300.0 | 0.20 | 0.050 | | 04/06/12 21:45 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 0.01 U | EPA 353.2 | 0.04 | 0.01 | | 03/15/12 10:34 | KTC |
| Phosphorous - Total as P | mg/L | 0.010 U | SM 4500P-E | 0.040 | 0.010 | 03/16/12 15:59 | 03/20/12 13:35 | MMF |
| Total Alkalinity | mg/L | 2.0 U | SM 2320B | 8.0 | 2.0 | | 03/22/12 10:37 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 0.05 U | EPA 351.2 | 0.20 | 0.05 | 03/14/12 14:06 | 03/16/12 10:28 | MMF |

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

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**Tampa, FL 33619**

**April 13, 2012**
**Work Order: 1201896**
**Revised Report**

## Laboratory Report

**Project Name** **Seminole County C-HS2**

| Parameters | Units | Results * | Method | PQL | MDL | Prepared | Analyzed | By |
|---|---|---|---|---|---|---|---|---|
| Sample Description | | **EB** | | | | | | |
| Matrix | | **Reagent Water** | | | | | | |
| SAL Sample Number | | **1201896-74** | | | | | | |
| Date/Time Collected | | **03/13/12 15:20** | | | | | | |
| Collected by | | **Sean Harmon** | | | | | | |
| Date/Time Received | | **03/14/12 08:00** | | | | | | |
| **Field Parameters** | | | | | | | | |
| pH | SU | 6.0 | DEP FT1100 | 0.1 | 0.1 | | 03/13/12 15:20 | SDH |
| Water Temperature | °C | 33.2 | DEP FT1400 | 0.1 | 0.1 | | 03/13/12 15:20 | SDH |
| Specific conductance | umhos/cm | 2 | DEP FT1200 | 0.1 | 0.1 | | 03/13/12 15:20 | SDH |
| Dissolved Oxygen | mg/L | 4.2 | DEP FT1500 | 0.1 | 0.1 | | 03/13/12 15:20 | SDH |
| **Inorganics** | | | | | | | | |
| Ammonia as N | mg/L | 0.009 U | EPA 350.1 | 0.040 | 0.009 | | 03/15/12 10:01 | MMF |
| Chemical Oxygen Demand | mg/L | 10 U | EPA 410.4 | 25 | 10 | 03/19/12 08:00 | 03/20/12 08:43 | LAS |
| Chloride | mg/L | 0.050 U | EPA 300.0 | 0.20 | 0.050 | | 04/06/12 21:45 | MEJ |
| Nitrate+Nitrite (N) | mg/L | 0.01 U | EPA 353.2 | 0.04 | 0.01 | | 03/15/12 10:36 | KTC |
| Phosphorous - Total as P | mg/L | 0.010 U | SM 4500P-E | 0.040 | 0.010 | 03/16/12 15:59 | 03/20/12 12:27 | MMF |
| Total Alkalinity | mg/L | 2.0 U | SM 2320B | 8.0 | 2.0 | | 03/22/12 10:37 | MBC |
| Total Kjeldahl Nitrogen | mg/L | 0.05 U | EPA 351.2 | 0.20 | 0.05 | 03/14/12 14:06 | 03/16/12 10:29 | MMF |

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**Inorganics - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BC21423 - Nitrate 353.2 by seal** | | | | | | | | | | |
| **Blank (BC21423-BLK1)** | | | | | Prepared & Analyzed: 03/15/12 | | | | | |
| Nitrate+Nitrite (N) | 0.01 U | 0.04 | 0.01 | mg/L | | | | | | |
| **LCS (BC21423-BS1)** | | | | | Prepared & Analyzed: 03/15/12 | | | | | |
| Nitrate+Nitrite (N) | 0.744 | 0.04 | 0.01 | mg/L | 0.80 | | 93 | 90-110 | | |
| **Matrix Spike (BC21423-MS1)** | | **Source: 1202794-07** | | | Prepared & Analyzed: 03/15/12 | | | | | |
| Nitrate+Nitrite (N) | 1.28 | 0.04 | 0.01 | mg/L | 1.0 | 0.260 | 102 | 77-119 | | |
| **Matrix Spike Dup (BC21423-MSD1)** | | **Source: 1202794-07** | | | Prepared & Analyzed: 03/15/12 | | | | | |
| Nitrate+Nitrite (N) | 1.28 | 0.04 | 0.01 | mg/L | 1.0 | 0.260 | 102 | 77-119 | 0.2 | 20 |
| **Batch BC21424 - Nitrate 353.2 by seal** | | | | | | | | | | |
| **Blank (BC21424-BLK1)** | | | | | Prepared & Analyzed: 03/16/12 | | | | | |
| Nitrate+Nitrite (N) | 0.01 U | 0.04 | 0.01 | mg/L | | | | | | |
| **LCS (BC21424-BS1)** | | | | | Prepared & Analyzed: 03/15/12 | | | | | |
| Nitrate+Nitrite (N) | 0.803 | 0.04 | 0.01 | mg/L | 0.80 | | 100 | 90-110 | | |
| **Matrix Spike (BC21424-MS1)** | | **Source: 1201896-43** | | | Prepared & Analyzed: 03/15/12 | | | | | |
| Nitrate+Nitrite (N) | 0.925 | 0.04 | 0.01 | mg/L | 1.0 | 0.0200 | 91 | 77-119 | | |
| **Matrix Spike Dup (BC21424-MSD1)** | | **Source: 1201896-43** | | | Prepared & Analyzed: 03/15/12 | | | | | |
| Nitrate+Nitrite (N) | 0.889 | 0.04 | 0.01 | mg/L | 1.0 | 0.0200 | 87 | 77-119 | 4 | 20 |
| **Batch BC21425 - TSS prep** | | | | | | | | | | |
| **Blank (BC21425-BLK1)** | | | | | Prepared: 03/14/12 Analyzed: 03/15/12 | | | | | |
| Total Suspended Solids | 1 U | 1 | 1 | mg/L | | | | | | |

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| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BC21425 - TSS prep** | | | | | | | | | | |
| **LCS (BC21425-BS1)** | | | | | Prepared: 03/14/12 Analyzed: 03/15/12 | | | | | |
| Total Suspended Solids | 54.5 | 1 | 1 | mg/L | 50 | | 109 | 85-115 | | |
| **Duplicate (BC21425-DUP1)** | | **Source: 1202702-01** | | | Prepared: 03/14/12 Analyzed: 03/15/12 | | | | | |
| Total Suspended Solids | 231 | 1 | 1 | mg/L | | 251 | | | 8 | 30 |
| **Duplicate (BC21425-DUP2)** | | **Source: 1202794-01** | | | Prepared: 03/14/12 Analyzed: 03/15/12 | | | | | |
| Total Suspended Solids | 177 | 1 | 1 | mg/L | | 168 | | | 5 | 30 |
| **Batch BC21426 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Blank (BC21426-BLK1)** | | | | | Prepared & Analyzed: 03/14/12 | | | | | |
| Orthophosphate as P | 0.010 U | 0.040 | 0.010 | mg/L | | | | | | |
| Sulfate | 0.20 U | 0.60 | 0.20 | mg/L | | | | | | |
| Chloride | 0.050 U | 0.20 | 0.050 | mg/L | | | | | | |
| Nitrite (as N) | 0.01 U | 0.04 | 0.01 | mg/L | | | | | | |
| Nitrate (as N) | 0.01 U | 0.04 | 0.01 | mg/L | | | | | | |
| Fluoride | 0.010 U | 0.040 | 0.010 | mg/L | | | | | | |
| **LCS (BC21426-BS1)** | | | | | Prepared & Analyzed: 03/14/12 | | | | | |
| Fluoride | 0.888 | 0.040 | 0.010 | mg/L | 0.90 | | 99 | 85-115 | | |
| Chloride | 3.00 | 0.20 | 0.050 | mg/L | 3.0 | | 100 | 85-115 | | |
| Orthophosphate as P | 0.860 | 0.040 | 0.010 | mg/L | 0.90 | | 96 | 85-115 | | |
| Nitrite (as N) | 1.38 | 0.04 | 0.01 | mg/L | 1.4 | | 99 | 85-115 | | |
| Nitrate (as N) | 1.65 | 0.04 | 0.01 | mg/L | 1.7 | | 97 | 85-115 | | |
| Sulfate | 8.56 | 0.60 | 0.20 | mg/L | 9.0 | | 95 | 85-115 | | |
| **LCS Dup (BC21426-BSD1)** | | | | | Prepared & Analyzed: 03/14/12 | | | | | |
| Nitrite (as N) | 1.39 | 0.04 | 0.01 | mg/L | 1.4 | | 99 | 85-115 | 0.7 | 200 |
| Chloride | 3.03 | 0.20 | 0.050 | mg/L | 3.0 | | 101 | 85-115 | 1 | 200 |
| Nitrate (as N) | 1.66 | 0.04 | 0.01 | mg/L | 1.7 | | 98 | 85-115 | 0.6 | 200 |
| Sulfate | 8.70 | 0.60 | 0.20 | mg/L | 9.0 | | 97 | 85-115 | 2 | 200 |
| Fluoride | 0.886 | 0.040 | 0.010 | mg/L | 0.90 | | 98 | 85-115 | 0.2 | 200 |
| Orthophosphate as P | 0.866 | 0.040 | 0.010 | mg/L | 0.90 | | 96 | 85-115 | 0.7 | 200 |

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|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BC21426 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Matrix Spike (BC21426-MS1)** | | **Source: 1201896-36** | | | Prepared & Analyzed: 03/14/12 | | | | | |
| Nitrate (as N) | 11.6 | 0.04 | 0.01 | mg/L | 1.7 | 9.77 | 108 | 85-115 | | |
| Orthophosphate as P | 1.93 | 0.040 | 0.010 | mg/L | 0.90 | 0.953 | 109 | 85-115 | | |
| Fluoride | 0.883 | 0.040 | 0.010 | mg/L | 0.90 | 0.0362 | 94 | 85-115 | | |
| Chloride | 31.7 | 0.20 | 0.050 | mg/L | 3.0 | 28.3 | 113 | 80-120 | | |
| Nitrite (as N) | 1.44 | 0.04 | 0.01 | mg/L | 1.4 | 0.0689 | 98 | 85-115 | | |
| Sulfate | 49.2 | 0.60 | 0.20 | mg/L | 9.0 | 40.5 | 97 | 85-115 | | |
| **Matrix Spike (BC21426-MS2)** | | **Source: 1202814-01** | | | Prepared & Analyzed: 03/14/12 | | | | | |
| Fluoride | 0.863 | 0.040 | 0.010 | mg/L | 0.90 | 0.0278 | 93 | 85-115 | | |
| Nitrite (as N) | 1.27 | 0.04 | 0.01 | mg/L | 1.4 | ND | 91 | 85-115 | | |
| Nitrate (as N) | 1.65 | 0.04 | 0.01 | mg/L | 1.7 | ND | 97 | 85-115 | | |
| Sulfate | 55.7 | 0.60 | 0.20 | mg/L | 9.0 | 46.1 | 107 | 85-115 | | |
| Orthophosphate as P | 1.25 | 0.040 | 0.010 | mg/L | 0.90 | 0.391 | 95 | 85-115 | | |
| Chloride | 43.3 +O | 0.20 | 0.050 | mg/L | 3.0 | 199 | NR | 80-120 | | |
| **Batch BC21432 - Digestion for TKN by EPA 351.2** | | | | | | | | | | |
| **Blank (BC21432-BLK1)** | | | | | Prepared: 03/14/12 Analyzed: 03/16/12 | | | | | |
| Total Kjeldahl Nitrogen | 0.05 U | 0.20 | 0.05 | mg/L | | | | | | |
| **LCS (BC21432-BS1)** | | | | | Prepared: 03/14/12 Analyzed: 03/16/12 | | | | | |
| Total Kjeldahl Nitrogen | 2.42 | 0.20 | 0.05 | mg/L | 2.5 | | 95 | 90-110 | | |
| **Matrix Spike (BC21432-MS1)** | | **Source: 1202141-01** | | | Prepared: 03/14/12 Analyzed: 03/16/12 | | | | | |
| Total Kjeldahl Nitrogen | 2.77 | 0.20 | 0.05 | mg/L | 2.5 | ND | 110 | 80-120 | | |
| **Matrix Spike Dup (BC21432-MSD1)** | | **Source: 1202141-01** | | | Prepared: 03/14/12 Analyzed: 03/16/12 | | | | | |
| Total Kjeldahl Nitrogen | 2.68 | 0.20 | 0.05 | mg/L | 2.5 | ND | 106 | 80-120 | 4 | 20 |

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| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BC21433 - Digestion for TKN by EPA 351.2** | | | | | | | | | | |
| **Blank (BC21433-BLK1)** | | | | | Prepared: 03/14/12 Analyzed: 03/16/12 | | | | | |
| Total Kjeldahl Nitrogen | 0.05 U | 0.20 | 0.05 | mg/L | | | | | | |
| **LCS (BC21433-BS1)** | | | | | Prepared: 03/14/12 Analyzed: 03/16/12 | | | | | |
| Total Kjeldahl Nitrogen | 2.47 | 0.20 | 0.05 | mg/L | 2.5 | | 98 | 90-110 | | |
| **Matrix Spike (BC21433-MS1)** | | **Source: 1201896-60** | | | Prepared: 03/14/12 Analyzed: 03/16/12 | | | | | |
| Total Kjeldahl Nitrogen | 4.17 | 0.20 | 0.05 | mg/L | 2.5 | 1.70 | 97 | 80-120 | | |
| **Matrix Spike Dup (BC21433-MSD1)** | | **Source: 1201896-60** | | | Prepared: 03/14/12 Analyzed: 03/16/12 | | | | | |
| Total Kjeldahl Nitrogen | 4.44 | 0.20 | 0.05 | mg/L | 2.5 | 1.70 | 108 | 80-120 | 6 | 20 |
| **Batch BC21434 - Digestion for TKN by EPA 351.2** | | | | | | | | | | |
| **Blank (BC21434-BLK1)** | | | | | Prepared: 03/14/12 Analyzed: 03/16/12 | | | | | |
| Total Kjeldahl Nitrogen | 0.05 U | 0.20 | 0.05 | mg/L | | | | | | |
| **LCS (BC21434-BS1)** | | | | | Prepared: 03/14/12 Analyzed: 03/16/12 | | | | | |
| Total Kjeldahl Nitrogen | 2.69 | 0.20 | 0.05 | mg/L | 2.5 | | 106 | 90-110 | | |
| **Matrix Spike (BC21434-MS1)** | | **Source: 1201896-30** | | | Prepared: 03/14/12 Analyzed: 03/16/12 | | | | | |
| Total Kjeldahl Nitrogen | 4.47 | 0.20 | 0.05 | mg/L | 2.5 | 1.48 | 118 | 80-120 | | |
| **Matrix Spike Dup (BC21434-MSD1)** | | **Source: 1201896-30** | | | Prepared: 03/14/12 Analyzed: 03/16/12 | | | | | |
| Total Kjeldahl Nitrogen | 4.10 | 0.20 | 0.05 | mg/L | 2.5 | 1.48 | 103 | 80-120 | 9 | 20 |
| **Batch BC21439 - Ammonia by SEAL** | | | | | | | | | | |
| **Blank (BC21439-BLK1)** | | | | | Prepared & Analyzed: 03/15/12 | | | | | |
| Ammonia as N | 0.009 U | 0.040 | 0.009 | mg/L | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BC21439 - Ammonia by SEAL** | | | | | | | | | | |
| **LCS (BC21439-BS1)** | | | | | Prepared & Analyzed: 03/15/12 | | | | | |
| Ammonia as N | 0.50 | 0.040 | 0.009 | mg/L | 0.50 | | 99 | 90-110 | | |
| **Matrix Spike (BC21439-MS1)** | | **Source: 1202794-07** | | | Prepared & Analyzed: 03/15/12 | | | | | |
| Ammonia as N | 0.50 | 0.040 | 0.009 | mg/L | 0.50 | 0.028 | 95 | 90-110 | | |
| **Matrix Spike Dup (BC21439-MSD1)** | | **Source: 1202794-07** | | | Prepared & Analyzed: 03/15/12 | | | | | |
| Ammonia as N | 0.53 | 0.040 | 0.009 | mg/L | 0.50 | 0.028 | 100 | 90-110 | 5 | 10 |
| **Batch BC21444 - BOD** | | | | | | | | | | |
| **Blank (BC21444-BLK1)** | | | | | Prepared: 03/14/12 Analyzed: 03/19/12 | | | | | |
| Carbonaceous BOD | 2 U | 2 | 2 | mg/L | | | | | | |
| **LCS (BC21444-BS1)** | | | | | Prepared: 03/14/12 Analyzed: 03/19/12 | | | | | |
| Carbonaceous BOD | 202 | 2 | 2 | mg/L | 200 | | 101 | 85-115 | | |
| **LCS Dup (BC21444-BSD1)** | | | | | Prepared: 03/14/12 Analyzed: 03/19/12 | | | | | |
| Carbonaceous BOD | 219 | 2 | 2 | mg/L | 200 | | 110 | 85-115 | 8 | 200 |
| **Duplicate (BC21444-DUP1)** | | **Source: 1202702-01** | | | Prepared: 03/14/12 Analyzed: 03/19/12 | | | | | |
| Carbonaceous BOD | 270 | 2 | 2 | mg/L | | 290 | | | 8 | 25 |
| **Batch BC21508 - Digestion for TP by EPA 365.2/SM4500PE** | | | | | | | | | | |
| **Blank (BC21508-BLK1)** | | | | | Prepared: 03/15/12 Analyzed: 03/16/12 | | | | | |
| Phosphorous - Total as P | 0.010 U | 0.040 | 0.010 | mg/L | | | | | | |

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| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BC21508 - Digestion for TP by EPA 365.2/SM4500PE** | | | | | | | | | | |
| **LCS (BC21508-BS1)** | | | | | Prepared: 03/15/12 Analyzed: 03/16/12 | | | | | |
| Phosphorous - Total as P | 0.770 | 0.040 | 0.010 | mg/L | 0.80 | | 96 | 90-110 | | |
| **Matrix Spike (BC21508-MS1)** | | **Source: 1201896-03** | | | Prepared: 03/15/12 Analyzed: 03/16/12 | | | | | |
| Phosphorous - Total as P | 1.05 | 0.040 | 0.010 | mg/L | 1.0 | 0.0429 | 101 | 75-125 | | |
| **Matrix Spike Dup (BC21508-MSD1)** | | **Source: 1201896-03** | | | Prepared: 03/15/12 Analyzed: 03/16/12 | | | | | |
| Phosphorous - Total as P | 1.09 | 0.040 | 0.010 | mg/L | 1.0 | 0.0429 | 105 | 75-125 | 3 | 25 |
| **Batch BC21509 - Digestion for TP by EPA 365.2/SM4500PE** | | | | | | | | | | |
| **Blank (BC21509-BLK1)** | | | | | Prepared: 03/15/12 Analyzed: 03/16/12 | | | | | |
| Phosphorous - Total as P | 0.010 U | 0.040 | 0.010 | mg/L | | | | | | |
| **LCS (BC21509-BS1)** | | | | | Prepared: 03/15/12 Analyzed: 03/16/12 | | | | | |
| Phosphorous - Total as P | 0.736 | 0.040 | 0.010 | mg/L | 0.80 | | 92 | 90-110 | | |
| **Matrix Spike (BC21509-MS1)** | | **Source: 1201896-21** | | | Prepared: 03/15/12 Analyzed: 03/16/12 | | | | | |
| Phosphorous - Total as P | 1.73 | 0.040 | 0.010 | mg/L | 1.0 | 0.832 | 90 | 75-125 | | |
| **Matrix Spike Dup (BC21509-MSD1)** | | **Source: 1201896-21** | | | Prepared: 03/15/12 Analyzed: 03/16/12 | | | | | |
| Phosphorous - Total as P | 1.67 | 0.040 | 0.010 | mg/L | 1.0 | 0.832 | 83 | 75-125 | 4 | 25 |
| **Batch BC21511 - Digestion for TP by EPA 365.2/SM4500PE** | | | | | | | | | | |
| **Blank (BC21511-BLK1)** | | | | | Prepared: 03/15/12 Analyzed: 03/16/12 | | | | | |
| Phosphorous - Total as P | 0.010 U | 0.040 | 0.010 | mg/L | | | | | | |

