FLORIDA DEPARTMENT OF HEALTH

Florida Onsite Sewage Nitrogen Reduction Strategies Study

Task C.25

C-HS3 Monitoring Data Summary Report No. 1

Progress Report

November 2012

4423-001

HAZEN AND SAWYER
Environmental Engineers & Scientists

In association with

SCHOOL OF MINES 1874 COLORADO

AET
Applied Environmental Technology

OTIS ENVIRONMENTAL CONSULTANTS, LLC

Florida Onsite Sewage Nitrogen Reduction Strategies Study

TASK C.25
PROGRESS REPORT

C-HS3 Monitoring
Data Summary Report No. 1

Prepared for:

Florida Department of Health
Division of Disease Control and Health Protection
Bureau of Environmental Health
Onsite Sewage Programs
4042 Bald Cypress Way Bin #A-08
Tallahassee, FL 32399-1713

FDOH Contract CORCL

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Prepared by:

HAZEN AND SAWYER
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Data Summary Report No. 1

1.0 Background

Task C of the Florida Onsite Sewage Nitrogen Reduction Strategies Study includes monitoring at field sites in Florida to evaluate nitrogen reduction in soil and groundwater, to assess groundwater impacts from various onsite wastewater systems, and to provide data for parameter estimation, verification, and validation of models developed in Task D. The Task C.5 QAPP documents the objectives, monitoring framework, sample frequency and duration, and analytical methods to be used at the field sites. The Task C.23 instrumentation report for the C-HS3 OSTDS system and plume documents the test area design, number and location of monitoring points, and preliminary field parameters from monitoring points for this Polk County, Florida field site, and also includes preliminary sample collection and analyses.

2.0 Purpose

This report documents data that was collected in the first C-HS3 monitoring and sampling event which was conducted August 28 through August 30, 2012. The corresponding sample event report was submitted as C-HS3 Sample Event Report No. 1, September 2012, as a deliverable under Task C.24. The monitoring event consisted of 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-HS3 field site is located in Polk County, FL adjacent to Big Gum Lake in a rural area surrounded by commercial orange groves. The onsite sewage treatment and disposal system (OSTDS) for the residence consists of a 750 gallon concrete septic tank located adjacent to the soil treatment unit, which is a gravity fed standard bed drainfield, 10 ft by 20 ft in area.

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3.2 Monitoring and Sampling Locations and Identification

A sampling grid for groundwater screening was developed downgradient of the soil treatment unit as depicted in Figure 1. A 6-foot by 5-foot grid spacing was staked. Transect lines A through U run east-west, roughly perpendicular to the groundwater flow direction and increase (higher letter identification) moving northward from the drainfield. Transect lines 0 through 7 run north-south, roughly parallel to the groundwater flow direction and increase moving from the east to west. Based on initial screening data, 22 monitoring locations were chosen within the grid for standpipe piezometer installation. Groundwater monitoring points were installed on June 2012. One type of monitoring point was installed using either hand or drilling methods (standpipe piezometer). Standpipe piezometers consist of either ¾-inch or 1-inch diameter PVC with a 1-foot or 5-foot screen (0.010-inch slots) and riser extending to the ground surface (refer to the Task C QAPP and Task C.23 C-HS3 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 well screen in feet). For example A03-15 is a standpipe piezometer sampler located on the grid at A03 at 15 feet below ground surface. A schematic of the C-HS3 monitoring network is shown in Figure 1. A complete list of all installed standpipe piezometers and sample identification is included in Appendix A.

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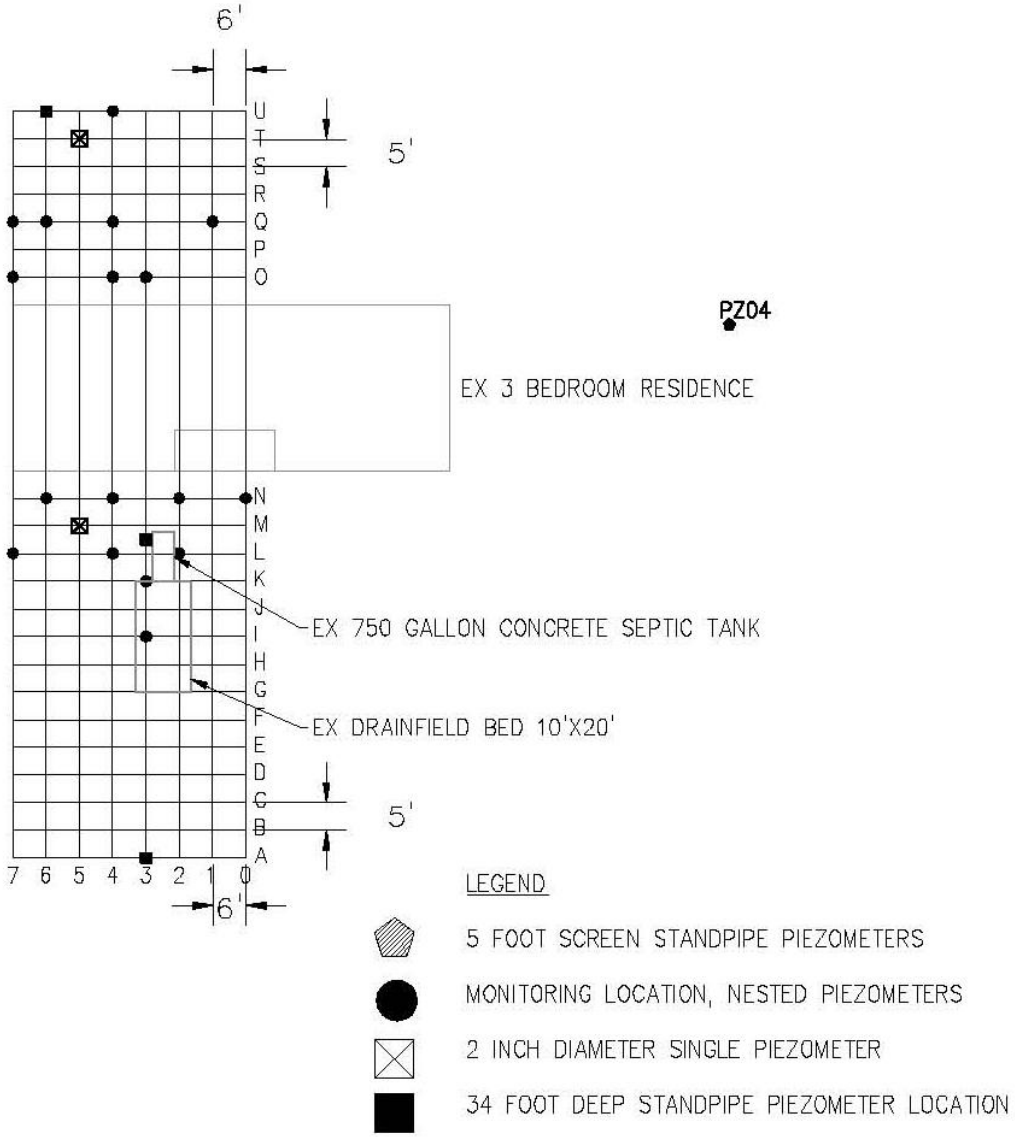

Figure 1
C-HS3 Monitoring Network

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3.3 Operational Monitoring

A water meter for the site has not yet been installed. A weather station (Ben Hill Griffin Elementary School in Frostproof, FL) is located approximately 17 miles from the site. Data from this weather station is available at the following website: http://fawn.ifas.ufl.edu/.

3.4 Soil Characteristics

Continuous soil samples were collected using the direct push method at grid locations ML0 and O03 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 analyzed 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 groundwater flow. Groundwater levels were measured by inserting into monitoring wells a hand-cranked steel tape graduated in feet, to the nearest 0.01 ft. These measurements are then converted to groundwater surface elevations by using the surveyed elevation of the top of the monitoring well casing. The groundwater level within all the sampled standpipe piezometers was measured for this sampling event.

3.6 Water Quality Sample Collection and Analyses

Groundwater and septic tank effluent (STE) were collected August 28 through August 30, 2012 for water quality analysis. A sample was collected from the septic tank 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.

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 rec-

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orded 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-HS3-STE
- C-HS3-PZ-A03-15
- C-HS3-PZ-N04-17
- C-HS3-PZ-O03-17
- C-HS3-PZ-Q06-15
- C-HS3-PZ-U06-12

Field parameters (pH, specific conductance, temperature (Temp), and dissolved oxygen (DO)) were measured using portable electronic probes with probe tips placed in an overflowing plastic beaker as groundwater was being pumped. All samples were analyzed by the laboratory for: total alkalinity, total Kjeldahl nitrogen (TKN-N), ammonia nitrogen (NH_3-N), nitrate/nitrite nitrogen (NO_X-N), and chloride (CL). At some of the locations, chemical oxygen demand (COD), total phosphorus (TP), 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), total suspended solids (TSS), and fecal coliform (fecal) were included. All analyses were performed by an independent and fully certified analytical laboratory (Southern Analytical Laboratory and FDEP). Table 1 lists the analytical parameters, analytical methods, and detection limits for these analyses.

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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	SM 4500P-E	0.01 mg/L
Dissolved Organic Carbon (DOC)	SM 5310B	0.5 mg/L
Total Organic Carbon (TOC)	SM 5310B	0.5 mg/L
Total Solids (TS)	EPA 160.3	0.01% by wt
Total Suspended Solids (TSS)	SM 2540D	1 mg/L
Fecal Coliform (fecal)	SM9222D	1 ct/100mL
Anions		
Fluoride	EPA 300.0	0.01 mg/L
Chloride	EPA 300.0	0.05 mg/L
Nitrate-N	EPA 300.0	0.01 mg/L
Nitrite-N	EPA 300.0	0.01 mg/L
Orthophosphate-P	EPA 300.0	0.01 mg/L
Sulfate	EPA 300.0	0.20 mg/L
Cations		
Boron	EPA 200.7	0.05 mg/L
Calcium	EPA 200.7	0.01 mg/L
Iron	EPA 200.7	0.02 mg/L
Magnesium	EPA 200.7	0.01 mg/L
Manganese	EPA 200.7	0.001 mg/L
Potassium	EPA 200.7	0.01 mg/L
Sodium	EPA 200.7	0.01 mg/L
Sucralose	EPA 8321B	0.01 µg/L

3.7 Data Management

To allow for a better visualization of the data collected at the site the mapping program **Surfer** was utilized. **Surfer** is a grid-based mapping program that interpolates irregularly spaced XYZ data into a regularly spaced grid. Although there are several methods used in Surfer to fill in areas where data is missing, the “natural neighbor” gridding method was used as the output gave the most informative graphs.

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4.0 Results

4.1 Site Conditions

Daily recorded meteorological data is provided in Appendix C. Table 2 provides the daily averages leading up to and during the sample event.

Table 2
Meteorological Data Daily Averages Measured August 28 through August 30, 2012

Date	Temp Avg 60cm (°F)	Temp Avg 2m (°F)	Temp Avg 10m (°F)	Temp Soil Avg -10cm (°F)	Dewpoint Avg 2m (°F)	Relative Humidity Avg 2m (%)	Rain Total 2m (in)	2m Rain max over 15min (in)	10m Wind avg (mph)
24-Aug-12	80.80	80.94	79.69	84.69	73.66	80	0	0	7.32
25-Aug-12	78.75	79.06	77.72	84.21	71.15	78	0	0	9.17
26-Aug-12	77.36	78.12	77.19	83.33	75.80	93	1.09	0.19	12.35
27-Aug-12	77.60	78.37	77.36	79.68	76.21	93	3.19	0.39	14.59
28-Aug-12	79.83	80.08	78.92	81.80	76.82	90	0.24	0.07	9.85
29-Aug-12	80.03	80.16	79.10	82.99	76.03	88	0.15	0.11	6.47
30-Aug-12	82.18	82.02	81.07	83.67	75.08	81	0.02	0.02	4.24

4.2 Groundwater Levels

Water levels were measured within the standpipe piezometers sampled August 28 through August 30, 2012 for this sampling event as summarized in Table 3. Figure 2 illustrates the surficial groundwater contours as measured within the standpipe piezometers.

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Table 3
Standpipe Piezometer Groundwater Levels
(August 28 through August 30, 2012)

Identification	Water Table El[1] (ft)	Identification	Water Table El[1] (ft)
PZ01	95.75	PZ-06N-15	95.31
PZ02	94.64	PZ-06N-17	95.09[2]
PZ03	95.24	PZ-06N-21	95.31
PZ04	95.25	PZ-03O-15	95.15
PZ05	94.58	PZ-03O-17	95.34[2]
PZ-03A-15	95.52	PZ-03O-21	95.10
PZ-03A-17	95.52	PZ-04O-15	95.12
PZ-03A-21	95.51	PZ-04O-17	93.94[2]
PZ-03A-34	95.53	PZ-04O-21	94.03
PZ-03I-15	95.40	PZ-07O-15	95.03
PZ-03I-17	95.41	PZ-07O-17	95.10
PZ-03I-21	95.40	PZ-07O-20	95.08
PZ-03K-15	95.45	PZ-01Q-13	95.06
PZ-03K-17	95.39	PZ-01Q-15	95.05
PZ-03K-21	95.43	PZ-01Q-19	95.09
PZ-02L-15	95.60[2]	PZ-04Q-13	95.08
PZ-02L-17	95.28[2]	PZ-04Q-15	94.99
PZ-02L-21	95.37[2]	PZ-04Q-19	95.01
PZ-04L-15	95.36	PZ-06Q-13	95.08
PZ-04L-17	95.16[2]	PZ-06Q-15	95.06
PZ-04L-21	95.38	PZ-06Q-19	95.11
PZ-07L-15	95.35	PZ-07Q-13	95.11
PZ-07L-17	95.31	PZ-07Q-15	95.13
PZ-07L-21	95.34	PZ-07Q-19	95.14
PZ-00N-15	95.37	PZ-04U-12	95.01
PZ-00N-17	95.39	PZ-04U-14	95.02
PZ-00N-21	95.32	PZ-04U-18	94.97
PZ-04N-15	95.33	PZ-06U-12	94.94[2]
PZ-04N-17	95.33	PZ-06U-14	94.78
PZ-04N-21	95.34	PZ-06U-34	94.75

[1]Elevation above mean sea level based on NGVD 1929
[2]Potentially erroneous instrument reading