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| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BC21511 - Digestion for TP by EPA 365.2/SM4500PE** | | | | | | | | | | |
| **LCS (BC21511-BS1)** | | | | | Prepared: 03/15/12 Analyzed: 03/16/12 | | | | | |
| Phosphorous - Total as P | 0.772 | 0.040 | 0.010 | mg/L | 0.80 | | 97 | 90-110 | | |
| **Matrix Spike (BC21511-MS1)** | | **Source: 1201896-41** | | | Prepared: 03/15/12 Analyzed: 03/16/12 | | | | | |
| Phosphorous - Total as P | 1.07 | 0.040 | 0.010 | mg/L | 1.0 | 0.0883 | 98 | 75-125 | | |
| **Matrix Spike Dup (BC21511-MSD1)** | | **Source: 1201896-41** | | | Prepared: 03/15/12 Analyzed: 03/16/12 | | | | | |
| Phosphorous - Total as P | 1.02 | 0.040 | 0.010 | mg/L | 1.0 | 0.0883 | 93 | 75-125 | 4 | 25 |
| **Batch BC21515 - Ammonia by SEAL** | | | | | | | | | | |
| **Blank (BC21515-BLK1)** | | | | | Prepared & Analyzed: 03/15/12 | | | | | |
| Ammonia as N | 0.009 U | 0.040 | 0.009 | mg/L | | | | | | |
| **Blank (BC21515-BLK2)** | | | | | Prepared & Analyzed: 03/15/12 | | | | | |
| Ammonia as N | 0.009 U | 0.040 | 0.009 | mg/L | | | | | | |
| **LCS (BC21515-BS1)** | | | | | Prepared & Analyzed: 03/15/12 | | | | | |
| Ammonia as N | 0.49 | 0.040 | 0.009 | mg/L | 0.50 | | 97 | 90-110 | | |
| **LCS (BC21515-BS2)** | | | | | Prepared & Analyzed: 03/15/12 | | | | | |
| Ammonia as N | 0.48 | 0.040 | 0.009 | mg/L | 0.50 | | 96 | 90-110 | | |
| **Matrix Spike (BC21515-MS1)** | | **Source: 1201896-22** | | | Prepared & Analyzed: 03/15/12 | | | | | |
| Ammonia as N | 0.84 | 0.040 | 0.009 | mg/L | 0.50 | 0.36 | 95 | 90-110 | | |
| **Matrix Spike (BC21515-MS2)** | | **Source: 1201896-42** | | | Prepared & Analyzed: 03/15/12 | | | | | |
| Ammonia as N | 0.78 | 0.040 | 0.009 | mg/L | 0.50 | 0.32 | 92 | 90-110 | | |

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|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BC21515 - Ammonia by SEAL** | | | | | | | | | | |
| **Matrix Spike Dup (BC21515-MSD1)** | | **Source: 1201896-22** | | | Prepared & Analyzed: 03/15/12 | | | | | |
| Ammonia as N | 0.83 | 0.040 | 0.009 | mg/L | 0.50 | 0.36 | 93 | 90-110 | 1 | 10 |
| **Matrix Spike Dup (BC21515-MSD2)** | | **Source: 1201896-42** | | | Prepared & Analyzed: 03/15/12 | | | | | |
| Ammonia as N | 0.82 | 0.040 | 0.009 | mg/L | 0.50 | 0.32 | 99 | 90-110 | 5 | 10 |
| **Batch BC21525 - Nitrate 353.2 by seal** | | | | | | | | | | |
| **Blank (BC21525-BLK1)** | | | | | Prepared & Analyzed: 03/15/12 | | | | | |
| Nitrate+Nitrite (N) | 0.01 U | 0.04 | 0.01 | mg/L | | | | | | |
| **LCS (BC21525-BS1)** | | | | | Prepared & Analyzed: 03/15/12 | | | | | |
| Nitrate+Nitrite (N) | 0.781 | 0.04 | 0.01 | mg/L | 0.80 | | 98 | 90-110 | | |
| **Matrix Spike (BC21525-MS1)** | | **Source: 1201896-41** | | | Prepared & Analyzed: 03/15/12 | | | | | |
| Nitrate+Nitrite (N) | 0.823 | 0.04 | 0.01 | mg/L | 1.0 | 0.0458 | 78 | 77-119 | | |
| **Matrix Spike Dup (BC21525-MSD1)** | | **Source: 1201896-41** | | | Prepared & Analyzed: 03/15/12 | | | | | |
| Nitrate+Nitrite (N) | 0.870 | 0.04 | 0.01 | mg/L | 1.0 | 0.0458 | 82 | 77-119 | 6 | 20 |
| **Batch BC21528 - alkalinity** | | | | | | | | | | |
| **Blank (BC21528-BLK1)** | | | | | Prepared & Analyzed: 03/15/12 | | | | | |
| Total Alkalinity | 2.0 U | 8.0 | 2.0 | mg/L | | | | | | |
| **LCS (BC21528-BS1)** | | | | | Prepared & Analyzed: 03/15/12 | | | | | |
| 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 BC21528 - alkalinity** | | | | | | | | | | |
| **Matrix Spike (BC21528-MS1)** | | **Source: 1201896-02** | | | Prepared & Analyzed: 03/15/12 | | | | | |
| Total Alkalinity | 560 | 8.0 | 2.0 | mg/L | 120 | 440 | 95 | 80-120 | | |
| **Matrix Spike Dup (BC21528-MSD1)** | | **Source: 1201896-02** | | | Prepared & Analyzed: 03/15/12 | | | | | |
| Total Alkalinity | 560 | 8.0 | 2.0 | mg/L | 120 | 440 | 95 | 80-120 | 0 | 26 |
| **Batch BC21536 - Digestion for TKN by EPA 351.2** | | | | | | | | | | |
| **Blank (BC21536-BLK1)** | | | | | Prepared: 03/15/12 Analyzed: 03/19/12 | | | | | |
| Total Kjeldahl Nitrogen | 0.05 U | 0.20 | 0.05 | mg/L | | | | | | |
| **LCS (BC21536-BS1)** | | | | | Prepared: 03/15/12 Analyzed: 03/19/12 | | | | | |
| Total Kjeldahl Nitrogen | 2.74 | 0.20 | 0.05 | mg/L | 2.5 | | 108 | 90-110 | | |
| **Matrix Spike (BC21536-MS1)** | | **Source: 1202706-02** | | | Prepared: 03/15/12 Analyzed: 03/19/12 | | | | | |
| Total Kjeldahl Nitrogen | 3.81 | 0.20 | 0.05 | mg/L | 2.5 | 1.26 | 101 | 80-120 | | |
| **Matrix Spike Dup (BC21536-MSD1)** | | **Source: 1202706-02** | | | Prepared: 03/15/12 Analyzed: 03/19/12 | | | | | |
| Total Kjeldahl Nitrogen | 3.76 | 0.20 | 0.05 | mg/L | 2.5 | 1.26 | 99 | 80-120 | 1 | 20 |
| **Batch BC21538 - Digestion for TKN by EPA 351.2** | | | | | | | | | | |
| **Blank (BC21538-BLK1)** | | | | | Prepared: 03/15/12 Analyzed: 03/19/12 | | | | | |
| Total Kjeldahl Nitrogen | 0.05 U | 0.20 | 0.05 | mg/L | | | | | | |
| **Blank (BC21538-BLK2)** | | | | | Prepared: 03/15/12 Analyzed: 03/19/12 | | | | | |
| Total Kjeldahl Nitrogen | 0.05 U | 0.20 | 0.05 | mg/L | | | | | | |

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| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BC21538 - Digestion for TKN by EPA 351.2** | | | | | | | | | | |
| **LCS (BC21538-BS1)** | | | | | Prepared: 03/15/12 | Analyzed: 03/19/12 | | | | |
| Total Kjeldahl Nitrogen | 2.44 | 0.20 | 0.05 | mg/L | 2.5 | | 96 | 90-110 | | |
| **LCS (BC21538-BS2)** | | | | | Prepared: 03/15/12 | Analyzed: 03/19/12 | | | | |
| Total Kjeldahl Nitrogen | 2.44 | 0.20 | 0.05 | mg/L | 2.5 | | 96 | 90-110 | | |
| **Matrix Spike (BC21538-MS1)** | | **Source: 1201334-03** | | | Prepared: 03/15/12 | Analyzed: 03/19/12 | | | | |
| Total Kjeldahl Nitrogen | 2.71 | 0.20 | 0.05 | mg/L | 2.5 | ND | 107 | 80-120 | | |
| **Matrix Spike (BC21538-MS2)** | | **Source: 1202855-07** | | | Prepared: 03/15/12 | Analyzed: 03/19/12 | | | | |
| Total Kjeldahl Nitrogen | 3.43 | 0.20 | 0.05 | mg/L | 2.5 | 0.521 | 115 | 80-120 | | |
| **Matrix Spike Dup (BC21538-MSD1)** | | **Source: 1201334-03** | | | Prepared: 03/15/12 | Analyzed: 03/19/12 | | | | |
| Total Kjeldahl Nitrogen | 2.91 | 0.20 | 0.05 | mg/L | 2.5 | ND | 115 | 80-120 | 7 | 20 |
| **Matrix Spike Dup (BC21538-MSD2)** | | **Source: 1202855-07** | | | Prepared: 03/15/12 | Analyzed: 03/19/12 | | | | |
| Total Kjeldahl Nitrogen | 3.40 | 0.20 | 0.05 | mg/L | 2.5 | 0.521 | 114 | 80-120 | 0.7 | 20 |
| **Batch BC21541 - COD prep** | | | | | | | | | | |
| **Blank (BC21541-BLK1)** | | | | | Prepared & Analyzed: 03/15/12 | | | | | |
| Chemical Oxygen Demand | 10 U | 25 | 10 | mg/L | | | | | | |
| **LCS (BC21541-BS1)** | | | | | Prepared & Analyzed: 03/15/12 | | | | | |
| Chemical Oxygen Demand | 53 | 25 | 10 | mg/L | 50 | | 106 | 90-110 | | |
| **Matrix Spike (BC21541-MS1)** | | **Source: 1201896-03** | | | Prepared & Analyzed: 03/15/12 | | | | | |
| Chemical Oxygen Demand | 94 | 25 | 10 | mg/L | 50 | 44 | 100 | 85-115 | | |

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| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BC21541 - COD prep** | | | | | | | | | | |
| **Matrix Spike Dup (BC21541-MSD1)** | | **Source: 1201896-03** | | | Prepared & Analyzed: 03/15/12 | | | | | |
| Chemical Oxygen Demand | 96 | 25 | 10 | mg/L | 50 | 44 | 104 | 85-115 | 2 | 32 |
| **Batch BC21542 - COD prep** | | | | | | | | | | |
| **Blank (BC21542-BLK1)** | | | | | Prepared & Analyzed: 03/15/12 | | | | | |
| Chemical Oxygen Demand | 10 U | 25 | 10 | mg/L | | | | | | |
| **LCS (BC21542-BS1)** | | | | | Prepared & Analyzed: 03/15/12 | | | | | |
| Chemical Oxygen Demand | 48 | 25 | 10 | mg/L | 50 | | 96 | 90-110 | | |
| **Matrix Spike (BC21542-MS1)** | | **Source: 1201896-17** | | | Prepared & Analyzed: 03/15/12 | | | | | |
| Chemical Oxygen Demand | 110 | 25 | 10 | mg/L | 50 | 61 | 98 | 85-115 | | |
| **Matrix Spike Dup (BC21542-MSD1)** | | **Source: 1201896-17** | | | Prepared & Analyzed: 03/15/12 | | | | | |
| Chemical Oxygen Demand | 110 | 25 | 10 | mg/L | 50 | 61 | 94 | 85-115 | 2 | 32 |
| **Batch BC21620 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Blank (BC21620-BLK1)** | | | | | Prepared & Analyzed: 03/17/12 | | | | | |
| Chloride | 0.050 U | 0.20 | 0.050 | mg/L | | | | | | |
| **LCS (BC21620-BS1)** | | | | | Prepared & Analyzed: 03/17/12 | | | | | |
| Chloride | 3.11 | 0.20 | 0.050 | mg/L | 3.0 | | 104 | 85-115 | | |
| **LCS Dup (BC21620-BSD1)** | | | | | Prepared & Analyzed: 03/17/12 | | | | | |
| Chloride | 3.16 | 0.20 | 0.050 | mg/L | 3.0 | | 105 | 85-115 | 2 | 200 |

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| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BC21620 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Matrix Spike (BC21620-MS1)** | | **Source: 1202785-03** | | | Prepared & Analyzed: 03/17/12 | | | | | |
| Chloride | 384 | 0.20 | 0.050 | mg/L | 60 | 328 | 93 | 80-120 | | |
| **Matrix Spike (BC21620-MS2)** | | **Source: 1202809-01** | | | Prepared & Analyzed: 03/17/12 | | | | | |
| Chloride | 895 | 0.20 | 0.050 | mg/L | 300 | 562 | 111 | 80-120 | | |
| **Batch BC21644 - Digestion for TP by EPA 365.2/SM4500PE** | | | | | | | | | | |
| **Blank (BC21644-BLK1)** | | | | | Prepared: 03/16/12 Analyzed: 03/20/12 | | | | | |
| Phosphorous - Total as P | 0.010 U | 0.040 | 0.010 | mg/L | | | | | | |
| **LCS (BC21644-BS1)** | | | | | Prepared: 03/16/12 Analyzed: 03/20/12 | | | | | |
| Phosphorous - Total as P | 0.787 | 0.040 | 0.010 | mg/L | 0.80 | | 98 | 90-110 | | |
| **Matrix Spike (BC21644-MS1)** | | **Source: 1202855-07** | | | Prepared: 03/16/12 Analyzed: 03/20/12 | | | | | |
| Phosphorous - Total as P | 1.03 | 0.040 | 0.010 | mg/L | 1.0 | 0.0625 | 97 | 75-125 | | |
| **Matrix Spike Dup (BC21644-MSD1)** | | **Source: 1202855-07** | | | Prepared: 03/16/12 Analyzed: 03/20/12 | | | | | |
| Phosphorous - Total as P | 1.22 | 0.040 | 0.010 | mg/L | 1.0 | 0.0625 | 116 | 75-125 | 17 | 25 |
| **Batch BC21904 - Ammonia by SEAL** | | | | | | | | | | |
| **Blank (BC21904-BLK1)** | | | | | Prepared & Analyzed: 03/19/12 | | | | | |
| Ammonia as N | 0.009 U | 0.040 | 0.009 | mg/L | | | | | | |
| **LCS (BC21904-BS1)** | | | | | Prepared & Analyzed: 03/19/12 | | | | | |
| Ammonia as N | 0.51 | 0.040 | 0.009 | mg/L | 0.50 | | 103 | 90-110 | | |

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| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BC21904 - Ammonia by SEAL** | | | | | | | | | | |
| **Matrix Spike (BC21904-MS1)** | | **Source: 1202808-02** | | | Prepared & Analyzed: 03/19/12 | | | | | |
| Ammonia as N | 0.72 | 0.040 | 0.009 | mg/L | 0.50 | 0.20 | 105 | 90-110 | | |
| **Matrix Spike Dup (BC21904-MSD1)** | | **Source: 1202808-02** | | | Prepared & Analyzed: 03/19/12 | | | | | |
| Ammonia as N | 0.72 | 0.040 | 0.009 | mg/L | 0.50 | 0.20 | 105 | 90-110 | 0.2 | 10 |
| **Batch BC21908 - Nitrate 353.2 by seal** | | | | | | | | | | |
| **Blank (BC21908-BLK1)** | | | | | Prepared & Analyzed: 03/19/12 | | | | | |
| Nitrate+Nitrite (N) | 0.01 U | 0.04 | 0.01 | mg/L | | | | | | |
| **Blank (BC21908-BLK2)** | | | | | Prepared & Analyzed: 03/19/12 | | | | | |
| Nitrate+Nitrite (N) | 0.01 U | 0.04 | 0.01 | mg/L | | | | | | |
| **LCS (BC21908-BS1)** | | | | | Prepared & Analyzed: 03/19/12 | | | | | |
| Nitrate+Nitrite (N) | 0.726 | 0.04 | 0.01 | mg/L | 0.80 | | 91 | 90-110 | | |
| **LCS (BC21908-BS2)** | | | | | Prepared & Analyzed: 03/19/12 | | | | | |
| Nitrate+Nitrite (N) | 0.738 | 0.04 | 0.01 | mg/L | 0.80 | | 92 | 90-110 | | |
| **Matrix Spike (BC21908-MS1)** | | **Source: 1202808-01** | | | Prepared & Analyzed: 03/19/12 | | | | | |
| Nitrate+Nitrite (N) | 0.872 | 0.04 | 0.01 | mg/L | 1.0 | ND | 87 | 77-119 | | |
| **Matrix Spike (BC21908-MS2)** | | **Source: 1202808-02** | | | Prepared & Analyzed: 03/19/12 | | | | | |
| Nitrate+Nitrite (N) | 0.871 | 0.04 | 0.01 | mg/L | 1.0 | ND | 87 | 77-119 | | |
| **Matrix Spike Dup (BC21908-MSD1)** | | **Source: 1202808-01** | | | Prepared & Analyzed: 03/19/12 | | | | | |
| Nitrate+Nitrite (N) | 0.830 | 0.04 | 0.01 | mg/L | 1.0 | ND | 83 | 77-119 | 5 | 20 |

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|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BC21908 - Nitrate 353.2 by seal** | | | | | | | | | | |
| **Matrix Spike Dup (BC21908-MSD2)** | | **Source: 1202808-02** | | | Prepared & Analyzed: 03/19/12 | | | | | |
| Nitrate+Nitrite (N) | 0.876 | 0.04 | 0.01 | mg/L | 1.0 | ND | 88 | 77-119 | 0.6 | 20 |
| **Batch BC21912 - Ammonia by SEAL** | | | | | | | | | | |
| **Blank (BC21912-BLK1)** | | | | | Prepared & Analyzed: 03/20/12 | | | | | |
| Ammonia as N | 0.009 U | 0.040 | 0.009 | mg/L | | | | | | |
| **LCS (BC21912-BS1)** | | | | | Prepared & Analyzed: 03/20/12 | | | | | |
| Ammonia as N | 0.50 | 0.040 | 0.009 | mg/L | 0.50 | | 99 | 90-110 | | |
| **Matrix Spike (BC21912-MS1)** | | **Source: 1202321-01** | | | Prepared & Analyzed: 03/20/12 | | | | | |
| Ammonia as N | 0.53 | 0.040 | 0.009 | mg/L | 0.50 | 0.032 | 101 | 90-110 | | |
| **Matrix Spike Dup (BC21912-MSD1)** | | **Source: 1202321-01** | | | Prepared & Analyzed: 03/20/12 | | | | | |
| Ammonia as N | 0.53 | 0.040 | 0.009 | mg/L | 0.50 | 0.032 | 100 | 90-110 | 0.4 | 10 |
| **Batch BC21919 - COD prep** | | | | | | | | | | |
| **Blank (BC21919-BLK1)** | | | | | Prepared: 03/16/12 Analyzed: 03/19/12 | | | | | |
| Chemical Oxygen Demand | 10 U | 25 | 10 | mg/L | | | | | | |
| **LCS (BC21919-BS1)** | | | | | Prepared: 03/16/12 Analyzed: 03/19/12 | | | | | |
| Chemical Oxygen Demand | 53 | 25 | 10 | mg/L | 50 | | 106 | 90-110 | | |
| **Matrix Spike (BC21919-MS1)** | | **Source: 1201896-40** | | | Prepared: 03/16/12 Analyzed: 03/19/12 | | | | | |
| Chemical Oxygen Demand | 88 | 25 | 10 | mg/L | 50 | 40 | 96 | 85-115 | | |

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| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BC21919 - COD prep** | | | | | | | | | | |
| **Matrix Spike Dup (BC21919-MSD1)** | | **Source: 1201896-40** | | | Prepared: 03/16/12 | Analyzed: 03/19/12 | | | | |
| Chemical Oxygen Demand | 90 | 25 | 10 | mg/L | 50 | 40 | 100 | 85-115 | 2 | 32 |
| **Batch BC21920 - COD prep** | | | | | | | | | | |
| **Blank (BC21920-BLK1)** | | | | | Prepared: 03/16/12 | Analyzed: 03/19/12 | | | | |
| Chemical Oxygen Demand | 10 U | 25 | 10 | mg/L | | | | | | |
| **LCS (BC21920-BS1)** | | | | | Prepared: 03/16/12 | Analyzed: 03/19/12 | | | | |
| Chemical Oxygen Demand | 50 | 25 | 10 | mg/L | 50 | | 100 | 90-110 | | |
| **Matrix Spike (BC21920-MS1)** | | **Source: 1201896-57** | | | Prepared: 03/16/12 | Analyzed: 03/19/12 | | | | |
| Chemical Oxygen Demand | 110 | 25 | 10 | mg/L | 50 | 61 | 98 | 85-115 | | |
| **Matrix Spike Dup (BC21920-MSD1)** | | **Source: 1201896-57** | | | Prepared: 03/16/12 | Analyzed: 03/19/12 | | | | |
| Chemical Oxygen Demand | 110 | 25 | 10 | mg/L | 50 | 61 | 98 | 85-115 | 0 | 32 |
| **Batch BC21923 - TS prep** | | | | | | | | | | |
| **Blank (BC21923-BLK1)** | | | | | Prepared: 03/16/12 | Analyzed: 03/19/12 | | | | |
| Total Solids | 10 U | 10 | 10 | mg/L | | | | | | |
| **Duplicate (BC21923-DUP1)** | | **Source: 1201896-02** | | | Prepared: 03/16/12 | Analyzed: 03/19/12 | | | | |
| Total Solids | 523 | 10 | 10 | mg/L | | 520 | | | 0.6 | 20 |
| **Batch BC21926 - COD prep** | | | | | | | | | | |
| **Blank (BC21926-BLK1)** | | | | | Prepared: 03/19/12 | Analyzed: 03/20/12 | | | | |
| Chemical Oxygen Demand | 10 U | 25 | 10 | mg/L | | | | | | |

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| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BC21926 - COD prep** | | | | | | | | | | |
| **LCS (BC21926-BS1)** | | | | | Prepared: 03/19/12 Analyzed: 03/20/12 | | | | | |
| Chemical Oxygen Demand | 46 | 25 | 10 | mg/L | 50 | | 92 | 90-110 | | |
| **Matrix Spike (BC21926-MS1)** | | **Source: 1202897-01** | | | Prepared: 03/19/12 Analyzed: 03/20/12 | | | | | |
| Chemical Oxygen Demand | 69 | 25 | 10 | mg/L | 50 | 20 | 98 | 85-115 | | |
| **Matrix Spike Dup (BC21926-MSD1)** | | **Source: 1202897-01** | | | Prepared: 03/19/12 Analyzed: 03/20/12 | | | | | |
| Chemical Oxygen Demand | 69 | 25 | 10 | mg/L | 50 | 20 | 98 | 85-115 | 0 | 32 |
| **Batch BC22013 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Blank (BC22013-BLK1)** | | | | | Prepared & Analyzed: 03/20/12 | | | | | |
| Chloride | 0.050 U | 0.20 | 0.050 | mg/L | | | | | | |
| **LCS (BC22013-BS1)** | | | | | Prepared & Analyzed: 03/20/12 | | | | | |
| Chloride | 3.10 | 0.20 | 0.050 | mg/L | 3.0 | | 103 | 85-115 | | |
| **LCS Dup (BC22013-BSD1)** | | | | | Prepared & Analyzed: 03/20/12 | | | | | |
| Chloride | 3.13 | 0.20 | 0.050 | mg/L | 3.0 | | 104 | 85-115 | 1 | 200 |
| **Matrix Spike (BC22013-MS1)** | | **Source: 1202980-04** | | | Prepared & Analyzed: 03/20/12 | | | | | |
| Chloride | 25.0 | 0.20 | 0.050 | mg/L | 3.0 | 22.5 | 83 | 80-120 | | |
| **Matrix Spike (BC22013-MS2)** | | **Source: 1202126-01** | | | Prepared & Analyzed: 03/20/12 | | | | | |
| Chloride | 2,110 | 0.20 | 0.050 | mg/L | 300 | 1790 | 107 | 80-120 | | |
| **Batch BC22022 - alkalinity** | | | | | | | | | | |
| **Blank (BC22022-BLK1)** | | | | | Prepared & Analyzed: 03/19/12 | | | | | |
| 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 BC22022 - alkalinity** | | | | | | | | | | |
| **LCS (BC22022-BS1)** | | | | | Prepared & Analyzed: 03/19/12 | | | | | |
| Total Alkalinity | 120 | 8.0 | 2.0 | mg/L | 120 | | 95 | 90-110 | | |
| **Matrix Spike (BC22022-MS1)** | | **Source: 1201896-21** | | | Prepared & Analyzed: 03/19/12 | | | | | |
| Total Alkalinity | 310 | 8.0 | 2.0 | mg/L | 100 | 230 | 86 | 80-120 | | |
| **Matrix Spike Dup (BC22022-MSD1)** | | **Source: 1201896-21** | | | Prepared & Analyzed: 03/19/12 | | | | | |
| Total Alkalinity | 310 | 8.0 | 2.0 | mg/L | 100 | 230 | 86 | 80-120 | 0 | 26 |
| **Batch BC22023 - alkalinity** | | | | | | | | | | |
| **Blank (BC22023-BLK1)** | | | | | Prepared & Analyzed: 03/20/12 | | | | | |
| Total Alkalinity | 2.0 U | 8.0 | 2.0 | mg/L | | | | | | |
| **LCS (BC22023-BS1)** | | | | | Prepared & Analyzed: 03/20/12 | | | | | |
| Total Alkalinity | 120 | 8.0 | 2.0 | mg/L | 120 | | 95 | 90-110 | | |
| **Matrix Spike (BC22023-MS1)** | | **Source: 1201896-58** | | | Prepared & Analyzed: 03/20/12 | | | | | |
| Total Alkalinity | 130 | 8.0 | 2.0 | mg/L | 120 | 5.4 | 99 | 80-120 | | |
| **Matrix Spike Dup (BC22023-MSD1)** | | **Source: 1201896-58** | | | Prepared & Analyzed: 03/20/12 | | | | | |
| Total Alkalinity | 130 | 8.0 | 2.0 | mg/L | 120 | 5.4 | 99 | 80-120 | 0 | 26 |
| **Batch BC22025 - TOC prep** | | | | | | | | | | |
| **Blank (BC22025-BLK1)** | | | | | Prepared & Analyzed: 03/20/12 | | | | | |
| 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 BC22025 - TOC prep** | | | | | | | | | | |
| **LCS (BC22025-BS1)** | | | | | Prepared & Analyzed: 03/20/12 | | | | | |
| Total Organic Carbon | 9.40 | 1.0 | 0.50 | mg/L | 10 | | 94 | 90-110 | | |
| **Matrix Spike (BC22025-MS1)** | | **Source: 1202141-01** | | | Prepared & Analyzed: 03/20/12 | | | | | |
| Total Organic Carbon | 9.10 | 1.0 | 0.50 | mg/L | 10 | ND | 91 | 85-115 | | |
| **Matrix Spike Dup (BC22025-MSD1)** | | **Source: 1202141-01** | | | Prepared & Analyzed: 03/20/12 | | | | | |
| Total Organic Carbon | 9.01 | 1.0 | 0.50 | mg/L | 10 | ND | 90 | 85-115 | 1 | 10 |
| **Batch BC22217 - alkalinity** | | | | | | | | | | |
| **Blank (BC22217-BLK1)** | | | | | Prepared & Analyzed: 03/22/12 | | | | | |
| Total Alkalinity | 2.0 U | 8.0 | 2.0 | mg/L | | | | | | |
| **LCS (BC22217-BS1)** | | | | | Prepared & Analyzed: 03/22/12 | | | | | |
| Total Alkalinity | 120 | 8.0 | 2.0 | mg/L | 120 | | 95 | 90-110 | | |
| **Matrix Spike (BC22217-MS1)** | | **Source: 1201896-62** | | | Prepared & Analyzed: 03/22/12 | | | | | |
| Total Alkalinity | 130 | 8.0 | 2.0 | mg/L | 120 | 11 | 95 | 80-120 | | |
| **Matrix Spike Dup (BC22217-MSD1)** | | **Source: 1201896-62** | | | Prepared & Analyzed: 03/22/12 | | | | | |
| Total Alkalinity | 130 | 8.0 | 2.0 | mg/L | 120 | 11 | 95 | 80-120 | 0 | 26 |
| **Batch BC22715 - alkalinity** | | | | | | | | | | |
| **Blank (BC22715-BLK1)** | | | | | Prepared & Analyzed: 03/27/12 | | | | | |
| 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 BC22715 - alkalinity** | | | | | | | | | | |
| **Blank (BC22715-BLK2)** | | | | | Prepared & Analyzed: 03/27/12 | | | | | |
| Total Alkalinity | 2.0 U | 8.0 | 2.0 | mg/L | | | | | | |
| **LCS (BC22715-BS1)** | | | | | Prepared & Analyzed: 03/27/12 | | | | | |
| Total Alkalinity | 130 | 8.0 | 2.0 | mg/L | 120 | | 103 | 90-110 | | |
| **LCS (BC22715-BS2)** | | | | | Prepared & Analyzed: 03/27/12 | | | | | |
| Total Alkalinity | 130 | 8.0 | 2.0 | mg/L | 120 | | 103 | 90-110 | | |
| **Matrix Spike (BC22715-MS1)** | | **Source: 1202458-01** | | | Prepared & Analyzed: 03/27/12 | | | | | |
| Total Alkalinity | 130 | 8.0 | 2.0 | mg/L | 120 | 11 | 95 | 80-120 | | |
| **Matrix Spike (BC22715-MS2)** | | **Source: 1202416-06** | | | Prepared & Analyzed: 03/27/12 | | | | | |
| Total Alkalinity | 170 | 8.0 | 2.0 | mg/L | 120 | 54 | 95 | 80-120 | | |
| **Matrix Spike Dup (BC22715-MSD1)** | | **Source: 1202458-01** | | | Prepared & Analyzed: 03/27/12 | | | | | |
| Total Alkalinity | 130 | 8.0 | 2.0 | mg/L | 120 | 11 | 95 | 80-120 | 0 | 26 |
| **Matrix Spike Dup (BC22715-MSD2)** | | **Source: 1202416-06** | | | Prepared & Analyzed: 03/27/12 | | | | | |
| Total Alkalinity | 170 | 8.0 | 2.0 | mg/L | 120 | 54 | 95 | 80-120 | 0 | 26 |
| **Batch BD20211 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Blank (BD20211-BLK1)** | | | | | Prepared & Analyzed: 04/02/12 | | | | | |
| Chloride | 0.050 U | 0.20 | 0.050 | mg/L | | | | | | |
| **LCS (BD20211-BS1)** | | | | | Prepared & Analyzed: 04/02/12 | | | | | |
| Chloride | 3.07 | 0.20 | 0.050 | mg/L | 3.0 | | 102 | 85-115 | | |

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

**April 13, 2012**
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**Inorganics - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BD20211 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **LCS Dup (BD20211-BSD1)** | | | | | Prepared & Analyzed: 04/02/12 | | | | | |
| Chloride | 3.01 | 0.20 | 0.050 | mg/L | 3.0 | | 100 | 85-115 | 2 | 200 |
| **Matrix Spike (BD20211-MS1)** | | **Source: 1201896-05** | | | Prepared & Analyzed: 04/02/12 | | | | | |
| Chloride | 71.0 | 0.20 | 0.050 | mg/L | 30 | 46.9 | 80 | 80-120 | | |
| **Matrix Spike (BD20211-MS2)** | | **Source: 1201896-10** | | | Prepared & Analyzed: 04/02/12 | | | | | |
| Chloride | 112 | 0.20 | 0.050 | mg/L | 30 | 79.8 | 107 | 80-120 | | |
| **Batch BD20235 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Blank (BD20235-BLK1)** | | | | | Prepared & Analyzed: 04/02/12 | | | | | |
| Chloride | 0.050 U | 0.20 | 0.050 | mg/L | | | | | | |
| **LCS (BD20235-BS1)** | | | | | Prepared & Analyzed: 04/02/12 | | | | | |
| Chloride | 3.12 | 0.20 | 0.050 | mg/L | 3.0 | | 104 | 85-115 | | |
| **LCS Dup (BD20235-BSD1)** | | | | | Prepared & Analyzed: 04/02/12 | | | | | |
| Chloride | 3.06 | 0.20 | 0.050 | mg/L | 3.0 | | 102 | 85-115 | 2 | 200 |
| **Matrix Spike (BD20235-MS1)** | | **Source: 1201896-13** | | | Prepared & Analyzed: 04/02/12 | | | | | |
| Chloride | 37.1 | 0.20 | 0.050 | mg/L | 6.0 | 31.4 | 95 | 80-120 | | |
| **Matrix Spike (BD20235-MS2)** | | **Source: 1201896-24** | | | Prepared & Analyzed: 04/02/12 | | | | | |
| Chloride | 77.4 | 0.20 | 0.050 | mg/L | 30 | 44.6 | 109 | 80-120 | | |
| **Batch BD20327 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Blank (BD20327-BLK1)** | | | | | Prepared & Analyzed: 04/03/12 | | | | | |
| Chloride | 0.050 U | 0.20 | 0.050 | 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 BD20327 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **LCS (BD20327-BS1)** | | | | | Prepared & Analyzed: 04/03/12 | | | | | |
| Chloride | 3.10 | 0.20 | 0.050 | mg/L | 3.0 | | 103 | 85-115 | | |
| **LCS Dup (BD20327-BSD1)** | | | | | Prepared & Analyzed: 04/03/12 | | | | | |
| Chloride | 3.06 | 0.20 | 0.050 | mg/L | 3.0 | | 102 | 85-115 | 1 | 200 |
| **Matrix Spike (BD20327-MS1)** | | **Source: 1203512-02** | | | Prepared & Analyzed: 04/03/12 | | | | | |
| Chloride | 45.5 +O | 0.20 | 0.050 | mg/L | 3.0 | 45.5 | 0 | 80-120 | | |
| **Matrix Spike (BD20327-MS2)** | | **Source: 1201896-26** | | | Prepared & Analyzed: 04/03/12 | | | | | |
| Chloride | 48.9 | 0.20 | 0.050 | mg/L | 6.0 | 43.2 | 95 | 80-120 | | |
| **Batch BD20328 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Blank (BD20328-BLK1)** | | | | | Prepared & Analyzed: 04/04/12 | | | | | |
| Chloride | 0.050 U | 0.20 | 0.050 | mg/L | | | | | | |
| **LCS (BD20328-BS1)** | | | | | Prepared & Analyzed: 04/04/12 | | | | | |
| Chloride | 3.19 | 0.20 | 0.050 | mg/L | 3.0 | | 106 | 85-115 | | |
| **LCS Dup (BD20328-BSD1)** | | | | | Prepared & Analyzed: 04/04/12 | | | | | |
| Chloride | 3.16 | 0.20 | 0.050 | mg/L | 3.0 | | 105 | 85-115 | 0.9 | 200 |
| **Matrix Spike (BD20328-MS1)** | | **Source: 1201896-39** | | | Prepared & Analyzed: 04/04/12 | | | | | |
| Chloride | 36.7 | 0.20 | 0.050 | mg/L | 6.0 | 30.5 | 103 | 80-120 | | |
| **Matrix Spike (BD20328-MS2)** | | **Source: 1201896-52** | | | Prepared & Analyzed: 04/04/12 | | | | | |
| Chloride | 73.6 | 0.20 | 0.050 | mg/L | 30 | 41.2 | 108 | 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 BD20427 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Blank (BD20427-BLK1)** | | | | | Prepared & Analyzed: 04/04/12 | | | | | |
| Chloride | 0.050 U | 0.20 | 0.050 | mg/L | | | | | | |
| **LCS (BD20427-BS1)** | | | | | Prepared & Analyzed: 04/04/12 | | | | | |
| Chloride | 3.03 | 0.20 | 0.050 | mg/L | 3.0 | | 101 | 85-115 | | |
| **LCS Dup (BD20427-BSD1)** | | | | | Prepared & Analyzed: 04/04/12 | | | | | |
| Chloride | 3.08 | 0.20 | 0.050 | mg/L | 3.0 | | 103 | 85-115 | 2 | 200 |
| **Matrix Spike (BD20427-MS1)** | | **Source: 1203275-02** | | | Prepared & Analyzed: 04/04/12 | | | | | |
| Chloride | 44.9 +O | 0.20 | 0.050 | mg/L | 3.0 | 44.8 | 3 | 80-120 | | |
| **Matrix Spike (BD20427-MS2)** | | **Source: 1201896-54** | | | Prepared & Analyzed: 04/04/12 | | | | | |
| Chloride | 41.4 | 0.20 | 0.050 | mg/L | 6.0 | 35.0 | 107 | 80-120 | | |
| **Batch BD20428 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Blank (BD20428-BLK1)** | | | | | Prepared & Analyzed: 04/06/12 | | | | | |
| Chloride | 0.050 U | 0.20 | 0.050 | mg/L | | | | | | |
| **LCS (BD20428-BS1)** | | | | | Prepared & Analyzed: 04/06/12 | | | | | |
| Chloride | 3.12 | 0.20 | 0.050 | mg/L | 3.0 | | 104 | 85-115 | | |
| **LCS Dup (BD20428-BSD1)** | | | | | Prepared & Analyzed: 04/06/12 | | | | | |
| Chloride | 3.13 | 0.20 | 0.050 | mg/L | 3.0 | | 104 | 85-115 | 0.3 | 200 |
| **Matrix Spike (BD20428-MS1)** | | **Source: 1201896-66** | | | Prepared & Analyzed: 04/06/12 | | | | | |
| Chloride | 40.8 | 0.20 | 0.050 | mg/L | 6.0 | 34.3 | 108 | 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 BD20428 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Matrix Spike (BD20428-MS2)** | | **Source: 1202743-01** | | | Prepared & Analyzed: 04/06/12 | | | | | |
| Chloride | 20,800 | 0.20 | 0.050 | mg/L | 3000 | 17800 | 100 | 80-120 | | |
| **Batch BD20536 - Ion Chromatography 300.0 Prep** | | | | | | | | | | |
| **Blank (BD20536-BLK1)** | | | | | Prepared & Analyzed: 04/05/12 | | | | | |
| Chloride | 0.050 U | 0.20 | 0.050 | mg/L | | | | | | |
| **LCS (BD20536-BS1)** | | | | | Prepared & Analyzed: 04/05/12 | | | | | |
| Chloride | 3.09 | 0.20 | 0.050 | mg/L | 3.0 | | 103 | 85-115 | | |
| **LCS Dup (BD20536-BSD1)** | | | | | Prepared & Analyzed: 04/05/12 | | | | | |
| Chloride | 3.03 | 0.20 | 0.050 | mg/L | 3.0 | | 101 | 85-115 | 2 | 200 |
| **Matrix Spike (BD20536-MS1)** | | **Source: 1203423-05** | | | Prepared & Analyzed: 04/05/12 | | | | | |
| Chloride | 388 +O | 0.20 | 0.050 | mg/L | 30 | 464 | NR | 80-120 | | |
| **Matrix Spike (BD20536-MS2)** | | **Source: 1203515-04** | | | Prepared & Analyzed: 04/05/12 | | | | | |
| Chloride | 422 +O | 0.20 | 0.050 | mg/L | 30 | 655 | NR | 80-120 | | |