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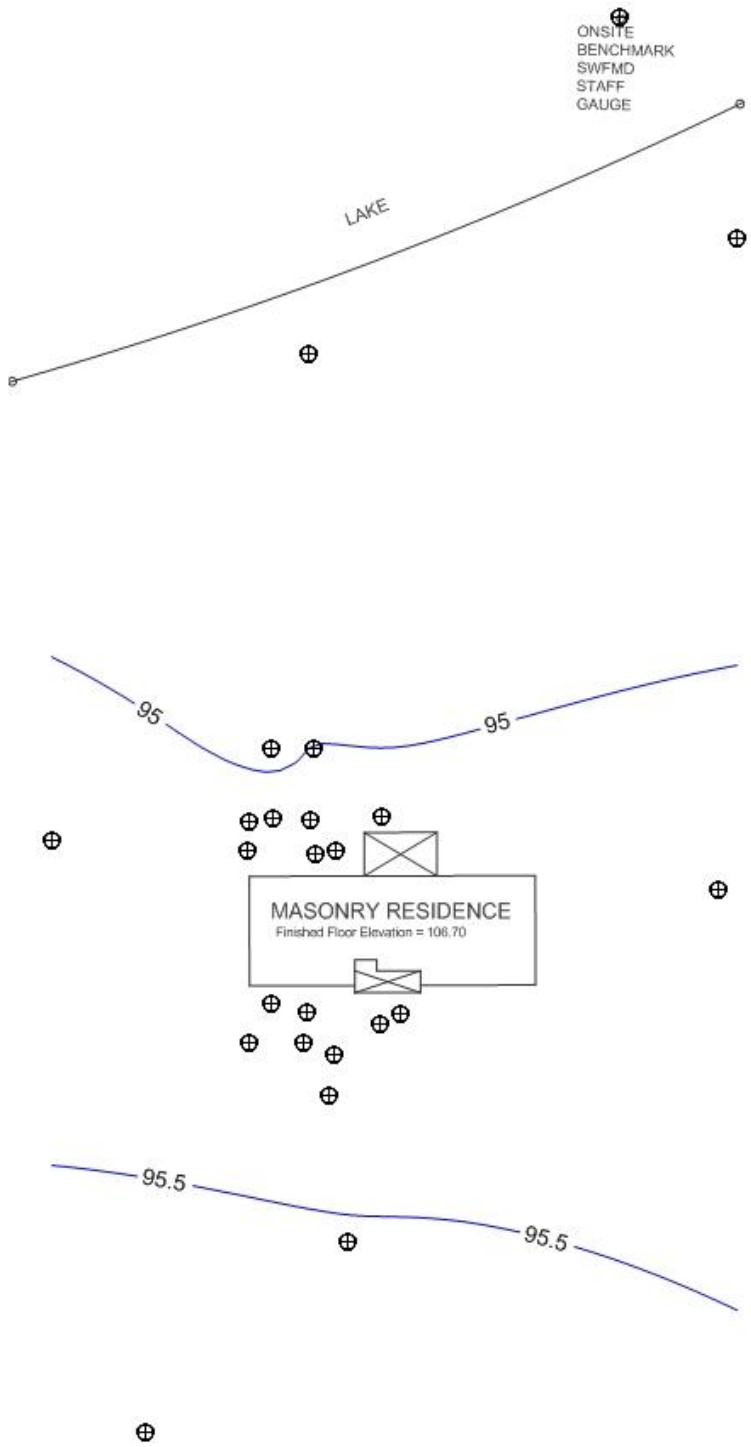

Figure 2
Surficial Groundwater Contours August 28, 2012

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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 prior to sample collection and are provided in Appendix D. Variations in measured values between monitoring points were expected as the chemical composition of the groundwater varied due to the discharge of STE.

4.3.2 Correlations

Correlations between nitrogen parameters were investigated to determine if simple to measure field parameters could continue to be used to locate contaminant plumes. Figures 3 and 4 show scatter plots of nitrogen vs conductivity and chloride, respectively, for groundwater samples. The graphs show that increasing groundwater conductivity and chloride is generally associated with increased groundwater nitrogen concentrations. A stronger linear correlation is observed for conductivity (Figure 3).

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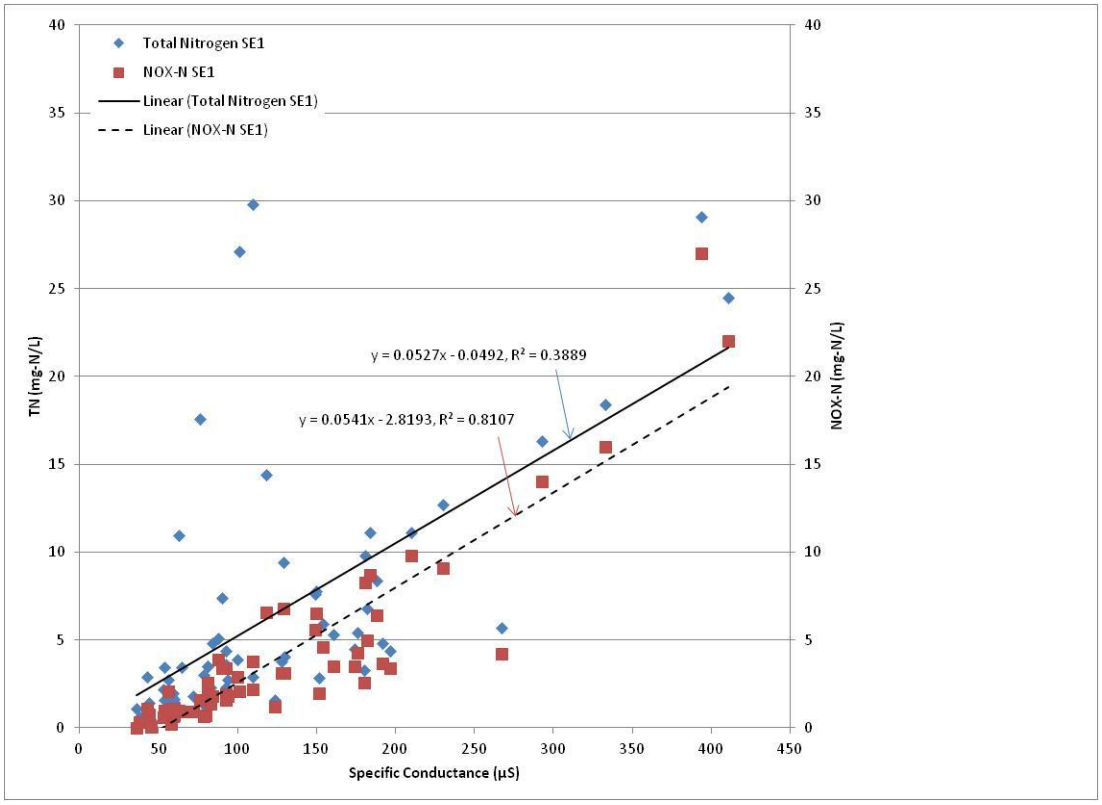

Figure 3
Correlation Between the Specific Conductance (uS) and the Concentrations of Total Nitrogen (mg-N/L) and NOX (mg-N/L)

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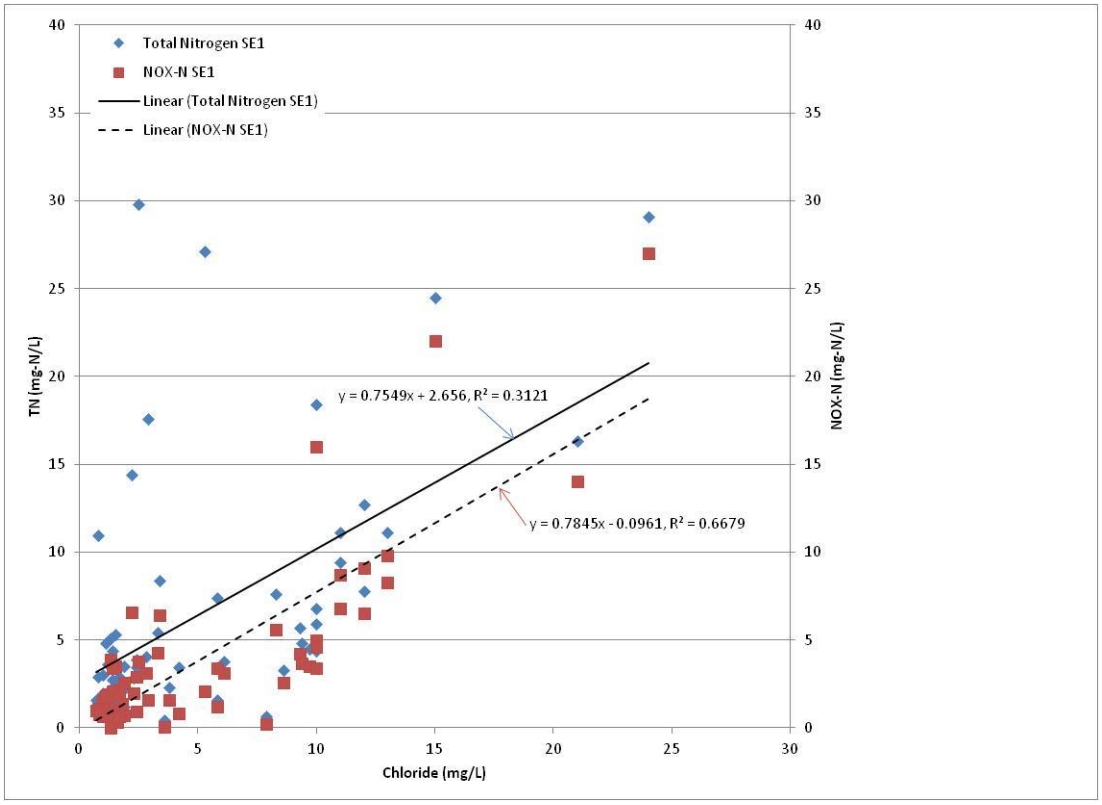

Figure 4
Correlation Between Chloride (mg/L) and the Concentrations of Total Nitrogen (mg-N/L) and NOX (mg-N/L)

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). At some of the locations, chemical oxygen demand (COD), total phosphorus (TP), 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), total suspended solids (TSS), and fecal coliform (fecal) were included. By analyzing for the different nitrogen species, a clearer picture is gained on the transformation of nitrogen within the plume. The complete water quality analytical results for Sample Event No. 1 are listed in Table 1 of Appendix D. The laboratory report containing the raw analytical data is included in Appendix E.

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4.3.4 Nitrate/Nitrite Concentrations with Groundwater Depth

The general trend of the nitrogen plume at the site can be somewhat determined. Although **Surfer** is an informative tool for mapping the information from the site, it cannot project a 3-dimensional view of concentrations with depth. The 65 piezometers installed at different locations and depths below the ground surface were mapped in **Surfer**. The concentrations of NOX at all locations where groundwater samples were obtained are illustrated in Figures 5, 6, 7, and 8. Based on the distribution of points with depth, three "slices" were chosen for the groundwater data surrounding the system. The three slices were separated by elevation above sea level (NGVD29 datum). A **Surfer** schematic illustrating the "slices" of NOX concentration with depth from August 2012 are presented in Figures 5 through 7. The maps show contours of the concentrations as estimated using the "natural neighbor" gridding method in **Surfer™**. This method was used because it did not extend results past data points, as was noted on previous project results. In addition, Figure 8 presents the contours of the concentrations for the shallow piezometers across the site (including the background piezometers).

The shallow piezometer NOX results near the system (Figure 5) appear to show the plume to be confined in a slightly northwesterly direction from the drainfield with a gap where the house is sited (no data). The middle piezometers (Figure 6) seem to indicate a high NOX concentration northwest of the system, downgradient from the house. This cannot be explained at this time and will be investigated further in subsequent monitoring events. The deeper piezometers (Figure 7) indicate relatively low NOX concentrations at this point in time, similar to background levels (Figure 8).

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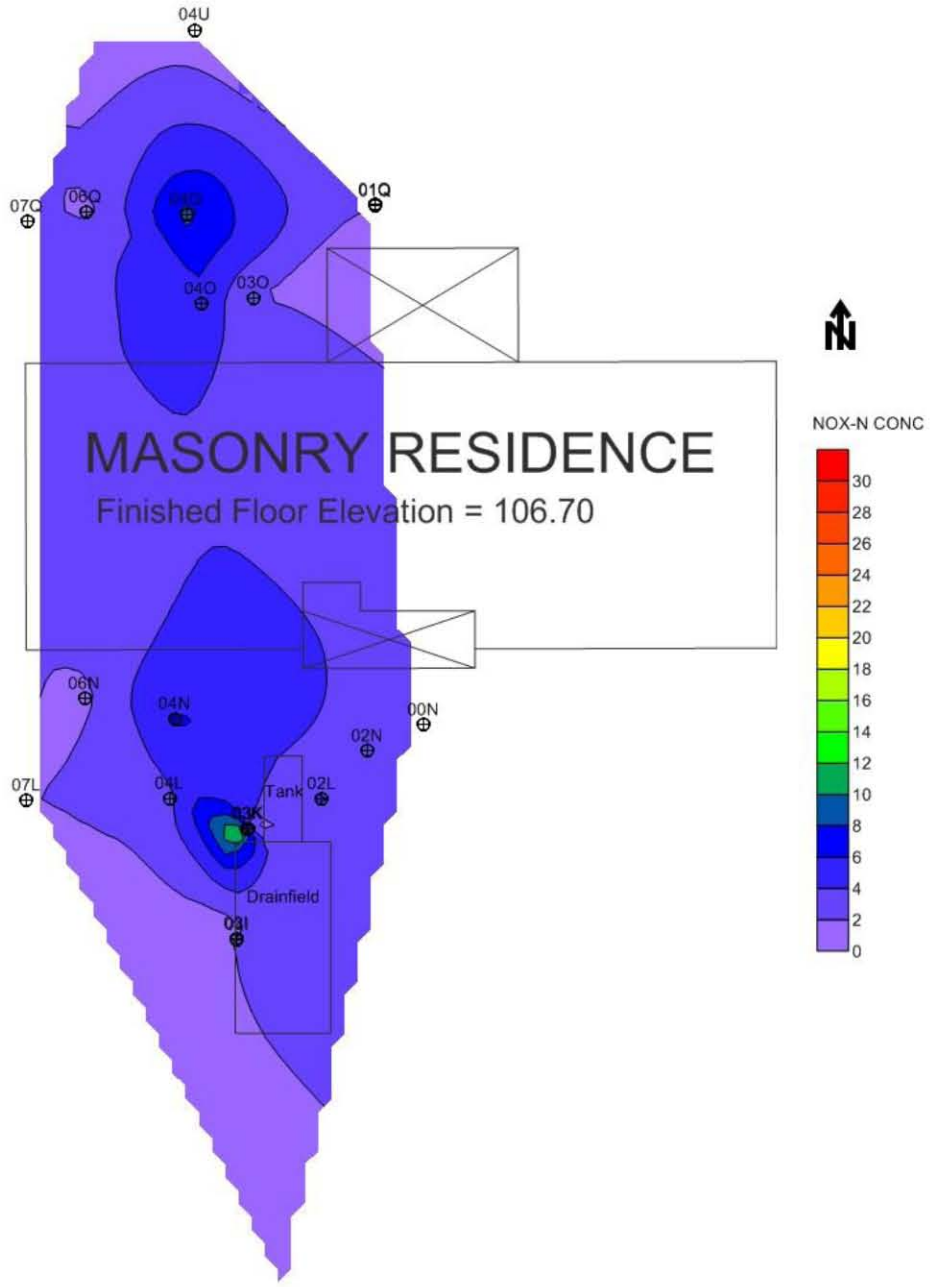

Figure 5
Shallow Elev 90-95.6 ft above MSL (August 2012 Sample Event)
Schematic (using Surfer) illustrating NOX concentrations in the subsurface

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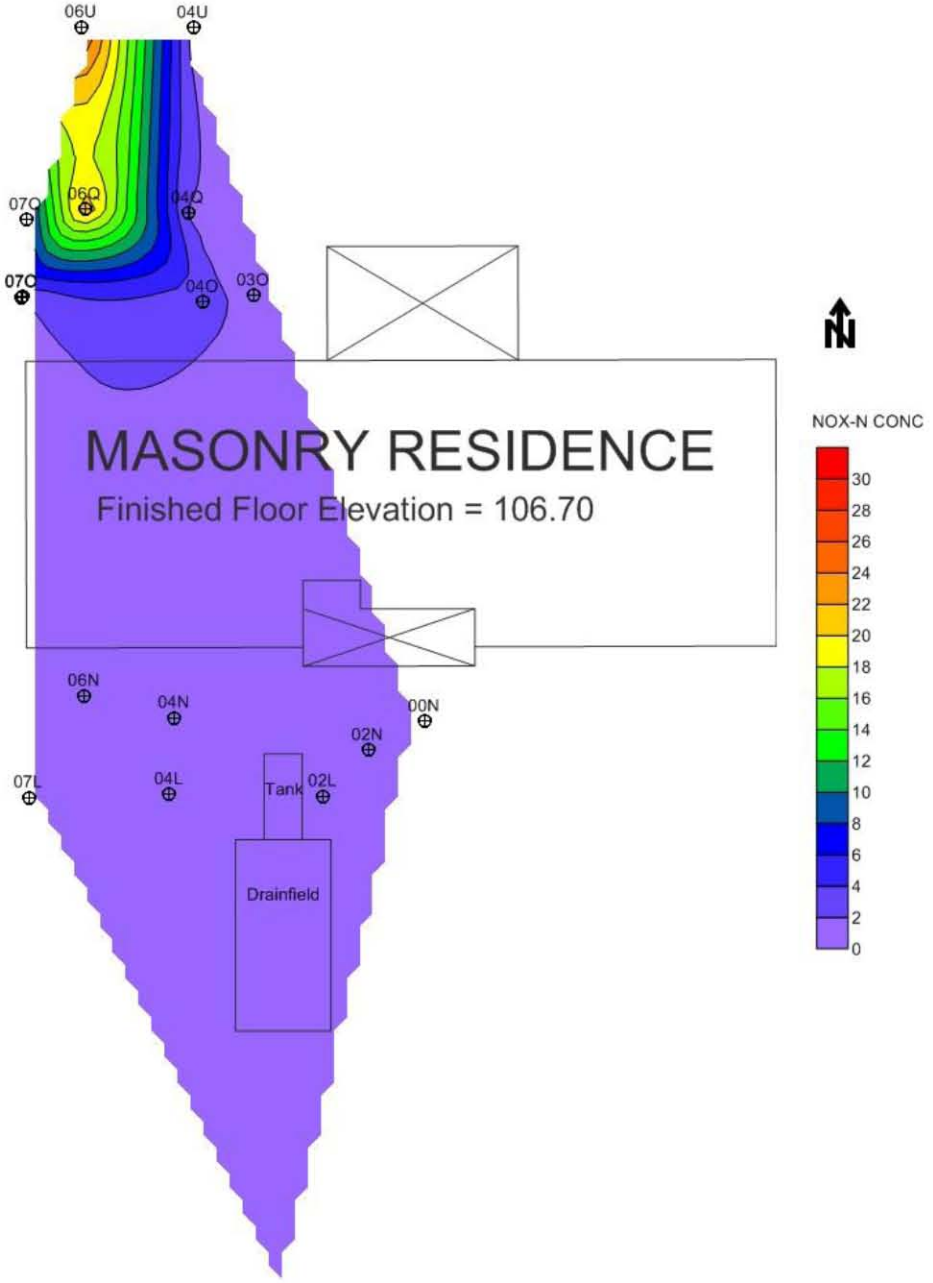

Figure 6
Elev 87-90 ft above MSL (August 2012 Sample Event)
Schematic (using Surfer) illustrating NOX concentrations in the subsurface

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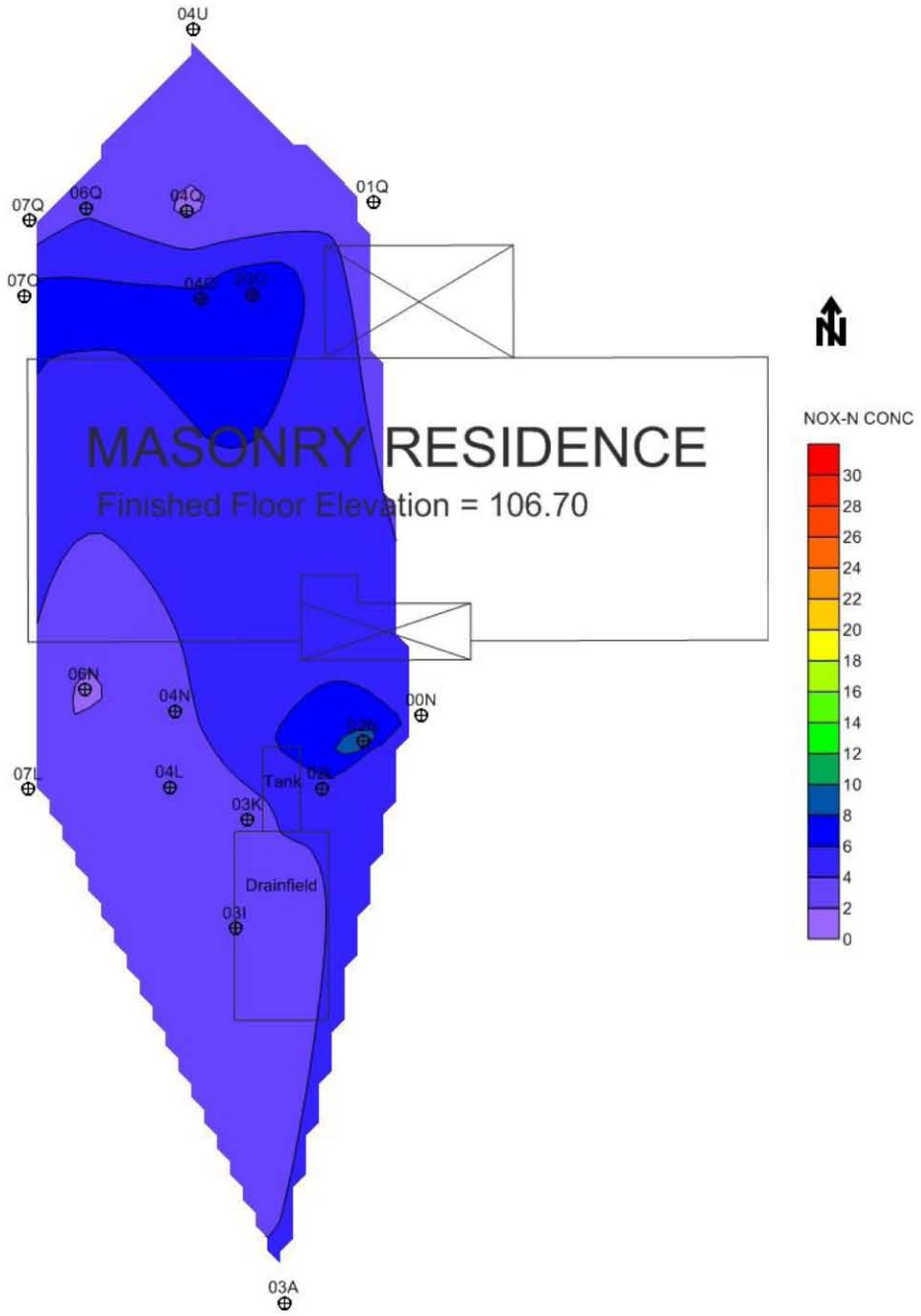

Figure 7
Elev 83-87 ft above MSL (August 2012 Sample Event)
Schematic (using Surfer) illustrating NOX concentrations in the subsurface

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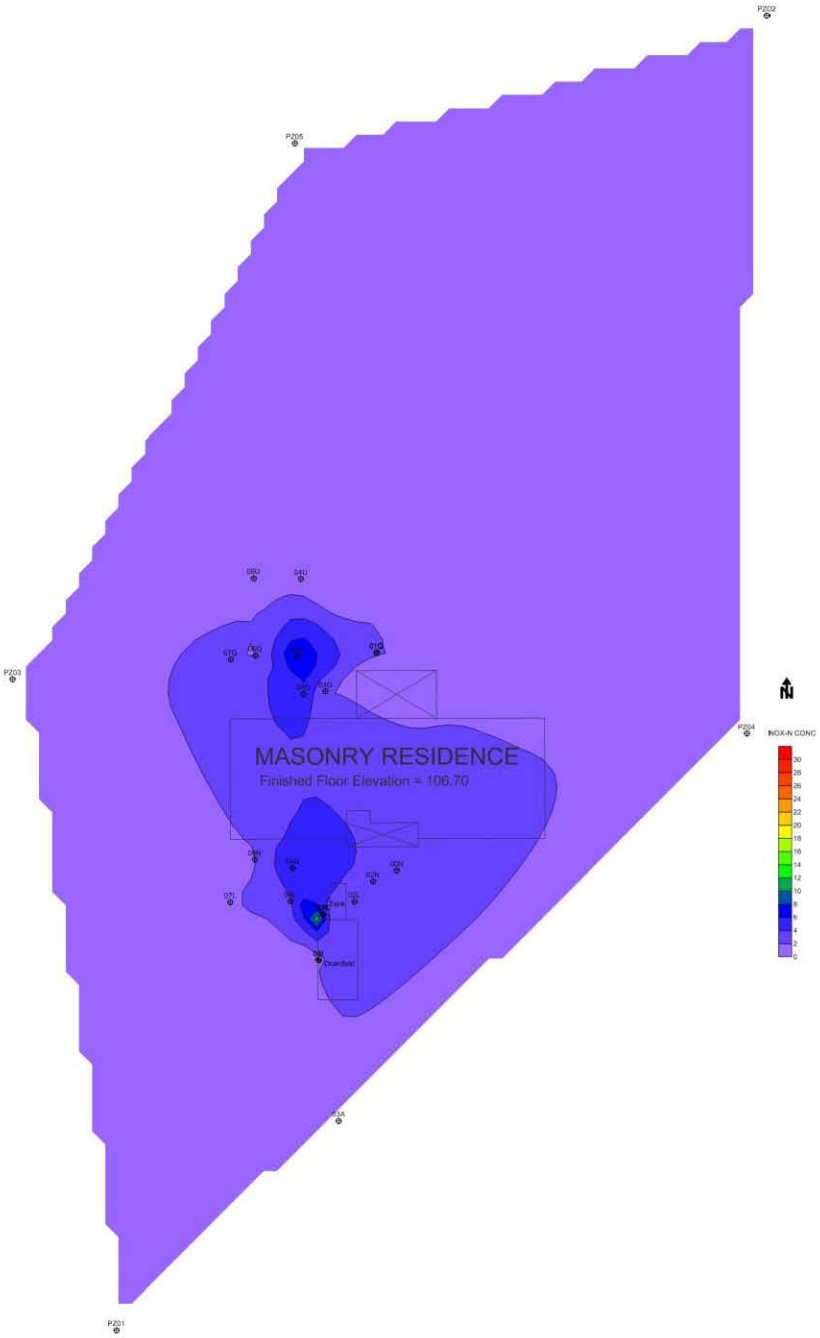

Figure 8
Shallow including Background Elev 90-95.7 ft above MSL
(August 2012 Sample Event)
Schematic (using Surfer) illustrating NOX concentrations in the subsurface

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5.0 C-HS3 Data Summary Report No. 1: Summary and Recommendations

5.1 Summary

The results of this first 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. 1 indicate that:

- The nitrogen plume appears to be flowing in a north-northwest direction and similar to the groundwater contours.

5.2 Conclusions

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.
- Additional groundwater level monitoring will provide information needed to determine the necessary parameters for model development.
- Further 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-HS3 Sample Identification

Table 3

Site C-HS3 Sample Identification

	Identification	Type of Monitoring Point	Top Elevation[1] (feet)	Bottom Elevation[1] (feet)
1	C-HS3-STE	Wastewater	N/A	N/A
2	PZ01	1" Standpipe Piezometer, 5' screen	108.53	92.73
3	PZ02	1" Standpipe Piezometer, 5' screen	98.08	91.80
4	PZ03	1" Standpipe Piezometer, 5' screen	102.84	92.04
5	PZ04	1" Standpipe Piezometer, 5' screen	104.35	92.45
6	PZ05	1" Standpipe Piezometer, 5' screen	98.68	91.08
7	PZ-03A-15	1" Standpipe Piezometer, 5' screen	106.84	91.84
8	PZ-03A-17	3/4" Standpipe Piezometer, 1' screen	106.75	89.75
9	PZ-03A-21	3/4" Standpipe Piezometer, 1' screen	106.84	85.84
10	PZ-03A-34	2" Standpipe Piezometer, 5' screen	107.12	73.12
11	PZ-03I-15	1" Standpipe Piezometer, 5' screen	106.46	91.46
12	PZ-03I-17	3/4" Standpipe Piezometer, 1' screen	106.35	89.35
13	PZ-03I-21	3/4" Standpipe Piezometer, 1' screen	106.44	85.44
14	PZ-03K-15	1" Standpipe Piezometer, 5' screen	106.12	91.12
15	PZ-03K-17	3/4" Standpipe Piezometer, 1' screen	106.11	89.11
16	PZ-03K-21	3/4" Standpipe Piezometer, 1' screen	106.13	85.13
17	PZ-02L-15	1" Standpipe Piezometer, 5' screen	106.02	91.02
18	PZ-02L-17	3/4" Standpipe Piezometer, 1' screen	105.90	88.90
19	PZ-02L-21	3/4" Standpipe Piezometer, 1' screen	105.95	84.95
20	PZ-04L-15	1" Standpipe Piezometer, 5' screen	105.86	90.86
21	PZ-04L-17	3/4" Standpipe Piezometer, 1' screen	105.84	88.84
22	PZ-04L-21	3/4" Standpipe Piezometer, 1' screen	105.78	84.78
23	PZ-07L-15	1" Standpipe Piezometer, 5' screen	105.97	90.97
24	PZ-07L-17	3/4" Standpipe Piezometer, 1' screen	105.93	88.93
25	PZ-07L-21	3/4" Standpipe Piezometer, 1' screen	105.98	84.98
26	PZ-03ML-15	1" Standpipe Piezometer, 5' screen	106.00	91.00
27	PZ-03ML-17	3/4" Standpipe Piezometer, 1' screen	106.03	89.03
28	PZ-03ML-21	3/4" Standpipe Piezometer, 1' screen	105.93	84.93
29	PZ-05M-25	2" Standpipe Piezometer, 5' screen	106.01	81.01
30	PZ-00N-15	1" Standpipe Piezometer, 5' screen	105.78	90.78
31	PZ-00N-17	3/4" Standpipe Piezometer, 1' screen	105.74	88.74