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**Inorganic, Dissolved - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BC22109 - TOC prep** | | | | | | | | | | |
| **Blank (BC22109-BLK1)** | | | | | Prepared: 03/20/12 | Analyzed: 03/21/12 | | | | |
| Dissolved Organic Carbon | 0.50 U | 1.0 | 0.50 | mg/L | | | | | | |
| **LCS (BC22109-BS1)** | | | | | Prepared: 03/20/12 | Analyzed: 03/21/12 | | | | |
| Dissolved Organic Carbon | 9.24 | 1.0 | 0.50 | mg/L | 10 | | 92 | 90-110 | | |
| **Matrix Spike (BC22109-MS1)** | | **Source: 1201896-65** | | | Prepared: 03/20/12 | Analyzed: 03/21/12 | | | | |
| Dissolved Organic Carbon | 136 | 1.0 | 0.50 | mg/L | 100 | 44.7 | 91 | 85-125 | | |
| **Matrix Spike Dup (BC22109-MSD1)** | | **Source: 1201896-65** | | | Prepared: 03/20/12 | Analyzed: 03/21/12 | | | | |
| Dissolved Organic Carbon | 136 | 1.0 | 0.50 | mg/L | 100 | 44.7 | 91 | 85-125 | 0 | 25 |

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**Metals - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BC21628 - Metals Preparation for EPA Method 200.7** | | | | | | | | | | |
| **Blank (BC21628-BLK1)** | | | | | Prepared & Analyzed: 03/16/12 | | | | | |
| Manganese | 0.0010 U | 0.010 | 0.0010 | mg/L | | | | | | |
| Sodium | 0.13 U | 0.50 | 0.13 | mg/L | | | | | | |
| Boron | 0.050 U | 0.10 | 0.050 | mg/L | | | | | | |
| Calcium | 0.042 U | 0.50 | 0.042 | mg/L | | | | | | |
| Potassium | 0.010 U | 0.050 | 0.010 | mg/L | | | | | | |
| Iron | 0.030 I | 0.10 | 0.020 | mg/L | | | | | | |
| Magnesium | 0.020 U | 0.50 | 0.020 | mg/L | | | | | | |
| **LCS (BC21628-BS1)** | | | | | Prepared & Analyzed: 03/16/12 | | | | | |
| Sodium | 22 | 0.50 | 0.13 | mg/L | 20 | | 108 | 85-115 | | |
| Potassium | 20 | 0.050 | 0.010 | mg/L | 20 | | 100 | 85-115 | | |
| Magnesium | 20 | 0.50 | 0.020 | mg/L | 20 | | 101 | 85-115 | | |
| Calcium | 20 | 0.50 | 0.042 | mg/L | 20 | | 100 | 85-115 | | |
| Boron | 0.76 | 0.10 | 0.050 | mg/L | 0.80 | | 95 | 85-115 | | |
| Iron | 8.0 | 0.10 | 0.020 | mg/L | 8.0 | | 100 | 85-115 | | |
| Manganese | 0.79 | 0.010 | 0.0010 | mg/L | 0.80 | | 99 | 85-115 | | |
| **Matrix Spike (BC21628-MS1)** | | **Source: 1201896-01** | | | Prepared & Analyzed: 03/16/12 | | | | | |
| Iron | 8.3 | 0.10 | 0.020 | mg/L | 8.0 | 0.14 | 102 | 70-130 | | |
| Magnesium | 37 | 0.50 | 0.020 | mg/L | 20 | 15 | 107 | 70-130 | | |
| Potassium | 41 | 0.050 | 0.010 | mg/L | 20 | 19 | 110 | 70-130 | | |
| Boron | 1.0 | 0.10 | 0.050 | mg/L | 0.80 | 0.057 | 120 | 70-130 | | |
| Sodium | 76 | 0.50 | 0.13 | mg/L | 20 | 54 | 109 | 70-130 | | |
| Calcium | 64 | 0.50 | 0.042 | mg/L | 20 | 40 | 116 | 70-130 | | |
| Manganese | 0.81 | 0.010 | 0.0010 | mg/L | 0.80 | 0.027 | 98 | 70-130 | | |
| **Matrix Spike (BC21628-MS2)** | | **Source: 1202814-01** | | | Prepared & Analyzed: 03/16/12 | | | | | |
| Manganese | 0.76 | 0.010 | 0.0010 | mg/L | 0.80 | ND | 94 | 70-130 | | |
| Magnesium | 31 | 0.50 | 0.020 | mg/L | 20 | 12 | 92 | 70-130 | | |
| Sodium | 190 J5 | 0.50 | 0.13 | mg/L | 20 | 170 | 60 | 70-130 | | |
| Potassium | 33 | 0.050 | 0.010 | mg/L | 20 | 17 | 77 | 70-130 | | |
| Calcium | 55 | 0.50 | 0.042 | mg/L | 20 | 37 | 91 | 70-130 | | |
| Boron | 1.1 | 0.10 | 0.050 | mg/L | 0.80 | 0.20 | 118 | 70-130 | | |
| Iron | 7.7 | 0.10 | 0.020 | mg/L | 8.0 | 0.16 | 94 | 70-130 | | |

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**Metals - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BC21628 - Metals Preparation for EPA Method 200.7** | | | | | | | | | | |
| **Matrix Spike Dup (BC21628-MSD1)** | | **Source: 1201896-01** | | | Prepared & Analyzed: 03/16/12 | | | | | |
| Iron | 8.1 | 0.10 | 0.020 | mg/L | 8.0 | 0.14 | 100 | 70-130 | 2 | 30 |
| Magnesium | 36 | 0.50 | 0.020 | mg/L | 20 | 15 | 105 | 70-130 | 1 | 30 |
| Boron | 1.1 | 0.10 | 0.050 | mg/L | 0.80 | 0.057 | 124 | 70-130 | 3 | 30 |
| Calcium | 63 | 0.50 | 0.042 | mg/L | 20 | 40 | 113 | 70-130 | 1 | 30 |
| Sodium | 77 | 0.50 | 0.13 | mg/L | 20 | 54 | 117 | 70-130 | 2 | 30 |
| Potassium | 39 | 0.050 | 0.010 | mg/L | 20 | 19 | 103 | 70-130 | 3 | 30 |
| Manganese | 0.82 | 0.010 | 0.0010 | mg/L | 0.80 | 0.027 | 99 | 70-130 | 0.9 | 30 |
| **Matrix Spike Dup (BC21628-MSD2)** | | **Source: 1202814-01** | | | Prepared & Analyzed: 03/16/12 | | | | | |
| Magnesium | 29 | 0.50 | 0.020 | mg/L | 20 | 12 | 85 | 70-130 | 5 | 30 |
| Boron | 1.1 | 0.10 | 0.050 | mg/L | 0.80 | 0.20 | 117 | 70-130 | 0.6 | 30 |
| Iron | 7.5 | 0.10 | 0.020 | mg/L | 8.0 | 0.16 | 92 | 70-130 | 2 | 30 |
| Potassium | 32 | 0.050 | 0.010 | mg/L | 20 | 17 | 72 | 70-130 | 3 | 30 |
| Manganese | 0.76 | 0.010 | 0.0010 | mg/L | 0.80 | ND | 95 | 70-130 | 0.7 | 30 |
| Sodium | 170 J5 | 0.50 | 0.13 | mg/L | 20 | 170 | NR | 70-130 | 8 | 30 |
| Calcium | 51 | 0.50 | 0.042 | mg/L | 20 | 37 | 73 | 70-130 | 7 | 30 |

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**Microbiology - Quality Control**

| Analyte | Result | PQL | MDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BC21418 - FC-MF** | | | | | | | | | | |
| **Blank (BC21418-BLK1)** | | | | | Prepared: 03/14/12 Analyzed: 03/15/12 | | | | | |
| Fecal Coliforms | 1 U | 1 | 1 | CFU/100 ml | | | | | | |
| **Duplicate (BC21418-DUP1)** | | **Source: 1201896-01** | | | Prepared: 03/14/12 Analyzed: 03/15/12 | | | | | |
| Fecal Coliforms Confirmed | 0 | | | [blank] | | ND | | | | 200 |
| Fecal Coliforms | 37,800 | 1 | 1 | CFU/100 ml | | 36400 | | | 4 | 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**

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**Work Order: 1201896**
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## * 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.

| | |
|---|---|
| Q | Sample held beyond the accepted holding time. |
| 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. |

1201896

# 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

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

| Lab Use Only | Sample Description | Date | Time | Matrix | Composite | Grab | 1LP, Cool Total Alkalinity, TSS, TS, CBOD, F, Cl, $NO_3$, OP, $SO_4$ | 250mL P, $H_2SO_4$ TKN, NH3, NOx, TP | 250mL P, $HNO_3$ B, Ca, Fe, Mg, Mn, K, Na | 125mL P, $Na_2S_2O_3$ FC-MF | 1LP, Cool Total Alkalinity | 250mL P, $H_2SO_4$ COD, TKN, NH3, NOx, TP | 40mLaV, HCl TOC | 250mLaG, Cool DOC | | Field Conductivity | Field DO | Field pH | Field Temperature | No. of Containers (Total per each location) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 01 | C-HS2-STE | 3/13/12 | 1535 | GW | | X | 1 | 1 | 1 | 2 | | | | | | | | | | |
| 02 | C-HS2-STE-DUP | 3/13/12 | 1535 | GW | | X | 1* | 1 | | 2 | 1 | 1 | | | | | | | | |
| 03 | C-HS2-SW-6 inch | 3/13/12 | 1540 | GW | | X | | | | | 1 | 1 | | | | | | | | |
| 04 | C-HS2-SW-M | 3/13/12 | 1530 | GW | | X | | | | | 1 | 1 | | | | | | | | |
| 05 | C-HS2-BKG01-7 | 3/13/12 | 1526 | GW | | X | | | | | 1 | 1 | | | | | | | | |
| 06 | C-HS2-BKG02-6 | 3/13/12 | 1409 | GW | | X | | | | | 1 | 1 | | | | | | | | |
| 07 | C-HS2-BKG03-7 | 3/13/12 | 1358 | GW | | X | | | | | 1 | 1 | | | | | | | | |
| 08 | C-HS2-BKG04-7 | 3/13/12 | 1512 | GW | | X | | | | | 1 | 1 | | | | | | | | |
| 09 | C-HS2-BKG06-12 | 3/13/12 | 1529 | GW | | X | | | | | 1 | 1 | | | | | | | | |
| 10 | C-HS2-BKG07-5 | 3/13/12 | 1423 | GW | | X | | | | | 1 | 1 | | | | | | | | |
| 11 | C-HS2-BKG7-7 | 3/13/12 | 1440 | GW | | X | 1 | | 1 | | | 1 | 2 | 1 | | | | | | |
| 12 | C-HS2-BKG07-10 | 3/13/12 | 1454 | GW | | X | | | | | 1 | 1 | | | | | | | | |

| Relinquished: | Date/Time: | Received: | Date/Time: |
|---|---|---|---|
| Containers Prepared/ Relinquished: HH | Date/Time: 0900 02-21-12 | Received: | Date/Time: 0900 02/21/12 |
| Relinquished: | Date/Time: 0800 3/14/12 | Received: | Date/Time: |
| 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:

1201896

*1LP = ALK, TSS, TS, CBOD

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# SOUTHERN ANALYTICAL LABORATORIES, INC.

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

1201896

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: Seminole County C-HS2

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

| | Sample Description | Date | Time | Matrix | Composite | Grab | 1LP, Cool Total Alkalinity, TSS, TS, CBOD, F, Cl, $NO_3$, OP, $SO_4$ | 250mL P, $H_2SO_4$ TKN, NH3, NOx, TP | 250mL P, $HNO_3$ B, Ca, Fe, Mg, Mn, K, Na | 125mL P, $Na_2S_2O_3$ FC-MF | 1LP, Cool Total Alkalinity | 250mL P, $H_2SO_4$ COD, TKN, NH3, NOx, TP | 40mLaV, HCl TOC | 250mLaG, Cool DOC | | Field Conductivity | Field DO | Field pH | Field Temperature | No. of Containers (Total per each location) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13 | C-HS2-A07-6 | 3/13/12 | 0800 | GW | | X | | | | | 1 | 1 | | | | | | | | |
| 14 | C-HS2-A07-8 | 3/13/12 | 0831 | GW | | X | 1 | | 1 | | | 1 | 2 | 1 | | | | | | |
| 15 | C-HS2-A07-11 | 3/13/12 | 0839 | GW | | X | | | | | 1 | 1 | | | | | | | | |
| 16 | C-HS2-A09-7 | 3/13/12 | 0849 | GW | | X | | | | | 1 | 1 | | | | | | | | |
| 17 | C-HS2-A09-9 | 3/13/12 | 0905 | GW | | X | | | | | 1 | 1 | | | | | | | | |
| 18 | C-HS2-A09-12 | 3/13/12 | 0916 | GW | | X | | | | | 1 | 1 | | | | | | | | |
| 19 | C-HS2-A10-7 | 3/13/12 | 0935 | GW | | X | | | | | 1 | 1 | | | | | | | | |
| 20 | C-HS2-A10-7-Dup | 3/13/12 | 0935 | GW | | X | | | | | 1 | 1 | | | | | | | | |
| 21 | C-HS2-A10-9 | 3/13/12 | 0957 | GW | | X | | | | | 1 | 1 | | | | | | | | |
| 22 | C-HS2-A10-12 | 3/13/12 | 1007 | GW | | X | | | | | 1 | 1 | | | | | | | | |
| 23 | C-HS2-A11-5 | 3/13/12 | 0845 | GW | | X | | | | | 1 | 1 | | | | | | | | |
| 24 | C-HS2-A11-7 | 3/13/12 | 0856 | GW | | X | | | | | 1 | 1 | | | | | | | | |

| Containers Prepared/ Relinquished: | Date/Time: 0900 02-21-12 | Received: | Date/Time: 0900 022112 |
|---|---|---|---|
| Relinquished: | Date/Time: 0802 3/14/12 | Received: | Date/Time: |
| 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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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

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

| Sample No. | Sample Description | Date | Time | Matrix | Composite | Grab | 1LP, Cool Total Alkalinity, TSS, TS, CBOD, F, Cl, $NO_3$, OP, $SO_4$ | 250mL P, $H_2SO_4$ TKN, NH3, NOx, TP | 250mL P, $HNO_3$ B, Ca, Fe, Mg, Mn, K, Na | 125mL P, $Na_2S_2O_3$ FC-MF | 1LP, Cool Total Alkalinity | 250mL P, $H_2SO_4$ COD, TKN, NH3, NOx, TP | 40mLaV, HCl TOC | 250mLaG, Cool DOC | | Field Conductivity | Field DO | Field pH | Field Temperature | No. of Containers (Total per each location) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 | C-HS2-A11-10 | 3/13/12 | 0905 | GW | | X | | | | | 1 | 1 | | | | | | | | |
| 26 | C-HS2-A13-5 | 3/13/12 | 0800 | GW | | X | | | | | 1 | 1 | | | | | | | | |
| 27 | C-HS2-A13-7 | 3/13/12 | 0812 | GW | | X | | | | | 1 | 1 | | | | | | | | |
| 28 | C-HS2-A13-10 | 3/13/12 | 0829 | GW | | X | | | | | 1 | 1 | | | | | | | | |
| 29 | C-HS2-B02-6 | 3/13/12 | 1109 | GW | | X | | | | | 1 | 1 | | | | | | | | |
| 30 | C-HS2-B02-8 | 3/13/12 | 1130 | GW | | X | 1 | | 1 | | | 1 | 2 | 1 | | | | | | |
| 31 | C-HS2-B02-11 | 3/13/12 | 1136 | GW | | X | | | | | 1 | 1 | | | | | | | | |
| 32 | C-HS2-B06-6 | 3/13/12 | 1025 | GW | | X | | | | | 1 | 1 | | | | | | | | |
| 33 | C-HS2-B06-8 | 3/13/12 | 1035 | GW | | X | | | | | 1 | 1 | | | | | | | | |
| 34 | C-HS2-B06-11 | 3/13/12 | 1051 | GW | | X | | | | | 1 | 1 | | | | | | | | |
| 35 | C-HS2-B08-5 | 3/13/12 | 1044 | GW | | X | 1 | | 1 | | | 1 | 2 | 1 | | | | | | |
| 36 | C-HS2-B08-5-Dup | 3/13/12 | 1049 | GW | | X | 1 | | | | | 1 | 2 | 1 | | | | | | |

| Containers Prepared/ Relinquished: | Date/Time: 0900 02-21-12 | Received: | Date/Time: 0221 12 0900 |
|---|---|---|---|
| Relinquished: | Date/Time: 0800 3/14/12 | Received: | Date/Time: |
| Relinquished: | Date/Time: | Received: | Date/Time: |
| Relinquished: | Date/Time: | Received: | Date/Time: |
| Relinquished: | Date/Time: | Received: | Date/Time: |

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

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

| | Sample Description | Date | Time | Matrix | Composite | Grab | 1LP, Cool Total Alkalinity, TSS, TS, CBOD, F, Cl, $NO_3$, OP, $SO_4$ | 250mL P, $H_2SO_4$ TKN, NH3, NOx, TP | 250mL P, $HNO_3$ B, Ca, Fe, Mg, Mn, K, Na | 125mL P, $Na_2S_2O_3$ FC-MF | 1LP, Cool Total Alkalinity | 250mL P, $H_2SO_4$ COD, TKN, NH3, NOx, TP | 40mLaV, HCl TOC | 250mLaG, Cool DOC | | Field Conductivity | Field DO | Field pH | Field Temperature | No. of Containers (Total per each location) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 37 | C-HS2-B08-7 | 3/13/12 | 1107 | GW | | X | | | | | 1 | 1 | | | | | | | | |
| 38 | C-HS2-B08-10 | 3/13/12 | 1118 | GW | | X | | | | | 1 | 1 | | | | | | | | |
| 39 | C-HS2-B10-5 | 3/13/12 | 1003 | GW | | X | | | | | 1 | 1 | | | | | | | | |
| 40 | C-HS2-B10-7 | 3/13/12 | 1014 | GW | | X | | | | | 1 | 1 | | | | | | | | |
| 41 | C-HS2-B10-10 | 3/13/12 | 1032 | GW | | X | | | | | 1 | 1 | | | | | | | | |
| 42 | C-HS2-B15-5 | 3/13/12 | 0918 | GW | | X | | | | | 1 | 1 | | | | | | | | |
| 43 | C-HS2-B15-7 | 3/13/12 | 0936 | GW | | X | | | | | 1 | 1 | | | | | | | | |
| 44 | C-HS2-B15-10 | 3/13/12 | 0948 | GW | | X | | | | | 1 | 1 | | | | | | | | |
| 45 | C-HS2-C00-5 not sampled | | | 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 | 3/13/12 | 1156 | GW | | X | | | | | 1 | 1 | | | | | | | | |

| Relinquished: | Date/Time: | Received: | Date/Time: |
|---|---|---|---|
| Containers Prepared/ Relinquished: | Date/Time: 900 02-21-12 | Received: | Date/Time: 0900 022112 |
| Relinquished: | Date/Time: 0800 3/14/12 | Received: | Date/Time: |
| 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

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

| | Sample Description | Date | Time | Matrix | Composite | Grab | 1LP, Cool Total Alkalinity, TSS, TS, CBOD, F, Cl, $NO_3$, OP, $SO_4$ | 250mL P, $H_2SO_4$ TKN, NH3, NOx, TP | 250mL P, $HNO_3$ B, Ca, Fe, Mg, Mn, K, Na | 125mL P, $Na_2S_2O_3$ FC-MF | 1LP, Cool Total Alkalinity | 250mL P, $H_2SO_4$ COD, TKN, NH3, NOx, TP | 40mLaV, HCl TOC | 250mLaG, Cool DOC | | Field Conductivity | Field DO | Field pH | Field Temperature | No. of Containers (Total per each location) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 49 | C-HS2-C04-7 | 3/13/12 | 1156 | GW | | X | | | | | 1 | 1 | | | | | | | | |
| 50 | C-HS2-C04-10 | | 1225 | GW | | X | | | | | 1 | 1 | | | | | | | | |
| 51 | C-HS2-C06-5 | | 1245 | GW | | X | | | | | 1 | 1 | | | | | | | | |
| 52 | C-HS2-C06-7 | | 1302 | GW | | X | | | | | 1 | 1 | | | | | | | | |
| 53 | C-HS2-C06-10 | | 1318 | GW | | X | | | | | 1 | 1 | | | | | | | | |
| 54 | C-HS2-C06-10-Dup | | 1323 | GW | | X | | | | | 1 | 1 | | | | | | | | |
| 55 | C-HS2-C08-5 | | 1300 | GW | | X | | | | | 1 | 1 | | | | | | | | |
| 56 | C-HS2-C08-5-Dup | | 1300 | GW | | X | | | | | 1 | 1 | | | | | | | | |
| 57 | C-HS2-C08-7 | | 1315 | GW | | X | 1 | | 1 | | | 1 | 2 | 1 | | | | | | |
| 58 | C-HS2-C08-10 | | 1329 | GW | | X | | | | | 1 | 1 | | | | | | | | |
| 59 | C-HS2-C10-6 | | 1214 | GW | | X | | | | | 1 | 1 | | | | | | | | |
| 60 | C-HS2-C10-8 | 3/13/12 | 1226 | GW | | X | | | | | 1 | 1 | | | | | | | | |

| Containers Prepared/ Relinquished: | Date/Time: | Received: | Date/Time: |
|---|---|---|---|
| HH | 02-21-12 0900 | | 022112 0900 |
| | 3/14/12 0800 | | |
| | | | |
| | | | |
| | | | |

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

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 Description | Date | Time | Matrix | Composite | Grab | 1LP, Cool Total Alkalinity, TSS, TS, CBOD, F, Cl, $NO_3$, OP, $SO_4$ | 250mL P, $H_2SO_4$ TKN, NH3, NOx, TP | 250mL P, $HNO_3$ B, Ca, Fe, Mg, Mn, K, Na | 125mL P, $Na_2S_2O_3$ FC-MF | 1LP, Cool Total Alkalinity | 250mL P, $H_2SO_4$ COD, TKN, NH3, NOx, TP | 40mLaV, HCl TOC | 250mLaG, Cool DOC | | Field Conductivity | Field DO | Field pH | Field Temperature | No. of Containers (Total per each location) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 61 | C-HS2-C10-12 | 3/13/12 | 1243 | GW | | X | | | | | 1 | 1 | | | | | | | | |
| 62 | C-HS2-C115 | 3/13/12 | 1140 | GW | | X | | | | | 1 | 1 | | | | | | | | |
| 63 | C-HS2-C11-7 | 3/13/12 | 1151 | GW | | X | | | | | 1 | 1 | | | | | | | | |
| 64 | C-HS2-C11-10 | 3/13/12 | 1202 | GW | | X | | | | | 1 | 1 | | | | | | | | |
| 65 | C-HS2-D04-5 | 3/13/12 | 1427 | GW | | X | 1 | | 1 | | | 1 | 2 | 1 | | | | | | |
| 66 | C-HS2-D04-7 | 3/13/12 | 1457 | GW | | X | | | | | 1 | 1 | | | | | | | | |
| 67 | C-HS2-D04-10 | 3/13/12 | 1515 | GW | | X | | | | | 1 | 1 | | | | | | | | |
| 68 | C-HS2-D07-6 | 3/13/12 | 1350 | GW | | X | | | | | 1 | 1 | | | | | | | | |
| 69 | C-HS2-D07-6-DUP | 3/13/12 | 1355 | GW | | X | | | | | 1 | 1 | | | | | | | | |
| 70 | C-HS2-D07-8 | 3/13/12 | 1412 | GW | | X | | | | | 1 | 1 | | | | | | | | |
| 71 | C-HS2-D07-11 | 3/13/12 | 1428 | GW | | X | | | | | 1 | 1 | | | | | | | | |
| 72 | FB Tap | 3/13/12 | 1515 | DW | | X | | | | | 1 | 1 | | | | | | | | |

| | | | |
|---|---|---|---|
| Containers Prepared/ Relinquished: HH | Date/Time: 900 02-21-12 | Received: | Date/Time: 0900 022112 |
| Relinquished: | Date/Time: 0800 3/14/12 | Received: | Date/Time: |
| 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:

1201896

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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

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 Lab Only | Sample Description | Date | Time | Matrix | Composite | Grab | 1LP, Cool Total Alkalinity, TSS, TS, CBOD, F, Cl, $NO_3$, OP, $SO_4$ | 250mL P, $H_2SO_4$ TKN, NH3, NOx, TP | 250mL P, $HNO_3$ B, Ca, Fe, Mg, Mn, K, Na | 125mL P, $Na_2S_2O_3$ FC-MF | 1LP, Cool Total Alkalinity | 250mL P, $H_2SO_4$ COD, TKN, NH3, NOx, TP | 40mLaV, HCl TOC | 250mLaG, Cool DOC | | Field Conductivity | Field DO | Field pH | Field Temperature | No. of Containers (Total per each location) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 73 | FB DI | 3/13/12 | 1525 | R | | X | | | | | 1 | 1 | | | | | | | | |
| 74 | EB | 3/13/12 | 1520 | R | | X | | | | | 1 | 1 | | | | | | | | |

| Containers Prepared/ Relinquished: | Date/Time: 0900 02-21-12 | Received: | Date/Time: 0900 022112 |
|---|---|---|---|
| Relinquished: | Date/Time: 0800 3/14/12 | Received: | Date/Time: |
| 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:

1201896

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# 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 | 03/3/2 | SAL Project # | 1201896 | Project Name | Seminole Co |
| Well Number | C-HS2-STE | Sample ID | 01 and 02 | 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 | 1540 | PURGE TIME END | 1545 | 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) |
| 1540 | N/A | N/A | 0.10 | N/A | 6.9 | 24.1 | 1188 | 1.20 | 219 | 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 | 1540 | SAMPLING ENDED | 1545 | 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 | Sunny, 85° | | | | | | | | |
| COMMENTS | Septic Tank sample | | | | | | | | |

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 | 3 13 12 | SAL Project # | 1201896 | Project Name | Seminole Co |
| Well Number | C-HS2-SW-6 inch | Sample ID | 3 | 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 | 1540 | PURGE TIME END | — | TOTAL PURGED — |
| INST. ID | | | | | SAL-SAM-63-8 | SAL-SAM-65-8 | SAL-SAM-63-8 | SAL-SAM-55-8 | SAL-SAM-02 |
| 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) |
| 1540 | | | | | 6.07 | 22.5 | 372.6 | 3.38 | 2.50 | clear Tannic | NO |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

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 | 1540 | SAMPLING ENDED | 1540 | 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 | | | | | | | | |
| COMMENTS | Dip-Grab | | | | | | | | |

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 | 31312 | SAL Project # | 1201896 | Project Name | Seminole Co |
| Well Number | C-HS2-SW-M | Sample ID | 4 | 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 | N/A | PURGE TIME END | N/A | TOTAL PURGED N/A |
| INST. ID | | | | SAL-SAM-63-8 | SAL-SAM-65-8 | SAL-SAM-63-8 | SAL-SAM-55-8 | SAL-SAM-02 | |
| 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) |
| 1530 | | | | | 7.0 | 24.1 | 358.1 | 6.61 | 5.03 | Tannic | No |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

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 | 1530 | SAMPLING ENDED | 1530 | 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 | | | | | | | | |
| COMMENTS | Dip - Grab | | | | | | | | |

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 | 031312 | SAL Project # | 1201896 | Project Name | Seminole Co |
| Well Number | C-HS2-BKG01-7 | Sample ID | 5 | 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) | 3.87 | PURGE PUMP CODE | (PP) GP IBP |
| TOTAL WELL DEPTH (Feet) | 7.0 | 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 | 0.0626 | 1/4 WELL VOLUME | | 3 WELL VOLUMES | 0.1878 | | 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 | 1517 | PURGE TIME END | 1526 | 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) |
| 1520 | 0.30 | 0.30 | 0.10 | 3.87 | 4.9 | 22.0 | 222.6 | 0.35 | 9.62 | CLEAR | NONE |
| 1523 | / | 0.60 | / | / | 4.9 | 21.9 | 222.3 | 0.31 | 8.80 | / | / |
| 1526 | / | 0.90 | / | / | 4.9 | 21.9 | 221.5 | 0.29 | 4.14 | / | / |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

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 | 1526 | SAMPLING ENDED | 1527 | 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 | Sunny, 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 | 031312 | SAL Project # | 1201896 | Project Name | Seminole Co |
| Well Number | C-HS2-BKG02-6 | Sample ID | 6 | GPS LAT | |
| | | | | GPS LONG | |

## PURGING DATA

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| WELL DIAMETER (Inches) | 0.75 | WELL CAPACITY (gal/ft) | 0.02 ~~0.02~~ .24 | Screen Interval (Feet) | UNK | To | UNK | Static Depth to Water (Feet) | 2.49 | PURGE PUMP CODE | (PP) GP IBP |
| TOTAL WELL DEPTH (Feet) | 6.0 | 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 | 0.07 | 1/4 WELL VOLUME | | 3 WELL VOLUMES | 0.21 | 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 | 1359 | PURGE TIME END | 1409 | TOTAL PURGED | 0.90 |
| INST. ID | X | X | X | X | SAL-SAM-63-8 | SAL-SAM-65-8 | SAL-SAM-63-8 | SAL-SAM-55-8 | SAL-SAM-02 | 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1402 | 0.3 | 0.3 | 0.10 | 2.49 | 6.3 | 21.8 | 245.5 | 1.38 | 22.7 | clear | NO |
| 1405 | \| | 0.6 | \| | \| | 6.3 | 21.9 | 244.4 | 1.03 | 20.6 | \| | \| |
| 1408 | \| | 0.9 | \| | \| | 6.3 | 21.8 | 250.6 | 0.84 | 18.4 | \| | \| |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

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) | 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 | 1409 | SAMPLING ENDED | 1409 | 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 | | | | | | | | |
| 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 | 031312 | SAL Project # | 1201896 | Project Name | Seminole Co |
| Well Number | C-HS2-BKG-~~07~~ 03 SH | Sample ID | 7 | 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) | 2.44 | 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 | 0.09 | 1/4 WELL VOLUME | | | 3 WELL VOLUMES | 0.27 | | 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 | 1348 | PURGE TIME END | 1357 | TOTAL PURGED | 0.90 |
| INST. ID | | | | | SAL-SAM-63-~~8~~ | SAL-SAM-65-~~8~~ | SAL-SAM-63-~~8~~ | SAL-SAM-55-~~8~~ | SAL-SAM-0~~2~~ | | |

| TIME 031412 | 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SH ~~0~~1351 | 0.30 | 0.30 | 0.10 | 2.44 | 5.6 | 24.3 | 433.9 | 1.15 | 13.8 | clear | NO |
| 1354 | \| | 0.60 | \| | \| | 5.6 | 24.2 | 436.1 | 0.61 | 9.61 | \| | \| |
| 1357 | \| | 0.90 | \| | \| | 5.7 | 24.1 | 443.3 | 0.44 | 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) | 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 | 1358 | SAMPLING ENDED | 1358 | 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 | | | | | | | | |
| 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 | 3 13 12 | SAL Project # | 1201896 | Project Name | Seminole Co |
| Well Number | C-HS2- ~~C-HS2-A10-7-Dup~~ BKG04-7 SL 03/12 | Sample ID | ~~20~~ 08 | 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) | 7.74 | PURGE PUMP CODE | (PP) GP IBP |
| TOTAL WELL DEPTH (Feet) | 7.0 | 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 | | 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 | 1456 | PURGE TIME END | 1511 | TOTAL PURGED | 1.5 |
| INST. ID | X | X | X | X | SAL-SAM-63-8 | SAL-SAM-65-8 | SAL-SAM-63-8 | SAL-SAM-55-8 | SAL-SAM-02 | 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) |
| 1459 | 0.30 | 0.3 | 0.10 | 7.74 | 5.4 | 21.9 | 160.4 | 1.27 | 68.3 | cloudy | No |
| 1502 | \| | 0.6 | \| | \| | 5.4 | 21.7 | 162.5 | 1.09 | 79.2 | \| | \| |
| 1505 | \| | 0.9 | \| | \| | 5.4 | 21.6 | 162.6 | 1.01 | 46.9 | \| | \| |
| 1508 | \| | 1.2 | \| | \| | 5.4 | 21.6 | 162.8 | 0.80 | 32.5 | | \| |
| 1511 | \| | 1.5 | \| | \| | 5.4 | 21.6 | 162.8 | 0.67 | 23.1 | clear | \| |

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 | 1512 | SAMPLING ENDED | 1512 | 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 | | | | | | | | |
| 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: | |

# 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 | 031312 | SAL Project # | 1201896 | Project Name | Seminole Co |
| Well Number | C-HS2-BKG06-12 | Sample ID | 9 | 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) | 7.05 | PURGE PUMP CODE | PP GP IBP |
| TOTAL WELL DEPTH (Feet) | 120 | 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 | 0.099 | 1/4 WELL VOLUME | | | 3 WELL VOLUMES | 0.297 | | 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 | 1530 | PURGE TIME END | 1539 | 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) |
| 1533 | 0.30 | 0.30 | 0.10 | 7.05 | 5.8 | 22.4 | 632 | 0.84 | 3.66 | CLEAR | NONE |
| 1536 | \| | 0.60 | \| | \| | 5.8 | 22.4 | 635 | 0.77 | 3.24 | \| | \| |
| 1539 | \| | 0.90 | \| | \| | 5.8 | 22.4 | 633 | 0.69 | 3.60 | \| | \| |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

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 | 1539 | SAMPLING ENDED | 1540 | 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 | Sunny, 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 | 3 13 12 | SAL Project # | 1201896 | Project Name | Seminole Co |
| Well Number | C-HS2-BKG07-5 | Sample ID | 10 | 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) | 3.13 | 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 | 0.03 | 1/4 WELL VOLUME | | 3 WELL VOLUMES | 0.11 | 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 | 1413 | PURGE TIME END | 1422 | TOTAL PURGED | 0.90 |
| INST. ID | | | | SAL-SAM-63-8 | SAL-SAM-65-8 | SAL-SAM-63-8 | SAL-SAM-55-8 | SAL-SAM-02 | | |

| 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1416 | 0.30 | 0.3 | 0.10 | 3.13 | 4.4 | 21.1 | 333.7 | 0.93 | 4.63 | Clear | No |
| 1419 | | 0.6 | | | 4.4 | 21.1 | 334.1 | 0.81 | 2.37 | | |
| 1422 | | 0.9 | | | 4.4 | 21.1 | 334.8 | 0.84 | 1.61 | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

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 | 1423 | SAMPLING ENDED | 1423 | 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 | | | | | | | | |
| 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 | 031312 | SAL Project # | 1201896 | Project Name | Seminole Co |
| Well Number | C-HS2-BKG7-7 | Sample ID | 11 | 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) | 3.13 | PURGE PUMP CODE | (PP) GP IBP |
| TOTAL WELL DEPTH (Feet) | 7.0 | 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 | 0.07 | 1/4 WELL VOLUME | | 3 WELL VOLUMES | 0.23 | 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 | 1424 | PURGE TIME END | 1439 | TOTAL PURGED | 1.50 | |
| INST. ID | X | X | X | X | SAL-SAM-63-8 | SAL-SAM-65-8 | SAL-SAM-63-8 | SAL-SAM-55-8 | SAL-SAM-0-2 | 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1427 | 0.30 | 0.3 | 0.10 | 3.13 | 5.5 | 20.9 | 199.3 | 1.61 | 54.1 | Brown | NO |
| 1430 | | 0.6 | | | 5.5 | 20.9 | 200.0 | 1.36 | 44.5 | | |
| 1433 | | 0.9 | | | 5.5 | 20.9 | 198.2 | 1.29 | 42.7 | | |
| 1436 | | 1.2 | | | 5.6 | 20.9 | 199.6 | 0.99 | 40.8 | | |
| 1439 | | 1.5 | | | 5.7 | 20.9 | 201.4 | 0.73 | 39.2 | | |

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) | 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 | 1440 | SAMPLING ENDED | 1440 | 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 | | | | | | |
| 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 | 31312 | SAL Project # | 1201896 | Project Name | Seminole Co |
| Well Number | C-HS2-BKG07-10 | Sample ID | 12 | 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) | 3.13 |
| PURGE PUMP CODE | (PP) GP IBP | | | | | | | | |
| TOTAL WELL DEPTH (Feet) | 10.0 | 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 | | 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 | 1444 | PURGE TIME END | 1453 | TOTAL PURGED | 0.90 |

| INST. ID | | | | | SAL-SAM-63-8 | SAL-SAM-65-8 | SAL-SAM-63-8 | SAL-SAM-55-8 | SAL-SAM-02 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 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) |
| 1447 | 0.30 | 0.30 | 0.10 | 3.13 | 5.0 | 21.2 | 164.2 | 1.57 | 7.35 | clear | NO |
| 1450 | \| | 0.60 | \| | \| | 5.0 | 21.2 | 164.1 | 1.40 | 4.55 | \| | \| |
| 1453 | \| | 0.90 | \| | \| | 5.0 | 21.2 | 164.1 | 1.33 | 3.00 | \| | \| |
| | \| | | | | | | | | | | |
| | | | | | | | | | | | |

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 | 1454 | SAMPLING ENDED | 1454 | 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 | | | | | | | | |
| 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:

# 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 | 031312 | SAL Project # | 1201896 | Project Name | Seminole Co |
| Well Number | C-HS2-A07-6 | Sample ID | 13 | 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) | 5.0 | PURGE PUMP CODE | (PP) GP IBP |
| TOTAL WELL DEPTH (Feet) | 6.0 | 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 | 0.020 | 1/4 WELL VOLUME | | 3 WELL VOLUMES | 0.06 | 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 | 0750 | PURGE TIME END | 0806 | 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0753 | 0.30 | 0.30 | 0.10 | 5.09 | 6.4 | 18.1 | 406 | 6.24 | 82.0 | CLOUDY | NONE |
| 0756 | | 0.60 | | | 6.4 | 18.1 | 407 | 6.27 | 76.8 | | |
| 0759 | | 0.90 | | | 6.3 | 18.5 | 411 | 5.81 | 69.9 | | |
| 0802 | | 1.20 | | | 6.3 | 18.5 | 410 | 5.48 | 62.1 | | |
| 0805 | | 1.50 | | | 6.3 | 18.5 | 409 | 5.25 | 60.0 | | |