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Table 3
Site C-HS3 Sample Identification

	Identification	Type of Monitoring Point	Top Elevation[1] (feet)	Bottom Elevation[1] (feet)
32	PZ-00N-21	3/4" Standpipe Piezometer, 1' screen	105.72	84.72
33	PZ-02N-15	1" Standpipe Piezometer, 5' screen	105.90	90.90
34	PZ-02N-17	3/4" Standpipe Piezometer, 1' screen	105.87	88.87
35	PZ-02N-21	3/4" Standpipe Piezometer, 1' screen	105.86	84.86
36	PZ-04N-15	1" Standpipe Piezometer, 5' screen	105.60	90.60
37	PZ-04N-17	3/4" Standpipe Piezometer, 1' screen	105.61	88.61
38	PZ-04N-21	3/4" Standpipe Piezometer, 1' screen	105.64	84.64
39	PZ-06N-15	1" Standpipe Piezometer, 5' screen	105.73	90.73
40	PZ-06N-17	3/4" Standpipe Piezometer, 1' screen	105.70	88.70
41	PZ-06N-21	3/4" Standpipe Piezometer, 1' screen	105.80	84.80
42	PZ-03O-15	1" Standpipe Piezometer, 5' screen	104.59	89.59
43	PZ-03O-17	3/4" Standpipe Piezometer, 1' screen	104.54	87.54
44	PZ-03O-21	3/4" Standpipe Piezometer, 1' screen	104.58	83.58
45	PZ-04O-15	1" Standpipe Piezometer, 5' screen	104.10	89.10
46	PZ-04O-17	3/4" Standpipe Piezometer, 1' screen	104.09	87.09
47	PZ-04O-21	3/4" Standpipe Piezometer, 1' screen	104.11	83.11
48	PZ-07O-15	1" Standpipe Piezometer, 5' screen	103.83	88.83
49	PZ-07O-17	3/4" Standpipe Piezometer, 1' screen	103.75	86.75
50	PZ-07O-20	3/4" Standpipe Piezometer, 1' screen	103.91	83.91
51	PZ-01Q-13	1" Standpipe Piezometer, 5' screen	104.19	91.19
52	PZ-01Q-15	3/4" Standpipe Piezometer, 1' screen	104.18	89.18
53	PZ-01Q-19	3/4" Standpipe Piezometer, 1' screen	104.24	85.24
54	PZ-04Q-13	1" Standpipe Piezometer, 5' screen	103.58	90.58
55	PZ-04Q-15	3/4" Standpipe Piezometer, 1' screen	103.54	88.54
56	PZ-04Q-19	3/4" Standpipe Piezometer, 1' screen	103.60	84.60
57	PZ-06Q-13	1" Standpipe Piezometer, 5' screen	103.66	90.66
58	PZ-06Q-15	3/4" Standpipe Piezometer, 1' screen	103.66	88.66
59	PZ-06Q-19	3/4" Standpipe Piezometer, 1' screen	103.71	84.71
60	PZ-07Q-13	1" Standpipe Piezometer, 5' screen	103.56	90.56
61	PZ-07Q-15	3/4" Standpipe Piezometer, 1' screen	103.64	88.64
62	PZ-07Q-19	3/4" Standpipe Piezometer, 1' screen	103.62	84.62
63	PZ-05T-25	2" Standpipe Piezometer, 5' screen	102.73	77.73
64	PZ-04U-12	1" Standpipe Piezometer, 5' screen	102.61	90.61
65	PZ-04U-14	3/4" Standpipe Piezometer, 1' screen	102.64	88.64

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Table 3
Site C-HS3 Sample Identification

	Identification	Type of Monitoring Point	Top Elevation[1] (feet)	Bottom Elevation[1] (feet)
66	PZ-04U-18	3/4" Standpipe Piezometer, 1' screen	102.61	84.61
67	PZ-06U-12	1" Standpipe Piezometer, 5' screen	102.07	90.07
68	PZ-06U-14	3/4" Standpipe Piezometer, 1' screen	101.96	87.96
69	PZ-06U-34	3/4" Standpipe Piezometer, 1' screen	101.94	67.94

[1]Elevation above mean sea level based on NGVD 1929

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Appendix B: C-HS3 Soil Samples

Table B.1
Site C-HS3 Soil Sample Descriptions

Location	Depth (ft bgs)	Munsell Soil Color	Description
PZ01	0-1'	10 YR 3/2	Very dark grayish brown fine sand
	1-3.8'	10 YR 5/4	Yellowish brown fine sand
	3.8-6.85'	10 YR 5/6	Yellowish brown fine sand
PZ03	9"-1.7'	10 YR 3/3	Dark brown fine sand
	1.7-4.2'	10 YR 4/3	Brown fine sand
	4.2-6.5'	10 YR 5/4	Yellowish brown fine sand
03ML	5'-14'3"	10 YR 5/6	Yellowish brown fine sand
	14'3"-15'	10 YR 7/3	Very pale brown fine sand
	15-18'	10 YR 6/3	Pale brown fine sand
	18-20'	10 YR 2/1	Black fine sand
	20-25'	10 YR 3/1	Very dark gray fine sand
	25-30'	10 YR 5/3	Brown fine sand
	30-35'	10 YR 7/2	Light gray fine sand
	35-40'	10 YR 8/2	Very pale brown fine sand
03O	5-9'6"	10 YR 6/6	Brownish yellow fine sand
	9'6"-10'	10 YR 6/3	Pale brown fine sand
	10-19'4"	10 YR 6/3	Pale brown fine sand
	19'4"-20'	10 YR 2/1	Black fine sand
	20-25'	10 YR 3/2	Very dark grayish brown fine sand
	25-29'	10 YR 5/3	Brown fine sand
	29-30'	10 YR 6/3	Pale brown fine sand
	30-35'	10 YR 8/2	Very pale brown fine sand
	40-45'	10 YR 8/1	White loamy sand
04O	~18'	10 YR 2/2	Very dark brown fine sand

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Table B.2
Site C-HS3 Soil Particle Size Distribution

ID #	Location	Depth	Particle Size Ditribution (% <2mm)								Textural Class
			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 mm	0.05-0.002 mm	<0.002 mm	
1	PZ01	0-1'	0.3	18.1	57.6	18.8	2.1	97.9	0.1	2.1	Sand
2		1-3.8'	0.0	15.3	56.8	23.0	2.2	98.1	BDL	2.4	Sand
3		3.8-6.85'	0.2	13.4	52.6	26.9	4.2	97.9	0.6	1.4	Sand
4	PZ03	9"-1.7'	0.1	13.4	57.0	24.4	2.1	97.9	BDL	2.3	Sand
5		1.7-4.2'	0.1	12.1	52.8	27.8	4.1	97.4	0.3	2.4	Sand
6		4.2-6.5'	0.1	12.8	54.8	26.8	2.9	98.2	BDL	2.6	Sand
7	03ML	5'-14'3"	0.1	12.9	54.4	27.1	3.3	98.4	0.5	1.2	Sand
7 Duplicate			0.0	11.7	53.9	26.9	2.7	95.7	4.3	BDL	Sand
8		14'3"-15'	0.5	14.2	55.0	26.9	1.8	99.4	BDL	1.1	Sand
9		15-18'	0.0	7.2	59.4	30.6	1.5	98.9	BDL	1.7	Sand
10		18-20'	0.4	12.0	48.3	31.8	3.6	96.9	1.5	1.6	Sand
11		20-25'	1.0	12.0	38.7	42.5	2.6	97.5	0.2	2.3	Sand
12		25-30'	0.9	12.3	36.4	47.1	1.4	98.4	0.1	1.4	Sand
13		30-35'	0.3	2.8	15.5	75.9	2.5	97.4	0.6	2.0	Fine Sand
14		35-40'	0.1	0.7	12.9	77.7	3.3	95.2	2.6	2.1	Fine Sand
15	03O	5-9'6"	0.2	16.5	59.9	20.0	1.4	98.6	0.4	1.0	Sand
16		9'6"-10'	0.4	17.7	55.5	23.1	1.7	99.0	0.4	0.6	Sand
17		10-19'4"	0.1	8.0	55.2	33.4	2.2	97.9	1.3	0.8	Sand
18		19'4"-20'	0.3	11.9	61.4	21.1	1.7	97.1	0.4	2.5	Sand
19		20-25'	1.2	12.4	43.6	35.4	1.1	94.0	3.9	2.1	Sand
20		25-29'	0.9	10.3	37.4	47.6	1.3	97.8	BDL	2.4	Sand
21		29-30'	1.0	11.2	33.8	47.4	1.2	94.8	2.4	2.8	Sand
21 Duplicate			0.1	10.8	36.3	47.4	1.3	97.4	0.2	2.5	Sand
22		30-35'	0.2	1.6	18.7	72.2	2.8	95.7	0.9	3.3	Fine Sand
23		40-45'	0.1	0.3	6.1	76.3	9.1	93.0	1.1	6.0	Fine Sand
24	04O	~18'	0.3	10.3	54.8	30.2	1.6	98.1	0.4	1.5	Sand
Ref Std			0.8	17.8	26.8	16.1	4.9	69.1	7.2	23.7	Sandy Clay Loam

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Table B.3
Site C-HS3 Soil Sample Parameters

ID#	Location	Depth	TN (mg/kg)[1]	TKN (mg/kg)	Organic N (mg/kg)[2]	NH3-N (mg/kg)	NOx-N (mg/kg)	TIN (mg/kg)[3]	P (mg/kg)	K (mg/kg)	Ca (mg/kg)	Mg (mg/kg)	Na (mg/kg)	BufpH	OrgMt (%)	CEC (calculated)	C (% , calculated)
1	PZ01	0-1'	488.20	486.0	483.86	2.18	2.16	4.34	68.46	34.99	277.0	51.03	13.07	7.87	1.46	4.32	0.98
2		1-3.8'	163.56	162.8	161.76	1.05	0.74	1.79	24.02	10.32	106.8	25.71	11.11	7.91	0.77	2.22	0.52
3		3.8-6.85'	65.18	64.35	63.86	0.49	0.83	1.32	17.67	5.88	67.80	22.26	10.27	7.94	0.44	1.60	0.29
4	PZ03	9"-1.7'	174.50	171.9	170.70	1.15	2.64	3.80	53.32	11.65	93.89	15.86	10.95	7.83	0.96	2.74	0.64
5		1.7-4.2'	140.77	139.2	138.80	0.41	1.56	1.97	49.08	9.79	66.22	11.93	9.35	7.86	0.67	2.21	0.45
6		4.2-6.5'	103.61	102.8	102.44	0.40	0.77	1.17	34.49	4.49	44.85	13.40	9.90	7.92	0.45	1.52	0.30
7	03ML	5'-14'3"	61.48	60.86	60.44	0.41	0.62	1.04	53.69	5.87	116.9	14.98	10.25	7.97	0.30	1.55	0.20
8		14'3"-15'	46.81	45.59	45.27	0.32	1.22	1.54	65.39	2.78	54.89	8.26	11.79	7.97	0.17	1.17	0.11
9		15-18'	41.31	36.14	35.79	0.35	5.17	5.52	80.97	5.17	80.26	12.89	15.54	7.98	0.24	1.48	0.16
10		18-20'	191.80	190.1	189.76	0.36	1.68	2.04	710.2	14.06	811.7	51.14	18.34	7.84	1.52	6.92	1.02
11		20-25'	148.74	147.4	147.07	0.33	1.35	1.67	218.0	13.45	244.6	19.30	17.84	7.73	1.33	4.66	0.89
12		25-30'	679.79	677.3	676.99	0.31	2.49	2.80	103.7	7.21	29.88	6.81	14.46	7.89	0.59	1.90	0.40
13		30-35'	65.97	63.19	62.70	0.49	2.77	3.27	82.83	7.66	29.26	7.76	23.57	7.92	0.63	2.07	0.42
14		35-40'	62.84	60.14	59.55	0.59	2.70	3.29	43.18	5.83	25.60	7.30	14.40	7.97	0.58	1.20	0.39
15	03O	5-9'6"	54.66	54.08	53.67	0.41	0.58	0.99	34.17	3.36	32.25	11.61	10.64	7.95	0.35	1.21	0.23
16		9'6"-10'	79.52	78.96	78.57	0.39	0.57	0.95	24.44	2.40	27.63	8.06	9.10	7.96	0.23	0.98	0.15
17		10-19'4"	46.33	45.82	45.63	0.19	0.50	0.70	17.93	1.88	38.90	7.45	9.44	7.99	0.17	0.80	0.11
18		19'4"-20'	295.78	295.1	294.67	0.46	0.65	1.11	203.6	8.57	640.1	55.27	20.27	7.78	1.61	6.52	1.08
19		20-25'	119.45	116.9	116.41	0.52	2.52	3.04	126.0	4.17	34.04	6.72	15.29	7.77	0.99	2.84	0.66
20		25-29'	75.55	72.43	71.85	0.58	3.12	3.70	126.9	7.87	24.36	5.70	15.66	7.90	0.89	1.85	0.60
21		29-30'	63.59	59.86	59.31	0.55	3.73	4.28	114.5	11.69	30.35	7.88	20.67	7.85	0.79	2.62	0.53
22		30-35'	22.59	19.32	18.88	0.44	3.27	3.71	62.99	5.97	29.06	8.17	20.22	7.93	0.78	1.81	0.52
23		40-45'	79.24	74.77	74.06	0.71	4.47	5.18	5.08	17.69	51.95	15.21	24.10	7.94	1.11	2.37	0.74
24	04O	~18'	140.54	140.0	139.72	0.31	0.50	0.82	124.3	5.45	313.3	24.70	15.23	7.87	0.92	3.61	0.62

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

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 C: Weather Station Data

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Table C.1
Monthly Recorded Meteorological Data
Frostproof, FL

Period	60cm T avg (F)	60cm T min (F)	60cm T max (F)	2m T avg (F)	2m T min (F)	2m T max (F)	10m T avg (F)	10m T min (F)	10m T max (F)	Tsoil avg - 10cm (F)	Tsoil min (avg) - 10cm (F)	Tsoil max (avg) - 10cm (F)	2m DewPt avg (F)	Rel Hum avg 2m (%)	2m Rain tot (in)	2m Rain max over 15min (in)	10m Wind avg (mph)	10m Wind min (mph)	10m Wind max (mph)	WDir avg 10m (deg)
1-Aug-12	81.32	71.76	95.56	81.36	73.04	93.13	80.26	72.97	89.69	87.58	85.33	89.76	74.40	81	0.01	0.01	5.92	0.37	20.7	240
2-Aug-12	83.94	70.79	97.83	83.56	73.13	95.00	82.36	73.89	91.63	87.59	84.72	90.81	73.38	74	0	0	5.07	0.2	15.33	235
3-Aug-12	80.44	70.61	97.66	79.98	72.18	93.69	79.18	72.86	90.72	87.75	85.05	91.11	72.30	80	0.04	0.02	5.18	0	24.97	177
4-Aug-12	82.13	71.71	97.59	81.86	72.64	94.53	80.47	72.93	91.06	86.86	84.52	89.67	74.16	80	0.01	0.01	5.82	0.27	36.5	41
5-Aug-12	81.77	74.59	94.14	81.66	75.87	90.82	80.30	75.20	88.03	86.97	85.03	88.86	75.16	82	0.04	0.04	6.61	0	48.53	143
6-Aug-12	81.91	73.51	94.39	81.30	74.32	91.74	79.84	73.63	88.83	87.10	84.72	89.91	74.77	82	0.04	0.02	7.14	0.17	26.33	137
7-Aug-12	82.00	71.69	97.81	81.53	72.46	94.44	80.18	72.09	91.38	87.01	84.38	90.03	73.86	80	0.08	0.05	5.62	0.4	20.77	121
8-Aug-12	84.40	73.35	99.32	83.81	74.26	95.77	82.60	74.10	93.09	87.61	85.01	90.64	73.92	75	0	0	4.88	0	22.47	183
9-Aug-12	83.16	71.44	98.89	82.05	72.41	94.71	81.13	73.63	92.28	87.70	84.88	92.14	73.34	78	0.98	0.38	4.59	0.2	23.5	112
10-Aug-12	79.54	71.87	96.40	79.27	72.57	92.48	78.77	73.20	90.37	85.26	83.03	88.61	73.88	85	1.91	0.99	4.42	0	32.97	194
11-Aug-12	80.03	73.40	91.45	79.92	74.35	88.54	78.77	73.87	86.04	84.28	82.47	86.56	74.82	85	0	0	5.02	0.13	13.2	195
12-Aug-12	77.00	71.37	92.77	77.15	72.50	89.46	76.50	72.91	87.04	84.17	83.17	85.32	74.62	92	0.52	0.23	4.20	0	21.83	203
13-Aug-12	80.98	72.18	94.17	80.83	73.29	90.90	80.05	73.71	88.47	84.51	82.24	87.21	75.15	85	0.06	0.05	3.96	0	11.8	194
14-Aug-12	80.55	72.05	96.44	80.07	73.29	93.15	79.40	73.94	91.02	85.26	83.17	88.05	74.26	84	0.03	0.01	4.05	0	29	198
15-Aug-12	82.54	71.31	95.77	82.07	72.37	93.09	81.01	72.25	90.90	85.61	83.14	88.43	74.42	80	0	0	4.00	0	19.43	173
16-Aug-12	81.49	71.89	94.19	81.26	73.09	91.51	80.64	74.08	89.46	85.97	84.00	88.34	74.61	81	0	0	4.03	0.2	26.4	225
17-Aug-12	80.72	73.29	95.45	80.68	74.57	93.40	79.77	74.07	90.05	85.78	84.09	87.22	75.00	84	0.15	0.1	4.66	0.07	17.83	203
18-Aug-12	78.99	73.90	89.28	79.17	74.93	88.07	78.11	74.32	85.24	84.96	83.84	85.86	74.73	87	0	0	5.61	0	30.7	225
19-Aug-12	82.42	74.19	93.76	82.66	75.49	92.79	81.49	75.13	90.27	85.33	83.17	88.11	75.29	80	0.02	0.02	6.73	0.97	19.43	215
20-Aug-12	83.63	74.28	95.83	83.68	75.42	94.08	82.23	74.80	91.47	86.60	83.93	90.03	74.75	76	0	0	7.38	0.57	23.33	212
21-Aug-12	79.23	70.02	94.62	79.44	70.56	93.31	78.24	69.84	90.34	86.39	84.42	89.24	72.73	82	0.44	0.16	7.51	0.07	23.9	178
22-Aug-12	75.98	71.08	92.46	75.99	71.58	90.30	75.00	70.97	87.60	84.30	83.17	86.23	72.48	90	0.21	0.11	6.00	0	28.6	206
23-Aug-12	81.09	69.22	95.40	80.53	70.77	92.10	79.77	71.47	90.27	84.09	81.93	86.70	72.00	78	0.03	0.03	3.64	0.07	19.97	117
24-Aug-12	80.80	73.09	93.16	80.94	74.03	91.53	79.69	73.62	88.38	84.69	82.96	86.65	73.66	80	0	0	7.32	2	17.6	49
25-Aug-12	78.75	69.73	88.48	79.06	71.01	87.69	77.72	70.70	84.87	84.21	82.76	85.51	71.15	78	0	0	9.17	1.97	23.4	53
26-Aug-12	77.36	74.37	83.91	78.12	75.18	84.06	77.19	74.46	82.27	83.33	81.64	84.22	75.80	93	1.09	0.19	12.35	3.2	29.73	50
27-Aug-12	77.60	73.56	81.81	78.37	74.43	81.84	77.36	73.67	80.51	79.68	78.15	81.54	76.21	93	3.19	0.39	14.59	4.27	31.1	122
28-Aug-12	79.83	74.19	90.25	80.08	74.95	89.10	78.92	74.26	86.90	81.80	80.35	83.97	76.82	90	0.24	0.07	9.85	2.6	26.83	159
29-Aug-12	80.03	73.29	92.39	80.16	74.41	90.93	79.10	73.94	88.57	82.99	81.19	85.21	76.03	88	0.15	0.11	6.47	0.13	38.63	149
30-Aug-12	82.18	72.16	93.13	82.02	73.51	91.27	81.07	74.16	88.86	83.67	81.57	86.00	75.08	81	0.02	0.02	4.24	0.07	13.63	138
31-Aug-12	82.11	73.99	92.62	82.27	75.07	91.09	81.11	74.88	88.74	84.08	82.49	85.75	75.27	81	0	0	5.34	0.73	17.27	70

Appendix D: Water Quality Analytical Results

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Table D.1
Water Quality Analytical Results
(August 28 through 30, 2012)

Sample ID	Sample Date/Time	Sample Type	Temp (°C)	pH	Total Alkalinity (mg/L)	DO (mg/L)	Specific Conductance (µS)	TDS (mg/L)	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]	NH_3-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							TS	Sucralose (ug/L)
																						F^-	Cl^-	NO_3-N^-	NO_2-N^-	PO_4-P^-	SO_4^-	B	Ca	Fe	Mg	Mn	K	Na		
STE Sample																																					
STE	8/30/12 13:40	G	30.4	7.2	310	1.6	693		23	25		43.58	43	4	39	0.58	39.58	3.7	3300				30	0.58	0.01										340	0.3
STE Dup	8/30/12 13:45	G	30.4	7.2	260	1.6	693		25	26		41.59	41	3	38	0.59	38.59	3.7	3000				31	0.59	0.01										320	
Groundwater samples																																					
PZ-01BKG	8/30/12 13:10	G	27.3	6.0	11.0	4.9	38				24	0.59	0.28	0.256	0.024	0.31	0.334	0.34					1.6	0.31	0.01											
PZ-02BKG	8/30/12 12:30	G	28.1	5.3	4.2	3.2	45				24	0.46	0.39	0.378	0.012	0.07	0.082	0.092					3.6	0.07	0.01											
PZ-03BKG	8/30/12 13:28	G	28.5	5.5	4.2	5.2	58				38	0.66	0.42	0.411	0.009	0.24	0.249	0.12					7.9	0.24	0.01											
PZ-04BKG	8/30/12 12:54	G	26.2	5.0	4.2	2.2	54				49	3.44	2.6	2.47	0.13	0.84	0.97	3.2					4.2	0.84	0.01											
PZ-05BKG	8/30/12 12:13	G	28.8	5.4	9.4	0.4	36				44	1.12	1.1	1.061	0.039	0.02	0.059	0.33					1.3	0.01	0.01											
PZ-03A-15	8/28/12 9:15	G	28.0	6.0	13.0	7.4	54				10	1.6	0.6	0.591	0.009	1	1.009	0.25		3.6	2.9	0.01	1.4	1	0.01	0.01	3.3	0.05	4.1	1.7	2.2	0.0043	2.8	2.1		0.01
PZ-03A-15 Dup	8/28/12 9:45	G	28.0	6.0	13.0	7.4	54				10	1.73	0.63	0.621	0.009	1.1	1.109	0.24		4.2	2.8	0.01	1.4	1.1	0.01	0.01	3.4	0.05	4.1	2.1	2.2	0.005	2.8	2.1		
PZ-03A-17	8/28/12 10:30	G	28.2	5.8	19.0	6.5	80				10	1.19	0.48	0.471	0.009	0.71	0.719	0.096				0.01	1.9	0.71	0.01	0.01	8.1									0.01
PZ-03A-21	8/28/12 11:05	G	28.4	5.6	16.0	2.0	267				10	5.7	1.5	1.491	0.009	4.2	4.209	0.1				0.01	9.3	4.2	0.01	0.01	63									0.01
PZ-03A-34	8/29/12 15:06	G	27.0	4.2	2.0	0.7	293				15	16.3	2.3	2.16	0.14	14	14.14	2.5				0.075	21	14	0.01	0.01	25									
PZ-03I-15	8/28/12 11:50	G	28.4	5.7	5.2	6.4	81				11	3.5	1.3	1.234	0.066	2.2	2.266	1				0.55	1.7	2.2	0.01	0.16	14									
PZ-03I-17	8/28/12 13:05	G	29.8	6.0	10.0	6.7	56					2.2	1.5	1.28	0.22	0.7	0.92					0.01	1.9	0.7	0.01	0.01	7.3									
PZ-03I-21	8/28/12 13:35	G	29.4	4.7	3.2	4.3	180					3.29	0.69	0.681	0.009	2.6	2.609					0.01	8.6	2.6	0.01	0.01	39									
PZ-03K-15	8/29/12 14:01	G	28.0	6.3	43.0	5.1	333				10	18.4	2.4	2.38	0.02	16	16.02	4.4					10	16	0.01											
PZ-03K-17	8/29/12 14:20	G	27.4	6.3	22.0	4.6	53					2.22	1.6	1.22	0.38	0.62	1						1.3	0.62	0.01											
PZ-03K-21	8/29/12 14:41	G	27.5	5.8	22.0	2.8	174					4.5	1	0.991	0.009	3.5	3.509						9.7	3.5	0.01											
PZ-02L-15	8/29/12 8:08	G	27.2	6.2	32.0	4.5	176				10	5.4	1.1	1.083	0.017	4.3	4.317	1.3					3.3	4.2	0.01											
PZ-02L-17	8/29/12 8:29	G	26.7	6.3	22.0	4.9	58					1.77	0.67	0.608	0.062	1.1	1.162						1.2	1.1	0.01											
PZ-02L-21	8/29/12 8:43	G	26.5	5.3	5.2	2.5	182					6.8	1.8	1.765	0.035	5	5.035						10	5	0.01											
PZ-04L-15	8/29/12 9:03	G	27.3	6.2	32.0	5.1	161				40	5.3	1.8	1.68	0.12	3.5	3.62	1.6					1.5	3.5	0.01											
PZ-04L-17	8/29/12 8:23	G	26.8	6.3	22.0	4.0	59					1.98	1.3	1.07	0.23	0.68	0.91						1	0.68	0.01											
PZ-04L-21	8/29/12 9:42	G	26.5	5.3	11.0	2.5	192					4.8	1.1	1.09	0.01	3.7	3.71						9.4	3.7	0.01											
PZ-07L-15	8/28/12 12:48	G	27.6	6.1	21.0	5.8	93				22	3.6	1.7	1.5	0.2	1.9	2.1	1.7					1.2	1.9	0.01											
PZ-07L-17	8/28/12 13:08	G	27.0	6.2	22.0	4.8	60					1.5	0.8	0.735	0.065	0.7	0.765						1.1	0.7	0.01											
PZ-07L-21	8/28/12 13:29	G	26.7	5.1	5.2	2.8	128					3.77	0.67	0.661	0.009	3.1	3.109						6.1	3.1	0.01											
PZ-00N-15	8/29/12 13:05	G	27.5	6.2	22.0	6.0	88				10	5.1	1.2	1.191	0.009	3.9	3.909	0.43					1.3	3.9	0.01											
PZ-00N-17	8/29/12 13:23	G	27.1	6.2	11.0	4.6	57					1.6	0.6	0.585	0.015	1	1.015						0.71	1	0.01											
PZ-00N-21	8/29/12 13:43	G	26.8	4.6	2.1	2.9	154					5.9	1.3	1.291	0.009	4.6	4.609						10	4.6	0.01											
PZ-02N-15	8/29/12 12:06	G	27.6	6.4	22.0	6.2	110				13	2.93	0.73	0.715	0.015	2.2	2.215	1.5					1.7	2.2	0.01											
PZ-02N-17	8/29/12 12:24	G	27.2	6.1	11.0	4.6	44					1.42	0.65	0.552	0.098	0.77	0.868						0.82	0.77	0.01											
PZ-02N-21	8/29/12 12:45	G	26.6	4.6	3.2	2.2	210					11.1	1.3	1.291	0.009	9.8	9.809						13	9.8	0.01											
PZ-04N-15	8/29/12 11:06	G	27.5	6.2	39.0	5.0	188				56	8.4	2	1.967	0.033	6.4	6.433	1.1		17	16	0.48	3.4	6.4	0.01	0.68	16	0.05	25	0.14	2.6	0.0021	4.3	10		
PZ-04N-17	8/29/12 11:27	G	27.0	6.3	22.0	3.4	65					3.46	2.5	2.21	0.29	0.96	1.25						2.4	0.96	0.01											
PZ-04N-17 Dup	8/29/12 11:32	G	27.0	6.3	22.0	3.4	65					3.29	2.5	2.26	0.24	0.79	1.03						2.3	0.79	0.01											
PZ-04N-21	8/29/12 11:48	G	26.7	5.7	11.0	3.0	197					4.4	1	0.98	0.02	3.4	3.42						10	3.4	0.01											
PZ-06N-15	8/29/12 10:11	G	27.1	6.0	11.0	4.6	79				20	3	1.4	1.27	0.13	1.6	1.73	1.3					0.98	1.6	0.01											
PZ-06N-17	8/29/12 10:32	G	26.7	6.2	22.0	3.6	72					1.82	0.86	0.792	0.068	0.96	1.028						0.96	0.96	0.01											
PZ-06N-21	8/29/12 10:52	G	26.7	5.3	8.4	2.9	93					2.33	0.73	0.713	0.017	1.6	1.617						3.8	1.6	0.01											
PZ-03O-15	8/28/12 8:58	G	26.1	6.5	54.0	2.4	152				10	2.85	0.85	0.841	0.009	2	2.009	0.56					2.3	2	0.01											
PZ-03O-17	8/28/12 9:20	G	25.8	6.3	22.0	2.3	60					1.62	0.52	0.495	0.025	1.1	1.125						0.94	1.1	0.01											
PZ-03O-17 Dup	8/28/12 9:25	G	25.8	6.3	16.0	2.3	60					1.57	0.47	0.442	0.028	1.1	1.128						0.92	1.1	0.01											
PZ-03O-21	8/28/12 9:42	G	25.7	4.5	2.1	2.2	181					9.8	1.5	1.491	0.009	8.3	8.309						13	8.3	0.01											