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) | 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 | 0806 | SAMPLING ENDED | 0807 | 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 | Sunny, 75° | | | | | | |
| 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 | 031312 | SAL Project # | 1201896 | Project Name | Seminole Co |
| Well Number | C-HS2-A07-8 | Sample ID | 14 | 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) | 4.90 | PURGE PUMP CODE | PP GP IBP |
| TOTAL WELL DEPTH (Feet) | 8.0 | 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 | 0.062 | 1/4 WELL VOLUME | | 3 WELL VOLUMES | 0.186 | | 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 | 0812 | PURGE TIME END | 0821 | 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) |
| 0815 | 0.30 | 0.30 | 0.10 | 4.97 | 5.6 | 19.9 | 548 | 2.09 | 12.0 | CLOUDY | NONE |
| 0818 | \| | 0.60 | \| | \| | 5.6 | 20.0 | 546 | 1.69 | 11.6 | \| | \| |
| 0821 | \| | 0.90 | \| | \| | 5.6 | 20.0 | 547 | 1.55 | 11.2 | \| | \| |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

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) | 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 | 0821 | SAMPLING ENDED | 0822 | 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 | Sunny, 75° | | | | | | | | |
| 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:

# 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 | 031312 | SAL Project # | 1201896 | Project Name | Seminole Co |
| Well Number | C-1482-AOT-11 SS 3/14 | Sample ID | ~~SS~~ 15 | 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) | 5.0 | PURGE PUMP CODE | PP GP IBP |
| TOTAL WELL DEPTH (Feet) | 11.0 | 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 | 0.12 | 1/4 WELL VOLUME | | 3 WELL VOLUMES | 0.36 | 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 | 0830 | PURGE TIME END | 0839 | 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0833 | 0.30 | 0.30 | 0.10 | 5.09 | 4.9 | 20.0 | 175 | 1.67 | 8.89 | CLEAR | NONE |
| 0836 | \| | 0.60 | \| | \| | 4.9 | 20.1 | 178 | 1.24 | 7.80 | \| | \| |
| 0839 | \| | 0.90 | \| | \| | 4.9 | 20.0 | 177 | 0.98 | 8.80 | \| | \| |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

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 | 0839 | SAMPLING ENDED | 0839 | 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 | Sunny, 75° | | | | | | | | |
| 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 | 031312 | SAL Project # | 1201896 | Project Name | Seminole Co |
| Well Number | C-HS2-A09-7 | Sample ID | 16 | 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) | 5.90 | PURGE PUMP CODE (PP) GP IBP |
| TOTAL WELL DEPTH (Feet) | 7.0 | 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 | 0.022 | 1/4 WELL VOLUME | | 3 WELL VOLUMES | 0.066 | | 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 | 0840 | PURGE TIME END | 0849 | TOTAL PURGED | 0.90 |
| 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) |
| 0843 | 0.30 | 0.30 | 0.10 | 5.94 | 6.4 | 20.1 | 748 | 0.75 | 5.63 | CLEAR | NONE |
| 0846 | \| | 0.60 | \| | \| | 6.4 | 20.2 | 744 | 0.56 | 5.18 | \| | \| |
| 0849 | \| | 0.90 | \| | \| | 6.3 | 20.3 | 740 | 0.57 | 5.09 | \| | \| |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

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) | 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 | 0849 | SAMPLING ENDED | 0849 | 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 | Sunny, 75° | | | | | | | | |
| 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: | |

# 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 | 031312 | SAL Project # | 1201896 | Project Name | Seminole Co |
| Well Number | C-HS2-A09-9 | Sample ID | 17 | 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) | 5.95 | PURGE PUMP CODE (PP) GP IBP |
| TOTAL WELL DEPTH (Feet) | 9.0 | 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 | 0.061 | 1/4 WELL VOLUME | | 3 WELL VOLUMES | 0.183 | | 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 | 0850 | PURGE TIME END | 0905 | TOTAL PURGED | 1.50 |
| 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0853 | 0.30 | 0.30 | 0.10 | 5.97 | 6.2 | 20.3 | 500 | 2.10 | 36.2 | CLOUDY | NONE |
| 0856 | | 0.60 | | | 6.2 | 20.3 | 510 | 1.98 | 31.5 | | |
| 0859 | | 0.90 | | | 6.2 | 20.4 | 512 | 1.97 | 31.2 | | |
| 0902 | | 1.20 | | | 6.2 | 20.4 | 518 | 1.92 | 30.8 | | |
| 0905 | | 1.50 | | | 6.2 | 20.5 | 518 | 1.80 | 30.7 | | |

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 | 0905 | SAMPLING ENDED | 0905 | 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 | Sunny, 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:

# 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 | 031312 | SAL Project # | 1201896 | Project Name | Seminole Co |
| Well Number | C-HS2-A09-12 | Sample ID | 18 | 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) | 5.95 | PURGE PUMP CODE | PP GP IBP |
| TOTAL WELL DEPTH (Feet) | 12.0 | 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 | 0.121 | 1/4 WELL VOLUME | | 3 WELL VOLUMES | 0.363 | 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 | 0905 | PURGE TIME END | 0914 | 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) |
| 0908 | 0.30 | 0.30 | 0.10 | 5.99 | 6.4 | 20.6 | 155 | 2.21 | 14.3 | CLEAR | NONE |
| 0911 | \| | 0.60 | \| | \| | 6.3 | 20.8 | 154 | 2.08 | 7.85 | \| | \| |
| 0914 | \| | 0.90 | \| | \| | 6.4 | 20.8 | 154 | 1.95 | 6.21 | \| | \| |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

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 | 0914 | SAMPLING ENDED | 0914 | 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 | Sunny, 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: | |

# 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 | 031312 | SAL Project # | 1201896 | Project Name | Seminole Co |
| Well Number | C-HS2-A10-7 | Sample ID | 19 and 20 | 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) | 5.34 | PURGE PUMP CODE (PP) GP IBP |
| TOTAL WELL DEPTH (Feet) | 7.0 | 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 | 0.0332 | 1/4 WELL VOLUME | | 3 WELL VOLUMES | 0.0996 | 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 | 0920 | PURGE TIME END | 0935 | 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) |
| 0923 | 0.30 | 0.30 | 0.10 | 5.48 | 6.2 | 19.1 | 574 | 5.37 | 77.2 | CLOUDY | NONE |
| 0926 | | 0.60 | | | 6.3 | 19.3 | 598 | 5.12 | 60.8 | | |
| 0929 | | 0.90 | | | 6.6 | 19.4 | 655 | 4.98 | 36.4 | | |
| 0932 | | 1.20 | | | 6.7 | 19.7 | 745 | 4.83 | 28.7 | | |
| 0935 | | 1.50 | | | 7.0 | 19.8 | 812 | 4.79 | 8.07 | CLEAR | |

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 | 0935 | SAMPLING ENDED | 0935 | 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 | Sunny, 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 | 031312 | SAL Project # | 1201896 | Project Name | Seminole Co |
| Well Number | C-HS2-A10-9 | Sample ID | 21 | 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) | 5.34 | PURGE PUMP CODE (PP) GP IBP |
| TOTAL WELL DEPTH (Feet) | 9.0 | 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 | 0.0732 | 1/4 WELL VOLUME | | | 3 WELL VOLUMES | 0.2196 | | 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 | 0948 | PURGE TIME END | 0957 | 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0951 | 0.30 | 0.30 | 0.10 | 5.48 | 7.5 | 21.0 | 543 | 1.26 | 19.2 | CLEAR | NONE |
| 0954 | \| | 0.60 | \| | \| | 7.4 | 21.1 | 542 | 1.33 | 17.5 | \| | \| |
| 0957 | \| | 0.90 | \| | \| | 7.4 | 21.2 | 539 | 1.01 | 9.12 | \| | \| |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

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) | SAL | | | | | SAMPLER(S) SIGNATURES: | | | |
| TUBING MATERIAL CODE (CIRCLE ONE) | PP PE NP (L)TT | | | SAMPLE TUBING LEGNTH IN WELL (FEET) | | | SAMPLE PUMP FLOW RATE (mL/min) | | |
| SAMPLING INITIATED | 0957 | 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 | Sunny, 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: | |

# 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 | 03/3/12 | SAL Project # | 1201896 | Project Name | Seminole Co |
| Well Number | C-HS2-A10-12 | Sample ID | 22 | 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) | 5.34 |
| PURGE PUMP CODE | PP GP IBP | | | | | | | | |
| TOTAL WELL DEPTH (Feet) | 12.0 | 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 | 0.1332 | 1/4 WELL VOLUME | | 3 WELL VOLUMES | 0.3996 | 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 | 1007 | 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1001 | 0.30 | 0.30 | 0.10 | 5.34 | 7.2 | 21.4 | 156 | 1.35 | 8.59 | CLEAR | NONE |
| 1004 | \| | 0.60 | \| | \| | 7.1 | 21.5 | 152 | 1.02 | 10.2 | \| | \| |
| 1007 | \| | 0.90 | \| | \| | 7.1 | 21.5 | 149 | 0.67 | 12.2 | \| | \| |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

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) | 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 | 1007 | SAMPLING ENDED | 1007 | 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 | Sunny, 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 | 3 13 12 | SAL Project # | 1201896 | Project Name | Seminole Co |
| Well Number | C-HS2-A11-5 | Sample ID | 23 | 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) | 4.22 | 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 | 0.015 | 1/4 WELL VOLUME | | 3 WELL VOLUMES | 0.046 | 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 | 0835 | PURGE TIME END | 0844 | TOTAL PURGED | 0.90 |
| INST. ID | | | | SAL-SAM-63-8 | SAL-SAM-65-8 | SAL-SAM-63-8 | SAL-SAM-55-8 | SAL-SAM-02 | | |

| 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0838 | 0.30 | 0.3 | 0.10 | 4.23 | 6.7 | 19.1 | 699 | 5.01 | 17.1 | clear | NO |
| 0841 | \| | 0.6 | \| | \| | 6.7 | 19.1 | 698 | 4.92 | 9.21 | \| | \| |
| 0844 | \| | 0.9 | \| | \| | 6.8 | 19.3 | 709 | 4.71 | 6.50 | \| | \| |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

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 | 0845 | SAMPLING ENDED | 0845 | 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 | | | | | | |
| 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 | 3 13 12 | SAL Project # | 1201896 | Project Name | Seminole Co |
| Well Number | C-HS2-A11-7 | Sample ID | 24 | 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) | 4.23 | PURGE PUMP CODE (PP) GP IBP |
| TOTAL WELL DEPTH (Feet) | 7.0 | 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 | 0.05 | 1/4 WELL VOLUME | | 3 WELL VOLUMES | 0.05 | 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 | 0846 | PURGE TIME END | 0855 | TOTAL PURGED | 0.90 |
| INST. ID | | | | SAL-SAM-63-8 | SAL-SAM-65-8 | SAL-SAM-63-8 | SAL-SAM-55-8 | SAL-SAM-02 | |

| 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0849 | 0.30 | 0.3 | 0.10 | 4.23 | 5.9 | 20.9 | 254.9 | 1.29 | 19.3 | clear | No |
| 0852 | \| | 0.6 | \| | \| | 5.9 | 21.0 | 254.8 | 0.81 | 16.7 | \| | \| |
| 0855 | \| | 0.9 | \| | \| | 5.9 | 21.0 | 254.3 | 0.40 | 14.8 | \| | \| |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

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) | 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 | 0856 | SAMPLING ENDED | 0856 | 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 | | | | | | |
| 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 | 3 13 12 | SAL Project # | 1201896 | Project Name | Seminole Co |
| Well Number | C-HS2-A11-10 | Sample ID | 25 | 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) | 4.24 | PURGE PUMP CODE (PP) GP IBP |
| TOTAL WELL DEPTH (Feet) | 10.0 | 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 | 0.11 | 1/4 WELL VOLUME | | 3 WELL VOLUMES | 0.33 | 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 ~~0858~~ SH | PURGE TIME END | 0904 | TOTAL PURGED | 0.90 |

| INST. ID | | | | | SAL-SAM-63-8 | SAL-SAM-65-8 | SAL-SAM-63-8 | SAL-SAM-55-8 | SAL-SAM-02 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 ~~0901~~ | 0.30 | 0.3 | 0.10 | 4.24 | 5.1 | 21.4 | 149.8 | 0.56 | 12.6 | clear | NO |
| 0901 ~~0904~~ | \| | 0.6 | \| | \| | 5.1 | 21.4 | 150.0 | 0.51 | 8.20 | \| | \| |
| 0904 ~~09~~ | \| | 0.9 | \| | \| | 5.2 | 21.5 | 149.1 | 0.36 | 6.83 | \| | \| |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

SH 03/14/12

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) | 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 | 0905 | 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 | | | | | | |
| 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 | 3 13 12 | SAL Project # | 1201896 | Project Name | Seminole Co |
| Well Number | C-HS2-A13-5 | Sample ID | 26 | 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) | 3.49 | 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 | 0.03 | 1/4 WELL VOLUME | | 3 WELL VOLUMES | 0.09 | 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 | 0750 | PURGE TIME END | 0800 | TOTAL PURGED | 0.90 | |
| INST. ID | | | | SAL-SAM-63-8 | SAL-SAM-65-8 | SAL-SAM-63-8 | SAL-SAM-55-8 | SAL-SAM-02 | | |

| 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0753 | 0.30 | 0.3 | 0.10 | 3.54 | 5.5 | 18.6 | 248.7 | 3.12 | 17.2 | Brown | No |
| 0756 | | 0.6 | | | 5.5 | 18.7 | 246.9 | 2.19 | 16.7 | | |
| 0759 | | 0.9 | | | 5.5 | 18.8 | 244.9 | 1.98 | 16.7 | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

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 | 800 | SAMPLING ENDED | 800 | 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 | | | | | | |
| 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 | 3 13 12 | SAL Project # | 1201896 | Project Name | Seminole Co |
| Well Number | C-HS2-A13-7 | Sample ID | 27 | 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) | 3.49 | PURGE PUMP CODE (PP) GP IBP |
| TOTAL WELL DEPTH (Feet) | 7.0 | 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 | | 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 | 0802 | PURGE TIME END | 0811 | TOTAL PURGED | 0.90 |
| INST. ID | | | | | SAL-SAM-63-8 | SAL-SAM-65-8 | SAL-SAM-63-8 | SAL-SAM-55-8 | SAL-SAM-02 | | |
| 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) |
| 0805 | 030 | 0.3 | 0.10 | 3.51 | 4.8 | 19.7 | 186.9 | 1.91 | 19.2 | clear | NO |
| 0808 | \| | 0.6 | \| | \| | 4.8 | 19.7 | 187.5 | 1.86 | 12.1 | \| | \| |
| 0811 | \| | 0.9 | \| | \| | 4.8 | 19.7 | 186.1 | 0.71 | 9.07 | \| | \| |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

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 | 0812 | SAMPLING ENDED | 0812 | 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 | | | | | | | | |
| 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 | 03 13 12 | SAL Project # | 1201896 | Project Name | Seminole Co |
| Well Number | C-HS2-A13-10 | Sample ID | 28 | 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) | 3.50 | PURGE PUMP CODE (PP) GP IBP |
| TOTAL WELL DEPTH (Feet) | 10.0 | 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 | 0.13 | 1/4 WELL VOLUME | | 3 WELL VOLUMES | 0.39 | 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 | 0818 | PURGE TIME END | 0829 | TOTAL PURGED | 0.90 |

| INST. ID | | | | | SAL-SAM-63-8 | SAL-SAM-65-8 | SAL-SAM-63-8 | SAL-SAM-55-8 | SAL-SAM-02 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 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) |
| 0821 | 0.30 | 0.3 | 0.10 | 3.55 | 4.7 | 20.6 | 154.3 | 0.29 | 19.9 | clear | NO |
| 0824 | \| | 0.6 | \| | \| | 4.7 | 20.6 | 154.2 | 0.22 | 16.3 | \| | \| |
| 0827 | \| | 0.9 | \| | \| | 4.7 | 20.6 | 154.2 | 0.20 | 12.1 | \| | \| |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

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 | 0829 | SAMPLING ENDED | 0829 | 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 | | | | | | |
| 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 | 031312 | SAL Project # | 1201896 | 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) | 3.73 |
| PURGE PUMP CODE | PP GP IBP | | | | | | | | |
| TOTAL WELL DEPTH (Feet) | 6.0 | 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 | 0.0454 | 1/4 WELL VOLUME | | 3 WELL VOLUMES | 0.2362 | 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 | 1052 | PURGE TIME END | 1107 | TOTAL PURGED | 1.20 |
| 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1055 | 0.30 | 0.30 | 0.10 | 3.90 | 5.6 | 21.7 | 494 | 0.63 | 27.2 | CLOUDY | SULFUR |
| 1058 | | 0.60 | | | 5.6 | 21.7 | 494 | 0.60 | 26.3 | | |
| 1101 | | 0.90 | | | 5.6 | 21.7 | 494 | 0.51 | 27.0 | | |
| 1104 | | 1.20 | | | 5.6 | 21.7 | 495 | 0.49 | 28.2 | | |
| | | | | | | | | | | | |

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) | 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 | 1107 | SAMPLING ENDED | 1107 | 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 | Sunny, 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 | 031712 | SAL Project # | 1201896 | 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) | 3.73 | PURGE PUMP CODE: PP GP IBP |
| TOTAL WELL DEPTH (Feet) | 8.0 | 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 | 0.0854 | 1/4 WELL VOLUME | | 3 WELL VOLUMES | 0.2562 | 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 | 1108 | PURGE TIME END | 1120 | TOTAL PURGED | 1.20 |

| 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) |
| 1111 | 0.30 | 0.30 | 0.10 | 3.89 | 6.5 | 21.7 | 554 | 0.51 | 27.1 | CLOUDY | NONE |
| 1114 | \| | 0.60 | \| | \| | 6.5 | 21.6 | 553 | 0.39 | 18.8 | \| | \| |
| 1117 | \| | 0.90 | \| | \| | 6.4 | 21.6 | 553 | 0.36 | 18.4 | \| | \| |
| 1120 | \| | 1.20 | \| | \| | 6.4 | 21.6 | 553 | 0.34 | 16.7 | \| | \| |
| | | | | | | | | | | | |

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 | 1120 | SAMPLING ENDED | 1120 | 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 | Sunny, 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 | 031312 | SAL Project # | 1201896 | 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) | 3.74 | PURGE PUMP CODE | (PP) GP IBP |
| TOTAL WELL DEPTH (Feet) | 11.0 | 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 | 0.1454 | 1/4 WELL VOLUME | | 3 WELL VOLUMES | 0.4362 | 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 | 1121 | PURGE TIME END | 1136 | TOTAL PURGED | 1.50 |

| INST. ID | | | | | SAL-SAM-63-01 | SAL-SAM-63-01 | SAL-SAM-63-01 | SAL-SAM-55-03 | 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) |
| 1124 | 0.30 | 0.30 | 0.10 | 3.91 | 6.2 | 21.8 | 199 | 0.41 | 233 | CLOUDY | SULFUR |
| 1127 | | 0.60 | | | 6.0 | 21.9 | 197 | 0.30 | 130 | | |
| 1130 | | 0.90 | | | 6.0 | 21.8 | 198 | 0.29 | 50.9 | | |
| 1133 | | ~~0~~ SS 3/14 1.20 | | | 5.9 | 21.9 | 198 | 0.27 | 38.7 | | |
| 1136 | | 1.50 | | | 5.9 | 21.9 | 198 | 0.26 | 30.3 | | |