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Table D.1 (con't)
Water Quality Analytical Results
(August 28 through 30, 2012)

Sample ID	Sample Date/Time	Sample Type	Temp (°C)	pH	Total Alkalinity (mg/L)	DO (mg/L)	Specific Conductance (µS)	TDS (mg/L)	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]	NH_3-N (mg/L N)	NOx (mg/L N)	TIN (mg/L N)[3]	TP (mg/L)	Fecal (Cf/100 mL)	TOC (mg/L)	DOC (mg/L)	Anions						Cations							TS	Sucralose (ug/L)
																						F^-	Cl^-	NO_3-N^-	NO_2-N^-	PO_4-P^-	SO_4^-	B	Ca	Fe	Mg	Mn	K	Na		
PZ-04O-15	8/28/12 10:04	G	26.1	6.0	17.0	2.3	149				15	7.6	2	1.97	0.03	5.6	5.63	0.67		4.9	4.6	0.14	8.3	5.6	0.01	0.44	14	0.05	17	0.21	2.3	0.0026	2.2	11		
PZ-04O-17	8/28/12 10:28	G	25.8	6.3	22.0	2.4	100					3.9	1	0.991	0.009	2.9	2.909						2.4	2.9	0.01											
PZ-04O-21	8/28/12 10:48	G	26.0	4.9	5.2	3.3	150					7.8	1.3	1.291	0.009	6.5	6.509						12	6.5	0.01											
PZ-07O-15	8/28/12 11:13	G	27.0	6.0	21.0	4.6	93				10	4.4	1	0.991	0.009	3.4	3.409	0.22					1.4	3.4	0.01											
PZ-07O-17	8/28/12 11:34	G	27.1	6.4	32.0	2.4	84					4.8	3	2.64	0.36	1.8	2.16						1.1	1.8	0.01											
PZ-07O-20	8/28/12 11:47	G	26.2	5.3	7.4	3.2	129					9.4	2.6	2.591	0.009	6.8	6.809						11	6.8	0.01											
PZ-01Q-13	8/30/12 8:04	G	26.1	6.8	11.0	5.4	81				24	3.52	0.92	0.868	0.052	2.6	2.652	0.31					1.9	2.6												
PZ-01Q-15	8/30/12 8:24	G	25.8	6.1	5.2	4.2	43				42	2.9	1.8	1.53	0.27	1.1	1.37	1.7					0.77	1.1	0.01											
PZ-01Q-19	8/30/12 8:44	G	25.6	5.1	3.2	3.2	56					2.74	0.64	0.62	0.02	2.1	2.12						1.4	2.1	0.01											
PZ-04Q-13	8/30/12 9:12	G	26.5	6.0	32.0	5.8	184				56	11.1	2.4	2.22	0.18	8.7	8.88	1.1					11	8.7	0.01											
PZ-04Q-15	8/30/12 9:31	G	26.1	6.4	11.0	2.9	94				13	2.73	0.93	0.869	0.061	1.8	1.861	2					1.7	1.8	0.01											
PZ-04Q-19	8/30/12 9:50	G	25.8	6.2	65.0	3.5	76					17.6	16	15.84	0.16	1.6	1.76						2.9	1.6	0.01											
PZ-06Q-13	8/30/12 10:10	G	26.7	6.4	22.0	4.7	83				47	2.32	0.92	0.79	0.13	1.4	1.53	0.79		10	4.6	0.056	1.8	1.4	0.01	0.01	3.6	0.05	10	0.069	1.2	0.0013	1.9	5.9		
PZ-06Q-15	8/30/12 10:22	G	26.3	6.3	43.0	2.8	411				11	24.5	2.5	2.482	0.018	22	22.018	3					15	22	0.01											
PZ-06Q-15 Dup	8/30/12 10:27	G	26.3	6.3	43.0	2.8	411				11	24.1	2.1	2.081	0.019	22	22.019	2.9					15	22	0.01											
PZ-06Q-19	8/30/12 10:45	G	26.1	6.6	54.0	0.5	110				140	29.8	26	25.73	0.27	3.8	4.07	10					2.5	3.8												
PZ-07Q-13	8/30/12 10:58	G	27.1	6.6	11.0	5.3	130				15	4.05	0.95	0.898	0.052	3.1	3.152	0.33					2.8	3.1	0.01											
PZ-07Q-15	8/30/12 11:18	G	26.6	6.4	25.0	2.8	118					14.4	7.8	7.61	0.19	6.6	6.79						2.2	6.6	0.01											
PZ-07Q-19	8/30/12 11:37	G	26.5	6.3	60.0	2.5	101					27.1	25	24.83	0.17	2.1	2.27						5.3	2.1	0.01											
PZ-04U-12	8/30/12 12:07	G	27.7	6.4	22.0	4.2	79				38	1.42	0.77	0.691	0.079	0.65	0.729	0.37					1.7	0.65	0.01											
PZ-04U-14	8/30/12 12:26	G	26.9	6.5	32.0	4.6	63					10.98	10	9.64	0.36	0.98	1.34						0.77	0.98	0.01											
PZ-04U-18	8/30/12 12:44	G	26.3	5.6	14.0	3.5	90					7.4	4	3.59	0.41	3.4	3.81						5.8	3.4	0.01											
PZ-06U-12	8/30/12 13:04	G	27.4	6.4	32.0	4.6	124				17	1.61	0.41	0.355	0.055	1.2	1.255	0.44		4.8	3.3	0.036	5.8	1.2	0.01	0.13	15	0.05	14	0.02	2.5	0.0035	2.5	5.3		
PZ-06U-12 Dup	8/30/12 13:09	G	27.4	6.4	32.0	4.6	124				20	1.73	0.43	0.381	0.049	1.3	1.349	0.43		4.1	3.5	0.011	6	1.3	0.01	0.2	16	0.05	14	0.02	2.6	0.0044	2.6	5.7		
PZ-06U-14	8/30/12 13:28	G	26.9	5.9	22.0	2.1	394					29.1	2.1	2.091	0.009	27	27.009						24	27	0.01											
PZ-06U-34	8/30/12 13:48	G	26.0	5.9	12.0	0.9	230					12.7	3.6	3.38	0.22	9.1	9.32						12	9.1	0.02											
Blanks																																					
EB	8/30/12 13:55	G	24.5	6.6	2.0	3.1	1		1	2	10	0.07	0.05	0.041	0.009	0.02	0.029	0.01	1	0.5	0.5	0.01	0.05	0.01	0.01	0.01	0.2	0.05	0.042	0.02	0.02	0.001	0.01	0.13	10	
FB-DI	8/30/12 13:50	G	24.5	6.6	2.0	3.1	1		1	2	10	0.07	0.05	0.041	0.009	0.02	0.029	0.01	4	0.5	0.5	0.01	0.05	0.01	0.01	0.01	0.2	0.05	0.042	0.02	0.02	0.001	0.01	0.13	10	

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.

Blue-shaded data points indicate values below mdl and sample held beyond accepted holding time

Orange-shaded data points indicate estimated value

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Appendix E: 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

October 8, 2012
Work Order: 1209578

Laboratory Report

Project Name **C-HS3 SE#1**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**STE**						
Matrix		**Groundwater**						
SAL Sample Number		**1209578-01**						
Date/Time Collected		**08/30/12 13:40**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/30/12 15:50**						
Field Parameters								
pH	SU	7.2	DEP FT1100	0.1	0.1		08/30/12 13:40	SAS
Water Temperature	°C	30.4	DEP FT1400	0.1	0.1		08/30/12 13:40	SAS
Specific conductance	umhos/cm	693	DEP FT1200	0.1	0.1		08/30/12 13:40	SAS
Dissolved Oxygen	mg/L	1.6	DEP FT1500	0.1	0.1		08/30/12 13:40	SAS
Inorganics								
Ammonia as N	mg/L	39	EPA 350.1	4.0	0.95		09/05/12 13:37	MMF
Carbonaceous BOD	mg/L	25	SM 5210B	2	2	08/31/12 12:58	09/05/12 14:37	MEJ
Chloride	mg/L	30	EPA 300.0	0.20	0.050		08/31/12 17:29	JAG
Nitrate (as N)	mg/L	0.58	EPA 300.0	0.04	0.01		08/31/12 17:29	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		08/31/12 17:29	JAG
Phosphorous - Total as P	mg/L	3.7	SM 4500P-E	0.40	0.10	09/04/12 12:01	09/06/12 14:46	MMF
Total Alkalinity	mg/L	310	SM 2320B	8.0	2.0	09/01/12 09:00	09/01/12 14:23	AES
Total Kjeldahl Nitrogen	mg/L	43	EPA 351.2	0.20	0.05	08/31/12 16:25	09/05/12 12:41	MMF
Total Solids	mg/L	340 Q	SM 2540B	10	10	09/07/12 14:28	09/07/12 14:29	CMS
Total Suspended Solids	mg/L	23	SM 2540D	1	1	08/31/12 15:19	09/01/12 09:37	CMS
Nitrate+Nitrite (N)	mg/L	0.58	EPA 300.0	0.08	0.02		08/31/12 17:29	JAG
Microbiology								
Fecal Coliforms	CFU/100 ml	3,300	SM 9222D	1	1	08/30/12 16:08	08/31/12 14:25	HKG

Sample Description		**STE Dup**						
Matrix		**Groundwater**						
SAL Sample Number		**1209578-02**						
Date/Time Collected		**08/30/12 13:45**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/30/12 15:50**						
Field Parameters								
pH	SU	7.2	DEP FT1100	0.1	0.1		08/30/12 13:45	SAS
Water Temperature	°C	30.4	DEP FT1400	0.1	0.1		08/30/12 13:45	SAS
Specific conductance	umhos/cm	693	DEP FT1200	0.1	0.1		08/30/12 13:45	SAS
Dissolved Oxygen	mg/L	1.6	DEP FT1500	0.1	0.1		08/30/12 13:45	SAS
Inorganics								
Ammonia as N	mg/L	38	EPA 350.1	4.0	0.95		09/05/12 13:39	MMF
Carbonaceous BOD	mg/L	26	SM 5210B	2	2	08/31/12 12:58	09/05/12 14:37	MEJ
Chloride	mg/L	31	EPA 300.0	0.20	0.050		08/31/12 17:29	JAG
Nitrate (as N)	mg/L	0.59	EPA 300.0	0.04	0.01		08/31/12 17:29	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		08/31/12 17:29	JAG
Phosphorous - Total as P	mg/L	3.7	SM 4500P-E	0.40	0.10	09/04/12 12:01	09/06/12 14:47	MMF

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

October 8, 2012
Work Order: 1209578

Laboratory Report

Project Name		**C-HS3 SE#1**						
Parameters	**Units**	**Results ***	**Method**	**PQL**	**MDL**	**Prepared**	**Analyzed**	**By**
Sample Description		**STE Dup**						
Matrix		**Groundwater**						
SAL Sample Number		**1209578-02**						
Date/Time Collected		**08/30/12 13:45**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/30/12 15:50**						
Total Alkalinity	mg/L	260	SM 2320B	8.0	2.0	09/01/12 09:00	09/01/12 14:23	AES
Total Kjeldahl Nitrogen	mg/L	41	EPA 351.2	0.20	0.05	08/31/12 16:25	09/05/12 12:42	MMF
Total Solids	mg/L	320 Q	SM 2540B	10	10	09/07/12 14:28	09/07/12 14:29	CMS
Total Suspended Solids	mg/L	25	SM 2540D	1	1	08/31/12 15:19	09/01/12 09:37	CMS
Nitrate+Nitrite (N)	mg/L	0.59	EPA 300.0	0.08	0.02		08/31/12 17:29	JAG
Microbiology								
Fecal Coliforms	CFU/100 ml	3,000	SM 9222D	1	1	08/30/12 16:08	08/31/12 14:25	HKG

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Tampa, FL 33619

October 8, 2012
Work Order: 1209578

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BH23106 - Ion Chromatography 300.0 Prep										
Blank (BH23106-BLK1)					Prepared & Analyzed: 08/31/12					
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						
Chloride	0.050 U	0.20	0.050	mg/L						
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
LCS (BH23106-BS1)					Prepared & Analyzed: 08/31/12					
Nitrite (as N)	1.40	0.04	0.01	mg/L	1.4		100	85-115		
Nitrate (as N)	1.69	0.04	0.01	mg/L	1.7		99	85-115		
Chloride	2.97	0.20	0.050	mg/L	3.0		99	85-115		
LCS Dup (BH23106-BSD1)					Prepared & Analyzed: 08/31/12					
Chloride	2.97	0.20	0.050	mg/L	3.0		99	85-115	0	200
Nitrate (as N)	1.70	0.04	0.01	mg/L	1.7		100	85-115	0.6	200
Nitrite (as N)	1.45	0.04	0.01	mg/L	1.4		104	85-115	4	200
Matrix Spike (BH23106-MS1)		**Source: 1209598-08**			Prepared & Analyzed: 08/31/12					
Nitrite (as N)	1.47	0.04	0.01	mg/L	1.4	ND	105	85-115		
Chloride	5.50	0.20	0.050	mg/L	3.0	2.40	103	80-120		
Nitrate (as N)	2.62	0.04	0.01	mg/L	1.7	0.956	98	85-115		
Matrix Spike (BH23106-MS2)		**Source: 1209615-05**			Prepared & Analyzed: 08/31/12					
Nitrite (as N)	1.38	0.04	0.01	mg/L	1.4	ND	99	85-115		
Chloride	4.60	0.20	0.050	mg/L	3.0	1.69	97	80-120		
Nitrate (as N)	3.55	0.04	0.01	mg/L	1.7	1.82	102	85-115		
Batch BH23116 - BOD										
Blank (BH23116-BLK1)					Prepared: 08/31/12 Analyzed: 09/05/12					
Carbonaceous BOD	2 U	2	2	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 BH23116 - BOD										
Blank (BH23116-BLK2)					Prepared: 08/31/12	Analyzed: 09/05/12				
Carbonaceous BOD	2 U	2	2	mg/L						
LCS (BH23116-BS1)					Prepared: 08/31/12	Analyzed: 09/05/12				
Carbonaceous BOD	183	2	2	mg/L	200		91	85-115		
LCS (BH23116-BS2)					Prepared: 08/31/12	Analyzed: 09/05/12				
Carbonaceous BOD	185	2	2	mg/L	200		93	85-115		
LCS Dup (BH23116-BSD1)					Prepared: 08/31/12	Analyzed: 09/05/12				
Carbonaceous BOD	181	2	2	mg/L	200		90	85-115	1	200
LCS Dup (BH23116-BSD2)					Prepared: 08/31/12	Analyzed: 09/05/12				
Carbonaceous BOD	184	2	2	mg/L	200		92	85-115	0.5	200
Duplicate (BH23116-DUP1)		**Source: 1209840-01**			Prepared: 08/31/12	Analyzed: 09/05/12				
Carbonaceous BOD	200	2	2	mg/L		200			1	25
Duplicate (BH23116-DUP2)		**Source: 1209897-01**			Prepared: 08/31/12	Analyzed: 09/05/12				
Carbonaceous BOD	210	2	2	mg/L		180			20	25
Batch BH23122 - TSS prep										
Blank (BH23122-BLK1)					Prepared: 08/31/12	Analyzed: 09/01/12				
Total Suspended Solids	1 U	1	1	mg/L						
LCS (BH23122-BS1)					Prepared: 08/31/12	Analyzed: 09/01/12				
Total Suspended Solids	49.0	1	1	mg/L	50		98	85-115		

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BH23122 - TSS prep										
Duplicate (BH23122-DUP1)		**Source: 1209717-01**			Prepared: 08/31/12 Analyzed: 09/01/12					
Total Suspended Solids	139	1	1	mg/L		133			4	30
Duplicate (BH23122-DUP2)		**Source: 1209759-01**			Prepared: 08/31/12 Analyzed: 09/01/12					
Total Suspended Solids	131	1	1	mg/L		138			5	30
Batch BH23131 - Digestion for TKN by EPA 351.2										
Blank (BH23131-BLK1)					Prepared: 08/31/12 Analyzed: 09/05/12					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
LCS (BH23131-BS1)					Prepared: 08/31/12 Analyzed: 09/05/12					
Total Kjeldahl Nitrogen	2.50	0.20	0.05	mg/L	2.5		99	90-110		
Matrix Spike (BH23131-MS1)		**Source: 1209592-04**			Prepared: 08/31/12 Analyzed: 09/05/12					
Total Kjeldahl Nitrogen	4.57	0.20	0.05	mg/L	2.5	1.85	107	80-120		
Matrix Spike Dup (BH23131-MSD1)		**Source: 1209592-04**			Prepared: 08/31/12 Analyzed: 09/05/12					
Total Kjeldahl Nitrogen	4.39	0.20	0.05	mg/L	2.5	1.85	100	80-120	4	20
Batch BI20102 - alkalinity										
Blank (BI20102-BLK1)					Prepared & Analyzed: 09/01/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
Blank (BI20102-BLK2)					Prepared & Analyzed: 09/01/12					
Total Alkalinity	2.0 U	8.0	2.0	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 BI20102 - alkalinity										
LCS (BI20102-BS1)					Prepared & Analyzed: 09/01/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		
LCS (BI20102-BS2)					Prepared & Analyzed: 09/01/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		
Matrix Spike (BI20102-MS1)		**Source: 1209615-12**			Prepared & Analyzed: 09/01/12					
Total Alkalinity	150	8.0	2.0	mg/L	120	25	101	80-120		
Matrix Spike (BI20102-MS2)		**Source: 1209615-13**			Prepared & Analyzed: 09/01/12					
Total Alkalinity	190	8.0	2.0	mg/L	120	60	107	80-120		
Matrix Spike Dup (BI20102-MSD1)		**Source: 1209615-12**			Prepared & Analyzed: 09/01/12					
Total Alkalinity	160	8.0	2.0	mg/L	120	25	109	80-120	7	26
Matrix Spike Dup (BI20102-MSD2)		**Source: 1209615-13**			Prepared & Analyzed: 09/01/12					
Total Alkalinity	180	8.0	2.0	mg/L	120	60	99	80-120	6	26
Batch BI20425 - Digestion for TP by EPA 365.2/SM4500PE										
Blank (BI20425-BLK1)					Prepared: 09/04/12 Analyzed: 09/06/12					
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						
Blank (BI20425-BLK2)					Prepared: 09/04/12 Analyzed: 09/06/12					
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						
LCS (BI20425-BS1)					Prepared: 09/04/12 Analyzed: 09/06/12					
Phosphorous - Total as P	0.772	0.040	0.010	mg/L	0.80		97	90-110		

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI20425 - Digestion for TP by EPA 365.2/SM4500PE										
LCS (BI20425-BS2)					Prepared: 09/04/12 Analyzed: 09/06/12					
Phosphorous - Total as P	0.790	0.040	0.010	mg/L	0.80		99	90-110		
Matrix Spike (BI20425-MS1)		**Source: 1209819-02**			Prepared: 09/04/12 Analyzed: 09/06/12					
Phosphorous - Total as P	1.03	0.040	0.010	mg/L	1.0	0.0396	99	75-125		
Matrix Spike (BI20425-MS2)		**Source: 1209840-07**			Prepared: 09/04/12 Analyzed: 09/06/12					
Phosphorous - Total as P	1.17	0.040	0.010	mg/L	1.0	0.158	101	75-125		
Matrix Spike Dup (BI20425-MSD1)		**Source: 1209819-02**			Prepared: 09/04/12 Analyzed: 09/06/12					
Phosphorous - Total as P	0.992	0.040	0.010	mg/L	1.0	0.0396	95	75-125	4	25
Matrix Spike Dup (BI20425-MSD2)		**Source: 1209840-07**			Prepared: 09/04/12 Analyzed: 09/06/12					
Phosphorous - Total as P	1.16	0.040	0.010	mg/L	1.0	0.158	100	75-125	0.6	25
Batch BI20502 - Ammonia by SEAL										
Blank (BI20502-BLK1)					Prepared & Analyzed: 09/05/12					
Ammonia as N	0.009 U	0.040	0.009	mg/L						
LCS (BI20502-BS1)					Prepared & Analyzed: 09/05/12					
Ammonia as N	0.52	0.040	0.009	mg/L	0.50		105	90-110		
Matrix Spike (BI20502-MS1)		**Source: 1209598-03**			Prepared & Analyzed: 09/05/12					
Ammonia as N	0.48	0.040	0.009	mg/L	0.50	ND	96	90-110		
Matrix Spike Dup (BI20502-MSD1)		**Source: 1209598-03**			Prepared & Analyzed: 09/05/12					
Ammonia as N	0.52	0.040	0.009	mg/L	0.50	ND	103	90-110	7	10

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI20725 - TS prep										
Blank (BI20725-BLK1)					Prepared: 09/05/12 Analyzed: 09/07/12					
Total Solids	10 U	10	10	mg/L						
Duplicate (BI20725-DUP1)		**Source: 1209916-02**			Prepared: 09/05/12 Analyzed: 09/07/12					
Total Solids	14,500	10	10	mg/L		14800			2	20

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Microbiology - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BH23047 - FC-MF										
Blank (BH23047-BLK1)					Prepared: 08/30/12	Analyzed: 08/31/12				
Fecal Coliforms	1 U	1	1	CFU/100 ml						
Duplicate (BH23047-DUP1)		**Source: 1209849-01**			Prepared: 08/30/12	Analyzed: 08/31/12				
Fecal Coliforms	1 U	1	1	CFU/100 ml		ND				200
Duplicate (BH23047-DUP2)		**Source: 1209855-02**			Prepared: 08/30/12	Analyzed: 08/31/12				
Fecal Coliforms	1 U	1	1	CFU/100 ml		ND				200

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October 8, 2012
Work Order: 1209578

* 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.

SOUTHERN ANALYTICAL LABORATORIES, INC.

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SAL Project No. 1209578

Client Name	Contact / Phone:
Hazen and Sawyer	
Project Name / Location: C-HS3 SE#1	
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 Sample No. (FOR LAB USE ONLY)	Sample Description	Date	Time	Matrix	Composite	Grab	1LP, Cool Alkalinity TSS, TS, CBOD, NOx, Cl	250mL P, H_2SO_4 TKN, NH_3, TP	125mL P, $Na_2S_2O_3$ FC-MF							DO	pH	Conductivity	Temperature	No. of Containers (Total per each location)
01	STE	082012	1340	GW		X	1	1	2							1.55	7.2	683	30.4	
02	STE Dup		1345	GW		X	1	1	2							1.55	7.2	683	30.4	

Containers Prepared/ Relinquished:	Date/Time: 835 8/27/12	Received:	Date/Time: 0835 082712
Relinquished:	Date/Time: 1550 083012	Received:	Date/Time: 1550 08-30-12
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

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

1209578

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

Chain of Custody

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Tampa, FL 33619

September 14, 2012
Work Order: 1209581

Laboratory Report

Project Name **C-HS3 SE#1**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**PZ-O3A-15**						
Matrix		**Groundwater**						
SAL Sample Number		**1209581-01**						
Date/Time Collected		**08/28/12 09:15**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/28/12 15:55**						
Field Parameters								
pH	SU	6.0	DEP FT1100	0.1	0.1		08/28/12 09:15	SAS
Water Temperature	°C	28.0	DEP FT1400	0.1	0.1		08/28/12 09:15	SAS
Specific conductance	umhos/cm	54	DEP FT1200	0.1	0.1		08/28/12 09:15	SAS
Dissolved Oxygen	mg/L	7.4	DEP FT1500	0.1	0.1		08/28/12 09:15	SAS
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		08/30/12 15:18	MMF
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	09/04/12 08:40	09/04/12 10:55	CDB
Chloride	mg/L	1.4	EPA 300.0	0.20	0.050		08/29/12 17:36	JAG
Fluoride	mg/L	0.010 U	EPA 300.0	0.040	0.010		08/29/12 17:36	JAG
Nitrate (as N)	mg/L	1.0	EPA 300.0	0.04	0.01		08/29/12 17:36	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		08/29/12 17:36	JAG
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		08/29/12 17:36	JAG
Phosphorous - Total as P	mg/L	0.25	SM 4500P-E	0.040	0.010	08/30/12 11:33	08/31/12 14:34	MMF
Sulfate	mg/L	3.3	EPA 300.0	0.60	0.20		08/29/12 17:36	JAG
Total Alkalinity	mg/L	13	SM 2320B	8.0	2.0	08/29/12 10:00	08/29/12 16:46	AES
Total Kjeldahl Nitrogen	mg/L	0.60	EPA 351.2	0.20	0.05	08/29/12 14:00	09/04/12 11:40	MMF
Total Organic Carbon	mg/L	3.6	SM 5310B	1.0	0.50		08/29/12 09:37	MEJ
Nitrate+Nitrite (N)	mg/L	1.0	EPA 300.0	0.08	0.02		08/29/12 17:36	JAG
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	2.9	SM 5310B	1.0	0.50		09/01/12 10:10	MEJ
Metals								
Boron	mg/L	0.050 U	EPA 200.7	0.10	0.050	08/29/12 08:00	08/29/12 18:02	VWC
Calcium	mg/L	4.1	EPA 200.7	0.50	0.042	08/29/12 08:00	08/29/12 18:02	VWC
Iron	mg/L	1.7	EPA 200.7	0.10	0.020	08/29/12 08:00	08/29/12 18:02	VWC
Magnesium	mg/L	2.2	EPA 200.7	0.50	0.020	08/29/12 08:00	08/29/12 18:02	VWC
Manganese	mg/L	0.0043 I	EPA 200.7	0.010	0.0010	08/29/12 08:00	08/29/12 18:02	VWC
Potassium	mg/L	2.8	EPA 200.7	0.050	0.010	08/29/12 08:00	08/29/12 18:02	VWC
Sodium	mg/L	2.1	EPA 200.7	0.50	0.13	08/29/12 08:00	08/29/12 18:02	VWC
Sample Description		**PZ-O3A-15 Dup**						
Matrix		**Groundwater**						
SAL Sample Number		**1209581-02**						
Date/Time Collected		**08/28/12 09:45**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/28/12 15:55**						
Field Parameters								
pH	SU	6.0	DEP FT1100	0.1	0.1		08/28/12 09:45	SAS

FDOH Laboratory No.E84129
NELAP Accredited

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

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

Hazen and Sawyer
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September 14, 2012
Work Order: 1209581

Laboratory Report

Project Name **C-HS3 SE#1**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**PZ-O3A-15 Dup**						
Matrix		**Groundwater**						
SAL Sample Number		**1209581-02**						
Date/Time Collected		**08/28/12 09:45**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/28/12 15:55**						
Water Temperature	°C	28.0	DEP FT1400	0.1	0.1		08/28/12 09:45	SAS
Specific conductance	umhos/cm	54	DEP FT1200	0.1	0.1		08/28/12 09:45	SAS
Dissolved Oxygen	mg/L	7.4	DEP FT1500	0.1	0.1		08/28/12 09:45	SAS
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		08/30/12 15:20	MMF
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	09/04/12 08:40	09/04/12 10:55	CDB
Chloride	mg/L	1.4	EPA 300.0	0.20	0.050		08/29/12 17:36	JAG
Fluoride	mg/L	0.010 U	EPA 300.0	0.040	0.010		08/29/12 17:36	JAG
Nitrate (as N)	mg/L	1.1	EPA 300.0	0.04	0.01		08/29/12 17:36	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		08/29/12 17:36	JAG
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		08/29/12 17:36	JAG
Phosphorous - Total as P	mg/L	0.24	SM 4500P-E	0.040	0.010	08/30/12 11:33	08/31/12 14:35	MMF
Sulfate	mg/L	3.4	EPA 300.0	0.60	0.20		08/29/12 17:36	JAG
Total Alkalinity	mg/L	13	SM 2320B	8.0	2.0	08/29/12 10:00	08/29/12 16:46	AES
Total Kjeldahl Nitrogen	mg/L	0.63	EPA 351.2	0.20	0.05	08/29/12 14:00	09/04/12 11:41	MMF
Total Organic Carbon	mg/L	4.2	SM 5310B	1.0	0.50		08/29/12 09:37	MEJ
Nitrate+Nitrite (N)	mg/L	1.1	EPA 300.0	0.08	0.02		08/29/12 17:36	JAG
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	2.8	SM 5310B	1.0	0.50		09/01/12 10:10	MEJ
Metals								
Boron	mg/L	0.050 U	EPA 200.7	0.10	0.050	08/29/12 08:00	08/29/12 18:06	VWC
Calcium	mg/L	4.1	EPA 200.7	0.50	0.042	08/29/12 08:00	08/29/12 18:06	VWC
Iron	mg/L	2.1	EPA 200.7	0.10	0.020	08/29/12 08:00	08/29/12 18:06	VWC
Magnesium	mg/L	2.2	EPA 200.7	0.50	0.020	08/29/12 08:00	08/29/12 18:06	VWC
Manganese	mg/L	0.0050 I	EPA 200.7	0.010	0.0010	08/29/12 08:00	08/29/12 18:06	VWC
Potassium	mg/L	2.8	EPA 200.7	0.050	0.010	08/29/12 08:00	08/29/12 18:06	VWC
Sodium	mg/L	2.1	EPA 200.7	0.50	0.13	08/29/12 08:00	08/29/12 18:06	VWC
Sample Description		**PZ-O3A-17**						
Matrix		**Groundwater**						
SAL Sample Number		**1209581-03**						
Date/Time Collected		**08/28/12 10:30**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/28/12 15:55**						
Field Parameters								
pH	SU	5.8	DEP FT1100	0.1	0.1		08/28/12 10:30	SAS
Water Temperature	°C	28.2	DEP FT1400	0.1	0.1		08/28/12 10:30	SAS
Specific conductance	umhos/cm	80	DEP FT1200	0.1	0.1		08/28/12 10:30	SAS