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) | 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 | 1136 | SAMPLING ENDED | 1136 | 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 | Sunny, 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 | 03/13/12 | SAL Project # | 1201896 | Project Name | Seminole Co |
| Well Number | C-HS2-B06-6 | Sample ID | 32 | 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) | 3.70 | PURGE PUMP CODE | PP GP IBP |
| TOTAL WELL DEPTH (Feet) | 6.0 | 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 | 0.046 | 1/4 WELL VOLUME | | 3 WELL VOLUMES | 0.138 | 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 | 1010 | PURGE TIME END | 1025 | TOTAL PURGED | 1.5 |

| 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) |
| 1013 | 0.30 | 0.30 | 0.10 | 3.93 | 5.9 | 22.5 | 284 | 0.33 | 29.5 | CLOUDY | NONE |
| 1016 | | 0.60 | | | 5.9 | 22.4 | 285 | 0.27 | 28.6 | | |
| 1019 | | 0.90 | | | 5.9 | 22.4 | 285 | 0.24 | 27.5 | | |
| 1022 | | 1.20 | | | 5.9 | 22.4 | 285 | 0.20 | 27.4 | | |
| 1025 | | 1.50 | | | 5.9 | 22.4 | 285 | 0.18 | 26.8 | | |

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) | 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 | 1025 | SAMPLING ENDED | 1025 | 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 | Sunny, 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 | 05 13 12 | SAL Project # | 1201896 | Project Name | Seminole Co |
| Well Number | C-HS2-B06-8 | Sample ID | 33 | 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) | 3.70 4.90 | PURGE PUMP CODE | PP GP IBP |
| TOTAL WELL DEPTH (Feet) | 8.0 | 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 | 0.086 | 1/4 WELL VOLUME | | 3 WELL VOLUMES | 0.258 | 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 | 1026 | PURGE TIME END | 1035 | 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) |
| 1029 | 0.30 | 0.30 | 0.10 | 3.84 | 5.7 | 22.7 | 183 | 0.71 | 10.4 | CLEAR | NONE |
| 1032 | \| | 0.60 | \| | \| | 5.7 | 22.6 | 183 | 0.68 | 8.4 | \| | \| |
| 1035 | \| | 0.90 | \| | \| | 5.8 | 22.6 | 183 | 0.62 | 7.8 | \| | \| |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

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) | 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 | 1035 | SAMPLING ENDED | 1035 | 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 | Sunny, 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:

# 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 | 031312 | SAL Project # | 1201896 | Project Name | Seminole Co |
| Well Number | SS 3/14 C-MW2-806-11 ~~C-MW2-806-10 Dup~~ | Sample ID | ~~54~~ 34 | 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) | 3.70 | PURGE PUMP CODE | (PP) GP IBP |
| TOTAL WELL DEPTH (Feet) | 11.0 | 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 | 0.146 | 1/4 WELL VOLUME | | | 3 WELL VOLUMES | 0.438 | | 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 | 1036 | PURGE TIME END | 1051 | TOTAL PURGED | 1.5 |
| 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) |
| 1039 | 0.30 | 0.30 | 0.10 | 3.92 | 5.3 | 22.7 | 148 | 0.38 | 4.87 | CLOUDY | SULFUR |
| 1042 | | 0.60 | | | 5.3 | 22.7 | 147 | 0.30 | 80.6 | | |
| 1045 | | 0.90 | | | 5.3 | 22.6 | 147 | 0.20 | 55.7 | | |
| 1048 | | 1.20 | | | 5.3 | 22.6 | 147 | 0.16 | 52.0 | | |
| 1051 | | 1.50 | | | 5.3 | 22.6 | 147 | 0.15 | 48.0 | | |
| 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) | 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 | 1051 | SAMPLING ENDED | 1051 | 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 | Sunny, 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 | 3/31/2 | SAL Project # | 1201896 | Project Name | Seminole Co |
| Well Number | C-HS2-B08-5 | Sample ID | 35 and 36 | 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) | 3.30 | 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 | 0.034 | 1/4 WELL VOLUME | | 3 WELL VOLUMES | 0.102 | | 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 | 1034 | PURGE TIME END | 1043 | TOTAL PURGED | 0.90 |
| INST. ID | | | | SAL-SAM-63-8 | SAL-SAM-65-8 | SAL-SAM-63-8 | SAL-SAM-55-8 | SAL-SAM-02 | |

| 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1037 | 0.30 | 0.3 | 0.10 | 3.38 | 5.8 | 21.1 | 428.2 | 0.71 | 49.3 | Brown | No |
| 1040 | \| | 0.6 | \| | \| | 5.9 | 21.1 | 427.5 | 0.44 | 49.0 | \| | \| |
| 1043 | \| | 0.9 | \| | \| | 5.9 | 21.1 | 427.7 | 0.45 | 50.0 | \| | \| |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

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) | 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 | 1044 | 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 | | | | | | | | |
| 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 | 3 13 12 | SAL Project # | 1201896 | Project Name | Seminole Co |
| Well Number | C-HS2-B08-7 | Sample ID | 37 | 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) | 3.33 |
| PURGE PUMP CODE | (PP) GP IBP | | | | | | | | |
| TOTAL WELL DEPTH (Feet) | 7.0 | 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 | 0.073 | 1/4 WELL VOLUME | | 3 WELL VOLUMES | 0.220 | 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 | 1057 | PURGE TIME END | 1106 | TOTAL PURGED | 0.90 |
| INST. ID | | | | SAL-SAM-63-8 | SAL-SAM-65-8 | SAL-SAM-63-8 | SAL-SAM-55-8 | SAL-SAM-0-7 | |

| 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1100 | 0.30 | 0.3 | 0.10 | 3.38 | 6.0 | 21.4 | 342.7 | 0.77 | 19.4 | clear | NOM |
| 1103 | \| | 0.6 | \| | \| | 6.0 | 21.4 | 342.6 | 0.67 | 15.3 | \| | \| |
| 1106 | \| | 0.9 | \| | \| | 6.0 | 21.4 | 342.0 | 0.47 | 14.7 | \| | \| |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

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 | 1107 | SAMPLING ENDED | 1107 | 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 | | | | | | |
| 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 | 3 13 12 | SAL Project # | 1201896 | Project Name | Seminole Co |
| Well Number | C-HS2-B08-10 | Sample ID | 38 | 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) | 3.34 | PURGE PUMP CODE (PP) GP IBP |
| TOTAL WELL DEPTH (Feet) | 10.0 | 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 | 0.13 | 1/4 WELL VOLUME | | 3 WELL VOLUMES | 0.39 | | 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 | 1106 | PURGE TIME END | 1118 | TOTAL PURGED | 0.90 |
| INST. ID | X | X | X | X | SAL-SAM-63-8 | SAL-SAM-65-8 | SAL-SAM-63-8 | SAL-SAM-55-8 | SAL-SAM-02 |

| 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1111 | 0.30 | 0.3 | 0.10 | 3.39 | 5.0 | 21.6 | 159.8 | 1.48 | 28.9 | Cloudy | NO |
| 1114 | \| | 0.6 | \| | \| | 5.0 | 21.6 | 158.9 | 0.88 | 27.4 | \| | \| |
| 1117 | \| | 0.9 | \| | \| | 4.9 | 21.6 | 157.5 | 0.59 | 31.7 | \| | \| |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

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 | 1118 | SAMPLING ENDED | 1118 | 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 | | | | | | |
| 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 | 3/3/12 | SAL Project # | 1201896 | Project Name | Seminole Co |
| Well Number | C-HS2-B10-5 | Sample ID | 39 | 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) | 3.24 | 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 | 0.0352 | 1/4 WELL VOLUME | | 3 WELL VOLUMES | 0.105 | 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 | 0947 | PURGE TIME END | 1002 | TOTAL PURGED | 1.50 |
| INST. ID | X | X | X | X | SAL-SAM-63-8 | SAL-SAM-65-8 | SAL-SAM-63-8 | SAL-SAM-55-8 | SAL-SAM-02 |

| 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0950 | 0.30 | 0.30 | 0.10 | 3.29 | 6.5 | 20.6 | 499.8 | 0.85 | 93.0 | Brown | NO |
| 0953 | | 0.60 | | | 6.5 | 20.6 | 502.1 | 0.77 | 63.4 | | |
| 0956 | | 0.90 | | | 6.5 | 20.6 | 507.4 | 0.65 | 44.8 | | |
| 0959 | | 1.20 | | | 6.6 | 20.6 | 517.4 | 0.49 | 33.3 | | |
| 1002 | | 1.50 | | | 6.6 | 20.6 | 518.4 | 0.24 | 30.9 | | |

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 | 1003 | SAMPLING ENDED | 1003 | 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 | | | | | | |
| 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 | 3-13-12 | SAL Project # | 1201896 | Project Name | Seminole Co |
| Well Number | C-HS2-B10-7 | Sample ID | 40 | 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) | 3.29 | PURGE PUMP CODE | PP GP IBP |
| TOTAL WELL DEPTH (Feet) | 7.0 | 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 | 0.074 | 1/4 WELL VOLUME | | 3 WELL VOLUMES | 0.22 | 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 | 1004 | PURGE TIME END | 1013 | TOTAL PURGED | 0.90 |

| INST. ID | | | | | SAL-SAM-63-8 | SAL-SAM-65-8 | SAL-SAM-63-8 | SAL-SAM-55-8 | SAL-SAM-02 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 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) |
| 1007 | 0.30 | 0.3 | 0.10 | 3.33 | 6.4 | 20.8 | 351.7 | 0.51 | 12.3 | clear | NO |
| 1010 | \| | 0.6 | \| | \| | 6.3 | 20.8 | 353.8 | 0.36 | 8.82 | \| | \| |
| 1013 | \| | 0.9 | \| | \| | 6.3 | 20.8 | 355.2 | 0.32 | 6.70 | \| | \| |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

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 | 1014 | 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 | | | | | | |
| 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 | 3 13 12 | SAL Project # | 1201896 | Project Name | Seminole Co |
| Well Number | C-HS2-B10-10 | Sample ID | 41 | 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) | 3.24 |
| PURGE PUMP CODE | (PP) GP IBP | | | | | | | | |
| TOTAL WELL DEPTH (Feet) | 10.0 | 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 | 0.13 | 1/4 WELL VOLUME | | 3 WELL VOLUMES | 0.40 | 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 | 1031 | TOTAL PURGED | 1.50 |
| INST. ID | | | | SAL-SAM-63-8 | SAL-SAM-65-8 | SAL-SAM-63-8 | SAL-SAM-55-8 | SAL-SAM-02 | |

| 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 | 0.3 | 0.10 | 3.31 | 4.7 | 21.1 | 144.3 | 0.31 | 80.9 | BROWN | NONE |
| 1022 | | 0.6 | | | 4.7 | 21.1 | 144.2 | 0.26 | 62.2 | | |
| 1025 | | 0.9 | | | 4.8 | 21.1 | 143.9 | 0.29 | 42.9 | | |
| 1028 | | 1.2 | | | 4.8 | 21.1 | 143.7 | 0.23 | 36.6 | | |
| 1031 | | 1.5 | | | 4.7 | 21.0 | 143.7 | 0.24 | 30.4 | | |

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) | 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 | 1032 | SAMPLING ENDED | 1032 | 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 | | | | | | |
| 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 | 3-13-12 | SAL Project # | 1201896 | Project Name | Seminole Co |
| Well Number | C-HS2-B15-5 | Sample ID | 42 | 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) | 3.35 | 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 | 0.033 | 1/4 WELL VOLUME | | 3 WELL VOLUMES | 0.099 | | 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 | 0906 | PURGE TIME END | 0917 | TOTAL PURGED | 0.90 |
| INST. ID | | | | SAL-SAM-63-8 | SAL-SAM-65-8 | SAL-SAM-63-8 | SAL-SAM-55-8 | SAL-SAM-02 | |

| 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0911 | 0.30 | 0.30 | 0.10 | 3.41 | 4.6 | 20.3 | 183.1 | 0.63 | 4.25 | clear | no |
| 0914 | \| | 0.60 | \| | \| | 4.6 | 20.4 | 180.8 | 0.42 | 3.76 | \| | \| |
| 0917 | \| | 0.90 | \| | \| | 4.6 | 20.4 | 182.4 | 0.42 | 3.30 | \| | \| |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

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 | 0918 | SAMPLING ENDED | 0918 | 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 | | | | | | |
| 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 | 3-13-12 | SAL Project # | 1201896 | Project Name | Seminole Co |
| Well Number | C-HS2-B15-7 | Sample ID | 43 | 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) | 3.40 | PURGE PUMP CODE | (PP) GP IBP |
| TOTAL WELL DEPTH (Feet) | 7.0 | 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 | 0.072 | 1/4 WELL VOLUME | | 3 WELL VOLUMES | 0.216 | 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 | 0920 | PURGE TIME END | 0936 | TOTAL PURGED | 1.50 |

| INST. ID | | | | | SAL-SAM-63-8 | SAL-SAM-65-8 | SAL-SAM-63-8 | SAL-SAM-55-8 | SAL-SAM-02 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 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) |
| 0923 | 0.30 | 0.30 | 0.10 | 3.49 | 4.9 | 20.6 | 166.7 | 0.76 | 153 | Brown | None |
| 0926 | | 0.60 | | | 4.9 | 20.6 | 166.7 | 0.35 | 126 | | |
| 0929 | | 0.90 | | | 4.9 | 20.6 | 166.3 | 0.25 | 72.8 | | |
| 0932 | | 1.20 | | | 4.9 | 20.6 | 166.4 | 0.23 | 49.0 | | |
| 0935 | | 1.30 | | | 4.9 | 20.6 | 166.7 | 0.18 | 39.6 | | |

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 | 0936 | SAMPLING ENDED | 0936 | 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 | | | | | | |
| 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 | 3 13 12 | SAL Project # | 1201896 | Project Name | Seminole Co |
| Well Number | C-HS2-B15-10 | Sample ID | 44 | 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) | 3.41 | PURGE PUMP CODE | PP GP IBP |
| TOTAL WELL DEPTH (Feet) | 10.0 | 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 | 0.13 | 1/4 WELL VOLUME | | 3 WELL VOLUMES | 0.39 | | 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 | 0938 | PURGE TIME END | 0948 | TOTAL PURGED | 0.90 | |
| INST. ID | X | X | X | X | SAL-SAM-63-8 | SAL-SAM-65-8 | SAL-SAM-63-8 | SAL-SAM-55-8 | SAL-SAM-02 | 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0941 | 0.30 | 0.30 | 0.10 | 3.47 | 4.7 | 20.9 | 146.1 | 0.92 | 18.4 | clear | No |
| 0944 | \| | 0.60 | \| | \| | 4.7 | 20.9 | 144.8 | 0.57 | 16.0 | \| | \| |
| 0947 | \| | 0.90 | \| | \| | 4.7 | 20.9 | 144.1 | 0.53 | 13.9 | \| | \| |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

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 | 0948 | SAMPLING ENDED | 0948 | 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 | | | | | | | | |
| 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 | 031312 | SAL Project # | 1201896 | 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) | 2.82 | 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 | 0.0436 | 1/4 WELL VOLUME | | 3 WELL VOLUMES | 0.1308 | 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 | 1147 | PURGE TIME END | 1156 | 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) |
| 1150 | 0.30 | 0.30 | 0.10 | 2.92 | 5.8 | 21.7 | 538 | 0.51 | 6.36 | CLEAR | NONE |
| 1153 | / | 0.60 | / | / | 5.7 | 21.7 | 560 | 0.35 | 4.97 | / | / |
| 1156 | / | 0.90 | / | / | 5.7 | 21.6 | 541 | 0.28 | 3.55 | / | / |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

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 | 1156 | 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 | Sunny, 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 | 03/3/12 | SAL Project # | 1201896 | 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) | 2.83 | PURGE PUMP CODE | PP GP IBP |
| TOTAL WELL DEPTH (Feet) | 7.0 | 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 | 0.0836 | 1/4 WELL VOLUME | | 3 WELL VOLUMES | 0.2508 | 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 | 1152 | PURGE TIME END | 1207 | 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1201 | 0.30 | 0.30 | 0.10 | 2.92 | 5.1 | 21.7 | 193 | 0.40 | 18.0 | CLEAR | NONE |
| 1204 | \| | 0.60 | \| | \| | 5.1 | 21.7 | 191 | 0.38 | 16.9 | \| | \| |
| 1207 | \| | 0.90 | \| | \| | 5.1 | 21.7 | 193 | 0.34 | 17.0 | \| | \| |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

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) | 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 | 1207 | SAMPLING ENDED | 1208 | 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 | Sunny, 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 | 031312 | SAL Project # | 1201896 | 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) | 2.82 | PURGE PUMP CODE | PP GP IBP |
| TOTAL WELL DEPTH (Feet) | 10.0 | 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 | 0.1436 | 1/4 WELL VOLUME | | 3 WELL VOLUMES | 0.4308 | 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 | 1210 | PURGE TIME END | 1225 | 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1213 | 0.30 | 0.30 | 0.10 | 2.80 | 4.9 | 21.7 | 151 | 0.22 | 363 | CLOUDY | SULFUR |
| 1216 | | 0.60 | | | 4.9 | 21.7 | 151 | 0.21 | 382 | | |
| 1219 | | 0.90 | | | 4.9 | 21.7 | 151 | 0.21 | 401 | | |
| 1222 | | 1.20 | | | 4.9 | 21.7 | 151 | 0.21 | 407 | | |
| 1225 | | 1.50 | | | 4.9 | 21.7 | 151 | 0.21 | 412 | | |

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 | 1225 | SAMPLING ENDED | 1225 | 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 | Sunny, 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:

# 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 | 031312 | SAL Project # | 1201896 | 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) | 2.80 | 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 | 0.0436 | 1/4 WELL VOLUME | | | 3 WELL VOLUMES | 0.1308 | | 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 | 1230 | PURGE TIME END | 1245 | 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1233 | 0.30 | 0.30 | 0.10 | 2.94 | 5.6 | 20.7 | 331 | 1.33 | ADL | BROWN | NONE |
| 1236 | | 0.60 | | | 5.6 | 20.6 | 333 | 1.23 | ADL | | |
| 1239 | | 0.90 | | | 5.7 | 20.5 | 332 | 1.14 | ADL | | |
| 1242 | | 1.20 | | | 5.7 | 20.5 | 332 | 1.11 | ADL | | |
| 1245 | | 1.50 | | | 5.7 | 20.5 | 332 | 1.10 | ADL | | |

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 | 1245 | SAMPLING ENDED | 1246 | 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 | Sunny, 85° | | | | | | | | |
| COMMENTS | Turbity Above limit | | | | | | | | |

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 | 031312 | SAL Project # | 1201896 | 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) | 2.80 | PURGE PUMP CODE | PP GP IBP |
| TOTAL WELL DEPTH (Feet) | 7.0 | 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 | 0.0836 | 1/4 WELL VOLUME | | 3 WELL VOLUMES | 0.2508 | 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 | 1247 | PURGE TIME END | 1302 | 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) |
| 1250 | 0.30 | 0.30 | 0.10 | 2.92 | 5.9 | 20.6 | 241 | 0.24 | 123 | CLOUDY | NONE |
| 1253 | | 0.60 | | | 5.9 | 20.6 | 241 | 0.19 | 90.7 | | |
| 1256 | | 0.90 | | | 5.9 | 20.6 | 242 | 0.17 | 67.3 | | |
| 1259 | | 1.20 | | | 5.9 | 20.6 | 242 | 0.17 | 57.0 | | |
| 1302 | | 1.50 | | | 5.9 | 20.6 | 242 | 0.16 | 53.0 | | |

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) | 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 | 1302 | SAMPLING ENDED | 1302 | 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 | Sunny, 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:

# 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 | 031312 | SAL Project # | 1201896 | Project Name | Seminole Co |
| Well Number | C-HS2-C06-10 | Sample ID | 53 and 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) | 2.80 |
| PURGE PUMP CODE | (PP) GP IBP | | | | | | | | |
| TOTAL WELL DEPTH (Feet) | 10.0 | 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 | 0.1436 | 1/4 WELL VOLUME | | 3 WELL VOLUMES | 0.4308 | 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 | 1303 | PURGE TIME END | 1318 | 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1306 | 0.30 | 0.30 | 0.10 | 2.94 | 5.2 | 21.1 | 145 | 0.20 | 367 | BROWN | NONE |
| 1309 | | 0.60 | | | 5.1 | 21.2 | 145 | 0.18 | 188 | | |
| 1312 | | 0.90 | | | 5.1 | 21.1 | 144 | 0.16 | 94.4 | | |
| 1315 | | 1.20 | | | 5.1 | 21.1 | 144 | 0.15 | 78.2 | CLOUDY | |
| 1318 | | 1.50 | | | 5.1 | 21.1 | 144 | 0.15 | 62.0 | | |

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) | 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 | 1318 | SAMPLING ENDED | 1319 | 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 | Sunny, 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 | 31312 | SAL Project # | 1201896 | Project Name | Seminole Co |
| Well Number | C-HS2-C08-5 | Sample ID | 55 and 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) | 3.40 |
| 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 | 0.032 | 1/4 WELL VOLUME | | 3 WELL VOLUMES | 0.096 | 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 | 1250 | PURGE TIME END | 1259 | TOTAL PURGED | 0.90 |
| INST. ID | X | X | X | X | SAL-SAM-63-8 | SAL-SAM-65-8 | SAL-SAM-63-8 | SAL-SAM-55-8 | SAL-SAM-02 |

| 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1253 | 0.30 | 0.30 | 0.10 | 3.47 | 5.7 | 22.8 | 505.1 | 1.88 | 22.3 | clear | NONE |
| 1256 | \| | 0.60 | \| | \| | 5.8 | 22.8 | 522 | 1.49 | 21.9 | \| | \| |
| 1259 | \| | 0.90 | \| | \| | 5.8 | 22.8 | 526 | 1.39 | 19.1 | \| | \| |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

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 | 1300 | SAMPLING ENDED | 1300 | 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 | | | | | | |
| 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 | 3/3/12 | SAL Project # | 1201896 | 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) | 3.43 |
| PURGE PUMP CODE | (PP) GP IBP | | | | | | | | |
| TOTAL WELL DEPTH (Feet) | 7.0 | 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 | 0.07 | 1/4 WELL VOLUME | | 3 WELL VOLUMES | 0.21 | 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 | 1305 | PURGE TIME END | 1315 | TOTAL PURGED | 0.90 |
| INST. ID | | | | SAL-SAM-63-8 | SAL-SAM-65-8 | SAL-SAM-63-8 | SAL-SAM-55-8 | SAL-SAM-02 | |

| 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1308 | 0.30 | 0.30 | 0.10 | 3.49 | 6.0 | 23.0 | 583 | 1.48 | 8.72 | clear | None |
| 1311 | | 0.60 | | | 6.0 | 22.9 | 585 | 1.09 | 7.16 | | |
| 1314 | | 0.90 | | | 6.0 | 22.8 | 585 | 1.08 | 6.87 | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

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 | 1315 | SAMPLING ENDED | 1315 | 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 | | | | | | |
| 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 | 3 13 12 | SAL Project # | 1201896 | 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) | 3.44 |
| PURGE PUMP CODE | (PP) GP IBP | | | | | | | | |
| TOTAL WELL DEPTH (Feet) | 10.0 | 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 | 0.13 | 1/4 WELL VOLUME | | 3 WELL VOLUMES | 0.39 | 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 | 1319 | PURGE TIME END | 1329 | TOTAL PURGED | 0.90 |
| INST. ID | X | X | X | X | SAL-SAM-63-8 | SAL-SAM-65-8 | SAL-SAM-63-8 | SAL-SAM-55-8 | SAL-SAM-02 |

| 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1322 | 0.30 | 0.30 | 0.10 | 3.49 | 5.0 | 22.6 | 173.8 | 1.41 | 29.3 | clear | NONE |
| 1325 | \| | 0.60 | \| | \| | 5.0 | 22.6 | 175.2 | 1.08 | 26.7 | \| | \| |
| 1328 | \| | 0.90 | \| | \| | 5.0 | 22.6 | 173.6 | 0.91 | 24.9 | \| | \| |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

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) | SAC | | | 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 | 1328 | SAMPLING ENDED | 1329 | 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 | | | | | | |
| 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 | 3-13-12 | SAL Project # | 1201896 | Project Name | Seminole Co |
| Well Number | C-HS2-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) | 1.02 | PURGE PUMP CODE | PP GP IBP |
| TOTAL WELL DEPTH (Feet) | 6.0 | 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 | 0.0396 | 1/4 WELL VOLUME | | 3 WELL VOLUMES | 0.1188 | 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 | 1204 | PURGE TIME END | 1214 | TOTAL PURGED | 0.90 |
| INST. ID | X | X | X | X | SAL-SAM-63-8 | SAL-SAM-65-8 | SAL-SAM-63-8 | SAL-SAM-55-8 | SAL-SAM-02 | 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1207 | 0.30 | 0.30 | 0.10 | 4.09 | 5.9 | 23.3 | 409.1 | 1.69 | 30.4 | Tannic | None |
| 1210 | \| | 0.60 | \| | \| | 5.9 | 23.3 | 412.2 | 1.41 | 29.3 | \| | \| |
| 1213 | \| | 0.90 | \| | \| | 5.9 | 23.3 | 415.1 | 1.38 | 28.5 | \| | \| |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

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 | 1214 | SAMPLING ENDED | 1214 | 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 | | | | | | |
| 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 | 3 13 12 | SAL Project # | 1201896 | 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) | 4.05 |
| PURGE PUMP CODE | (PP) GP IBP | | | | | | | | |
| TOTAL WELL DEPTH (Feet) | 8.0 | 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 | 0.079 | 1/4 WELL VOLUME | | 3 WELL VOLUMES | 0.237 | 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 | 1216 | PURGE TIME END | 1226 | TOTAL PURGED | 0.90 |
| INST. ID | X | X | X | X | SAL-SAM-63-8 | SAL-SAM-65-8 | SAL-SAM-63-8 | SAL-SAM-55-8 | SAL-SAM-02 |

| 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1219 | 0.30 | 0.30 | 0.10 | 4.09 | 5.7 | 23.2 | 185.1 | 1.61 | 7.60 | clear | None |
| 1222 | \| | 0.60 | \| | \| | 5.6 | 23.2 | 184.2 | 1.53 | 6.22 | \| | \| |
| 1225 | \| | 0.90 | \| | \| | 5.6 | 23.2 | 186.5 | 1.40 | 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 | 1226 | SAMPLING ENDED | 1226 | 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 | | | | | | |
| 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:

# 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 | 3-13-12 | SAL Project # | 1201896 | Project Name | Seminole Co |
| Well Number | C-HS2-C10-12 | Sample ID | 61 | 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) | 4.05 | PURGE PUMP CODE | (PP) GP IBP |
| TOTAL WELL DEPTH (Feet) | 12.0 | 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 | 0.15 | 1/4 WELL VOLUME | | 3 WELL VOLUMES | 0.47 | 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 | 1227 | PURGE TIME END | 1242 | TOTAL PURGED | 1.50 | |
| INST. ID | X | X | X | X | SAL-SAM-63-8 | SAL-SAM-65-8 | SAL-SAM-63-8 | SAL-SAM-55-8 | SAL-SAM-02 | 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1230 | 0.30 | 0.30 | 0.10 | 4.12 | 5.0 | 23.3 | 142.1 | 2.44 | 497 | Brown | None |
| 1233 | | 0.60 | | | 5.0 | 23.4 | 144.9 | 2.28 | 283 | | |
| 1236 | | 0.90 | | | 5.0 | 23.5 | 144.0 | 2.11 | 234 | | |
| 1239 | | 1.20 | | | 5.0 | 23.5 | 142.3 | 1.88 | 199 | | |
| 1242 | | 1.50 | | | 5.0 | 23.5 | 141.8 | 1.81 | 172 | | |

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 | 1243 | SAMPLING ENDED | 1243 | 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 | | | | | | |
| 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:

# 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 | 3/13/2 | SAL Project # | 1201896 | 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) | 3.59 |
| 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 | 0.028 | 1/4 WELL VOLUME | | 3 WELL VOLUMES | 0.084 | 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 | 1124 | PURGE TIME END | 1139 | TOTAL PURGED | 1.50 |
| INST. ID | | | | SAL-SAM-63-8 | SAL-SAM-65-8 | SAL-SAM-63-8 | SAL-SAM-55-8 | SAL-SAM-02 | |

| 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1127 | 0.30 | 0.30 | 0.10 | 3.62 | 5.1 | 22.7 | 239.1 | 1.26 | 134 | Brown | None |
| 1130 | | 0.60 | | | 5.1 | 22.7 | 242.3 | 1.01 | 157 | | |
| 1133 | | 0.90 | | | 5.0 | 22.8 | 244.6 | 0.55 | 190 | | |
| 1136 | | ~~0~~ 1.20 | | | 5.0 | 22.8 | 245.4 | 0.53 | 213 | | |
| 1139 | | 1.50 | | | 5.0 | 22.8 | 248.1 | 0.58 | 241 | | |

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 | 1140 | SAMPLING ENDED | 1140 | 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 | | | | | | |
| 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 | 3 13 12 | SAL Project # | 1201896 | 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) | 3.59 |
| PURGE PUMP CODE | PP (circled) GP IBP | | | | | | | | |
| TOTAL WELL DEPTH (Feet) | 7.0 | 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 | 0.20 | 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 | 1141 | PURGE TIME END | 1150 | TOTAL PURGED | 0.90 |
| INST. ID | X | X | X | X | SAL-SAM-63-8 | SAL-SAM-65-8 | SAL-SAM-63-8 | SAL-SAM-55-8 | SAL-SAM-02 |

| 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1144 | 0.30 | 0.30 | 0.10 | 3.62 | 5.0 | 22.5 | 190.2 | 0.68 | 30.0 | Tannic | none |
| 1147 | \| | 0.60 | \| | \| | 5.0 | 22.4 | 190.8 | 0.55 | 26.3 | \| | \| |
| 1150 | \| | 0.90 | \| | \| | 5.0 | 22.5 | 191.1 | 0.41 | 25.9 | \| | \| |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

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 | 1151 | SAMPLING ENDED | 1151 | 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 | | | | | | | | |
| 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 | 031312 | SAL Project # | 1201896 | Project Name | Seminole Co |
| Well Number | C-HS2-C11-10 | Sample ID | 64 | GPS LAT | |
| | | | | GPS LONG | |

## PURGING DATA

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| WELL DIAMETER (Inches) | .75 | WELL CAPACITY (gal/ft) | 0.02 | Screen Interval (Feet) | UNK | To | UNK | Static Depth to Water (Feet) | 3.59 |
| PURGE PUMP CODE | (PP) GP IBP | | | | | | | | |
| TOTAL WELL DEPTH (Feet) | 10.0 | 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 | 0.12 | 1/4 WELL VOLUME | | 3 WELL VOLUMES | 0.38 | 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 | 1152 | PURGE TIME END | 1201 | TOTAL PURGED | 0.90 |
| INST. ID | X | X | X | X | SAL-SAM-63-8 | SAL-SAM-65-8 | SAL-SAM-63-8 | SAL-SAM-55-8 | SAL-SAM-02 |

| 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1155 | 0.30 | 0.30 | 0.10 | 3.62 | 4.6 | 22.7 | 150.1 | 1.13 | 19.1 | clear | NOM |
| 1158 | \| | 0.60 | \| | \| | 4.7 | 22.7 | 149.5 | 0.88 | 14.2 | \| | \| |
| 1201 | \| | 0.90 | \| | \| | 4.7 | 22.7 | 147.9 | 0.79 | 9.39 | \| | \| |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

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 | 1202 | SAMPLING ENDED | 1202 | 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 | | | | | | |
| 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:

# 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 | 031312 | SAL Project # | 1201896 | Project Name | Seminole Co |
| Well Number | C-HS2-D04-5 | Sample ID | 65 | 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) | 2.55 |
| 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 | 0.049 | 1/4 WELL VOLUME | | 3 WELL VOLUMES | 0.147 | 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 |

| 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 | | |
| 1435 | 0.30 | 0.30 | 0.10 | 2.55 | 5.8 | 22.3 | 342.8 | 0.43 | 236 | CLOUDY | NONE |
| 1438 | | 0.60 | | | 5.8 | 22.3 | 344.3 | 0.29 | 135 | | |
| 1441 | | 0.90 | | | 5.8 | 22.0 | 345.5 | 0.25 | 89.3 | | |
| 1444 | | 1.20 | | | 5.9 | 22.2 | 348.2 | 0.21 | 88.0 | | |
| 1447 | | 1.50 | | | 5.9 | 22.2 | 347.6 | 0.20 | 87.2 | | |

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) | 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 | 1447 | SAMPLING ENDED | 1447 | 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 | Sunny, 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 | 031312 | SAL Project # | 1201896 | Project Name | Seminole Co |
| Well Number | C-HS2-D04-7 | Sample ID | 66 | 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) | 2.53 | PURGE PUMP CODE (PP) GP IBP |
| TOTAL WELL DEPTH (Feet) | 7.0 | 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 | 0.0894 | 1/4 WELL VOLUME | | 3 WELL VOLUMES | 0.2682 | 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 | 1448 | PURGE TIME END | 1457 | TOTAL PURGED | 0.90 | |
| 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) |
| 1451 | 0.30 | 0.30 | 0.10 | 2.53 | 6.2 | 22.8 | 258.0 | 0.78 | 28.7 | CLOUDY | NONE |
| 1454 | \| | 0.60 | \| | \| | 6.1 | 22.7 | 254.9 | 0.75 | 26.3 | \| | \| |
| 1459 | \| | 0.90 | \| | \| | 6.1 | 22.7 | 254.3 | 0.53 | 25.4 | \| | \| |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

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) | 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 | 1457 | SAMPLING ENDED | 1458 | 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 | Sunny, 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 | 031312 | SAL Project # | 1201896 | Project Name | Seminole Co |
| Well Number | C-HS2-D04-10 | Sample ID | 67 | 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) | 2.55 |
| PURGE PUMP CODE | (PP) GP IBP | | | | | | | | |
| TOTAL WELL DEPTH (Feet) | 10.0 | 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 | 0.149 | 1/4 WELL VOLUME | | 3 WELL VOLUMES | 0.447 | 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 | 1500 | PURGE TIME END | 1515 | TOTAL PURGED | 1.50 ~~0.90~~ SS 3/14 |

| 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) |
| 1503 | 0.30 | 0.30 | 0.10 | 2.55 | 5.7 | 22.2 | 157.6 | 0.19 | 288 | CLOUDY | SULFUR |
| 1506 | | 0.60 | | | 5.7 | 22.2 | 159.1 | 0.15 | 205 | | |
| 1509 | | 0.90 | | | 5.7 | 22.2 | 159.1 | 0.15 | 198 | | |
| 1512 | | 1.20 | | | 5.7 | 22.2 | 159.1 | 0.15 | 178 | | |
| 1515 | | 1.50 | | | 5.7 | 22.2 | 159.4 | 0.15 | 165 | | |

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 | 1515 | SAMPLING ENDED | 1516 | 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 | Sunny, 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 | 031312 | SAL Project # | 1201896 | Project Name | Seminole Co |
| Well Number | C-HS2-D07-6 | Sample ID | 68 and 69 | 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) | 3.95 | PURGE PUMP CODE | (PP) GP IBP |
| TOTAL WELL DEPTH (Feet) | 6.0 | 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 | 0.041 | 1/4 WELL VOLUME | | | 3 WELL VOLUMES | 0.123 | | 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 | 1335 | PURGE TIME END | 1350 | 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1338 | 0.30 | 0.30 | 0.10 | 3.98 | 6.1 | 21.8 | 570 | 0.37 | 106 | CLOUDY | NONE |
| 1341 | | 0.60 | | | 6.2 | 21.8 | 568 | 0.31 | 57.8 | | |
| 1344 | | 0.90 | | | 6.2 | 21.8 | 568 | 0.30 | 57.4 | | |
| 1347 | | ~~0~~ 1.20 | | | 6.2 | 21.8 | 568 | 0.30 | 49.8 | | |
| 1350 | | 1.50 | | | 6.2 | 21.8 | 568 | 0.30 | 44.0 | | |

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) | 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 | 1350 | SAMPLING ENDED | 1350 | 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 | Sunny, 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 | 031312 | SAL Project # | 1201896 | Project Name | Seminole Co |
| Well Number | C-HS2-D07-8 | Sample ID | 70 | 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) | 3.95 |
| PURGE PUMP CODE | (PP) GP IBP | TOTAL WELL DEPTH (Feet) | 8.0 | 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 | 0.081 | 1/4 WELL VOLUME | | 3 WELL VOLUMES | 0.243 | 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 | 1357 | PURGE TIME END | 1412 | 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1400 | 0.30 | 0.30 | 0.10 | 3.95 | 6.1 | 21.9 | 305 | 0.36 | 118 | CLOUDY | NONE |
| 1403 | | 0.60 | | | 6.1 | 22.0 | 310 | 0.22 | 88.7 | | |
| 1406 | | 0.90 | | | 6.1 | 22.0 | 310 | 0.20 | 84.5 | | |
| 1409 | | 1.20 | | | 6.1 | 22.0 | 310 | 0.18 | 79.9 | | |
| 1412 | | 1.50 | | | 6.1 | 22.0 | 312 | 0.17 | 78.7 | | |

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 | 1412 | SAMPLING ENDED | 1412 | 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 | Sunny, 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:

# 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 | 031312 | SAL Project # | 1201896 | Project Name | Seminole Co |
| Well Number | C-HS2-D07-11 | Sample ID | 71 | 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) | 3.95 | PURGE PUMP CODE (PP) GP IBP |
| TOTAL WELL DEPTH (Feet) | 11.0 | 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 | 0.141 | 1/4 WELL VOLUME | | 3 WELL VOLUMES | 0.423 | | 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 | 1413 | PURGE TIME END | 1428 | 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1416 | 0.30 | 0.30 | 0.10 | 3.95 | 5.6 | 22.3 | 135 | 0.29 | ADL | BROWN | SULFUR |
| 1419 | | 0.60 | | | 5.6 | 22.2 | 134 | 0.19 | | | |
| 1422 | | 0.90 | | | 5.6 | 22.2 | 135 | 0.18 | | | |
| 1425 | | 1.20 | | | 5.6 | 22.2 | 135 | 0.17 | | | |
| 1428 | | 1.50 | | | 5.7 | 22.2 | 134 | 0.15 | | | |

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 | 1428 | 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 | Sunny, 85° | | | | | | | | |
| COMMENTS | Turbity Above limit | | | | | | | | |

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 | 031312 | SAL Project # | 1201896 | 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-63-8 | SAL-SAM-65-8 | SAL-SAM-63-8 | SAL-SAM-55-8 | SAL-SAM-02 | |
| 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) |
| 1515 | | | | | 7.5 | 20.4 | 224.1 | 3.94 | 0.21 | 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 | 1515 | SAMPLING ENDED | 1515 | 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 | | | | | | | | |
| 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:

# 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 | 031312 | SAL Project # | 1201896 | Project Name | Seminole Co |
| Well Number | FB-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 | | | 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-63-8 | SAL-SAM-65-8 | SAL-SAM-63-8 | SAL-SAM-55-8 | SAL-SAM-02 | |
| 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) |
| 1525 | | | | | 6.0 | 33.2 | 7.0 | 4.16 | 0.09 | 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 | 1525 | SAMPLING ENDED | 1525 | 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 | | | | | | | |
| 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 | 031312 | SAL Project # | 1201896 | 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-63-8 | SAL-SAM-65-8 | SAL-SAM-63-8 | SAL-SAM-55-8 | SAL-SAM-02 | | |
| 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) |
| 1520 | | | | | 6.0 | 33.2 | 2.0 | 4.16 | 0.09 | 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 | 1520 | SAMPLING ENDED | 1520 | FIELD CLEANED | Y N | CLEANING STEPS | DI | | |
| 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 | | | | | | | | |
| 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