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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

September 14, 2012
Work Order: 1209581

Laboratory Report

Project Name **C-HS3 SE#1**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**PZ-O3A-17**						
Matrix		**Groundwater**						
SAL Sample Number		**1209581-03**						
Date/Time Collected		**08/28/12 10:30**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/28/12 15:55**						
Dissolved Oxygen	mg/L	6.5	DEP FT1500	0.1	0.1		08/28/12 10:30	SAS
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		08/30/12 15:22	MMF
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	09/04/12 08:40	09/04/12 10:55	CDB
Chloride	mg/L	1.9	EPA 300.0	0.20	0.050		08/29/12 17:36	JAG
Fluoride	mg/L	0.010 U	EPA 300.0	0.040	0.010		08/29/12 17:36	JAG
Nitrate (as N)	mg/L	0.71	EPA 300.0	0.04	0.01		08/29/12 17:36	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		08/29/12 17:36	JAG
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		08/29/12 17:36	JAG
Phosphorous - Total as P	mg/L	0.096	SM 4500P-E	0.040	0.010	08/30/12 10:50	08/31/12 14:00	MMF
Sulfate	mg/L	8.1	EPA 300.0	0.60	0.20		08/29/12 17:36	JAG
Total Alkalinity	mg/L	19	SM 2320B	8.0	2.0	08/29/12 10:00	08/29/12 16:46	AES
Total Kjeldahl Nitrogen	mg/L	0.48	EPA 351.2	0.20	0.05	08/29/12 14:00	09/04/12 11:43	MMF
Nitrate+Nitrite (N)	mg/L	0.71	EPA 300.0	0.08	0.02		08/29/12 17:36	JAG
Sample Description		**PZ-O3A-21**						
Matrix		**Groundwater**						
SAL Sample Number		**1209581-04**						
Date/Time Collected		**08/28/12 11:05**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/28/12 15:55**						
Field Parameters								
pH	SU	5.6	DEP FT1100	0.1	0.1		08/28/12 11:05	SAS
Water Temperature	°C	28.4	DEP FT1400	0.1	0.1		08/28/12 11:05	SAS
Specific conductance	umhos/cm	267	DEP FT1200	0.1	0.1		08/28/12 11:05	SAS
Dissolved Oxygen	mg/L	2.0	DEP FT1500	0.1	0.1		08/28/12 11:05	SAS
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		08/30/12 15:24	MMF
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	09/04/12 08:40	09/04/12 10:55	CDB
Chloride	mg/L	9.3	EPA 300.0	0.20	0.050		08/29/12 17:36	JAG
Fluoride	mg/L	0.010 U	EPA 300.0	0.040	0.010		08/29/12 17:36	JAG
Nitrate (as N)	mg/L	4.2	EPA 300.0	0.04	0.01		08/29/12 17:36	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		08/29/12 17:36	JAG
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		08/29/12 17:36	JAG
Phosphorous - Total as P	mg/L	0.10	SM 4500P-E	0.040	0.010	08/30/12 10:50	08/31/12 14:01	MMF
Sulfate	mg/L	63	EPA 300.0	0.60	0.20		08/29/12 17:36	JAG
Total Alkalinity	mg/L	16	SM 2320B	8.0	2.0	08/29/12 10:00	08/29/12 16:46	AES
Total Kjeldahl Nitrogen	mg/L	1.5	EPA 351.2	0.20	0.05	08/29/12 14:00	09/04/12 11:45	MMF

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Hazen and Sawyer
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Tampa, FL 33619

September 14, 2012
Work Order: 1209581

Laboratory Report

Project Name **C-HS3 SE#1**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**PZ-O3A-21**						
Matrix		**Groundwater**						
SAL Sample Number		**1209581-04**						
Date/Time Collected		**08/28/12 11:05**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/28/12 15:55**						
Nitrate+Nitrite (N)	mg/L	4.2	EPA 300.0	0.08	0.02		08/29/12 17:36	JAG
Sample Description		**PZ-O3A-34**						
Matrix		**Groundwater**						
SAL Sample Number		**1209581-05**						
Date/Time Collected		**08/29/12 15:06**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/29/12 15:55**						
Field Parameters								
pH	SU	4.2	DEP FT1100	0.1	0.1		08/29/12 15:06	SAS
Water Temperature	°C	27.0	DEP FT1400	0.1	0.1		08/29/12 15:06	SAS
Specific conductance	umhos/cm	293	DEP FT1200	0.1	0.1		08/29/12 15:06	SAS
Dissolved Oxygen	mg/L	0.7	DEP FT1500	0.1	0.1		08/29/12 15:06	SAS
Inorganics								
Ammonia as N	mg/L	0.14	EPA 350.1	0.040	0.009		08/30/12 15:26	MMF
Chemical Oxygen Demand	mg/L	15 I	EPA 410.4	25	10	09/04/12 08:40	09/04/12 10:55	CDB
Chloride	mg/L	21	EPA 300.0	0.20	0.050		08/30/12 17:33	JAG
Fluoride	mg/L	0.075	EPA 300.0	0.040	0.010		08/30/12 17:33	JAG
Nitrate (as N)	mg/L	14	EPA 300.0	0.04	0.01		08/30/12 17:33	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		08/30/12 17:33	JAG
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		08/30/12 17:33	JAG
Phosphorous - Total as P	mg/L	2.5	SM 4500P-E	0.20	0.050	08/30/12 11:33	08/31/12 15:14	MMF
Sulfate	mg/L	25	EPA 300.0	0.60	0.20		08/30/12 17:33	JAG
Total Alkalinity	mg/L	2.0 U	SM 2320B	8.0	2.0	09/01/12 09:00	09/01/12 14:23	AES
Total Kjeldahl Nitrogen	mg/L	2.3	EPA 351.2	0.20	0.05	08/31/12 16:25	09/05/12 11:44	MMF
Nitrate+Nitrite (N)	mg/L	14	EPA 300.0	0.08	0.02		08/30/12 17:33	JAG

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BH22908 - Ion Chromatography 300.0 Prep										
Blank (BH22908-BLK1)					Prepared & Analyzed: 08/29/12					
Chloride	0.050 U	0.20	0.050	mg/L						
Fluoride	0.010 U	0.040	0.010	mg/L						
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
Orthophosphate as P	0.010 U	0.040	0.010	mg/L						
Sulfate	0.20 U	0.60	0.20	mg/L						
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						
LCS (BH22908-BS1)					Prepared & Analyzed: 08/29/12					
Orthophosphate as P	0.987	0.040	0.010	mg/L	0.90		110	85-115		
Nitrite (as N)	1.41	0.04	0.01	mg/L	1.4		101	85-115		
Nitrate (as N)	1.68	0.04	0.01	mg/L	1.7		99	85-115		
Chloride	2.89	0.20	0.050	mg/L	3.0		96	85-115		
Sulfate	8.89	0.60	0.20	mg/L	9.0		99	85-115		
Fluoride	0.936	0.040	0.010	mg/L	0.90		104	85-115		
LCS Dup (BH22908-BSD1)					Prepared & Analyzed: 08/29/12					
Nitrite (as N)	1.41	0.04	0.01	mg/L	1.4		101	85-115	0	200
Orthophosphate as P	0.990	0.040	0.010	mg/L	0.90		110	85-115	0.3	200
Nitrate (as N)	1.67	0.04	0.01	mg/L	1.7		98	85-115	0.6	200
Fluoride	0.964	0.040	0.010	mg/L	0.90		107	85-115	3	200
Sulfate	8.83	0.60	0.20	mg/L	9.0		98	85-115	0.7	200
Chloride	2.88	0.20	0.050	mg/L	3.0		96	85-115	0.3	200
Matrix Spike (BH22908-MS1)		**Source: 1209592-09**			Prepared & Analyzed: 08/29/12					
Sulfate	35.5	0.60	0.20	mg/L	9.0	26.0	106	85-115		
Orthophosphate as P	0.812	0.040	0.010	mg/L	0.90	ND	90	85-115		
Nitrite (as N)	1.38	0.04	0.01	mg/L	1.4	ND	99	85-115		
Fluoride	0.832	0.040	0.010	mg/L	0.90	ND	92	85-115		
Chloride	9.35	0.20	0.050	mg/L	3.0	6.11	108	80-120		
Nitrate (as N)	5.01	0.04	0.01	mg/L	1.7	3.14	110	85-115		

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BH22908 - Ion Chromatography 300.0 Prep										
Matrix Spike (BH22908-MS2)		**Source: 1209601-10**			Prepared & Analyzed: 08/29/12					
Chloride	13.6	0.20	0.050	mg/L	3.0	10.7	97	80-120		
Fluoride	0.881	0.040	0.010	mg/L	0.90	ND	98	85-115		
Sulfate	15.0	0.60	0.20	mg/L	9.0	6.28	97	85-115		
Nitrite (as N)	1.37	0.04	0.01	mg/L	1.4	ND	98	85-115		
Orthophosphate as P	0.815	0.040	0.010	mg/L	0.90	ND	91	85-115		
Nitrate (as N)	8.52	0.04	0.01	mg/L	1.7	6.84	99	85-115		
Batch BH22915 - Digestion for TKN by EPA 351.2										
Blank (BH22915-BLK1)					Prepared: 08/29/12 Analyzed: 09/04/12					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
LCS (BH22915-BS1)					Prepared: 08/29/12 Analyzed: 09/04/12					
Total Kjeldahl Nitrogen	2.43	0.20	0.05	mg/L	2.5		96	90-110		
Matrix Spike (BH22915-MS1)		**Source: 1209592-07**			Prepared: 08/29/12 Analyzed: 09/04/12					
Total Kjeldahl Nitrogen	4.02	0.20	0.05	mg/L	2.5	1.74	90	80-120		
Matrix Spike Dup (BH22915-MSD1)		**Source: 1209592-07**			Prepared: 08/29/12 Analyzed: 09/04/12					
Total Kjeldahl Nitrogen	3.79	0.20	0.05	mg/L	2.5	1.74	81	80-120	6	20
Batch BH22925 - TOC prep										
Blank (BH22925-BLK1)					Prepared & Analyzed: 08/29/12					
Total Organic Carbon	0.50 U	1.0	0.50	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 BH22925 - TOC prep										
LCS (BH22925-BS1)					Prepared & Analyzed: 08/29/12					
Total Organic Carbon	9.94	1.0	0.50	mg/L	10		99	90-110		
Matrix Spike (BH22925-MS1)		**Source: 1209777-02**			Prepared & Analyzed: 08/29/12					
Total Organic Carbon	11.5	1.0	0.50	mg/L	10	0.962	105	85-115		
Matrix Spike Dup (BH22925-MSD1)		**Source: 1209777-02**			Prepared & Analyzed: 08/29/12					
Total Organic Carbon	10.7	1.0	0.50	mg/L	10	0.962	98	85-115	7	10
Batch BH22934 - alkalinity										
Blank (BH22934-BLK1)					Prepared & Analyzed: 08/29/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
Blank (BH22934-BLK2)					Prepared & Analyzed: 08/29/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
LCS (BH22934-BS1)					Prepared & Analyzed: 08/29/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		
LCS (BH22934-BS2)					Prepared & Analyzed: 08/29/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		
Matrix Spike (BH22934-MS1)		**Source: 1209581-04**			Prepared & Analyzed: 08/29/12					
Total Alkalinity	130	8.0	2.0	mg/L	120	16	91	80-120		
Matrix Spike (BH22934-MS2)		**Source: 1209674-01**			Prepared & Analyzed: 08/29/12					
Total Alkalinity	360	8.0	2.0	mg/L	120	240	95	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 BH22934 - alkalinity										
Matrix Spike Dup (BH22934-MSD1)		**Source: 1209581-04**			Prepared & Analyzed: 08/29/12					
Total Alkalinity	140	8.0	2.0	mg/L	120	16	100	80-120	8	26
Matrix Spike Dup (BH22934-MSD2)		**Source: 1209674-01**			Prepared & Analyzed: 08/29/12					
Total Alkalinity	370	8.0	2.0	mg/L	120	240	103	80-120	3	26
Batch BH23010 - Digestion for TP by EPA 365.2/SM4500PE										
Blank (BH23010-BLK1)					Prepared: 08/30/12 Analyzed: 08/31/12					
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						
LCS (BH23010-BS1)					Prepared: 08/30/12 Analyzed: 08/31/12					
Phosphorous - Total as P	0.741	0.040	0.010	mg/L	0.80		93	90-110		
Matrix Spike (BH23010-MS1)		**Source: 1209698-01**			Prepared: 08/30/12 Analyzed: 08/31/12					
Phosphorous - Total as P	1.25	0.040	0.010	mg/L	1.0	0.318	93	75-125		
Matrix Spike Dup (BH23010-MSD1)		**Source: 1209698-01**			Prepared: 08/30/12 Analyzed: 08/31/12					
Phosphorous - Total as P	1.30	0.040	0.010	mg/L	1.0	0.318	98	75-125	4	25
Batch BH23015 - Ion Chromatography 300.0 Prep										
Blank (BH23015-BLK1)					Prepared & Analyzed: 08/30/12					
Sulfate	0.20 U	0.60	0.20	mg/L						
Chloride	0.050 U	0.20	0.050	mg/L						
Orthophosphate as P	0.010 U	0.040	0.010	mg/L						
Fluoride	0.010 U	0.040	0.010	mg/L						
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BH23015 - Ion Chromatography 300.0 Prep										
LCS (BH23015-BS1)					Prepared & Analyzed: 08/30/12					
Orthophosphate as P	0.935	0.040	0.010	mg/L	0.90		104	85-115		
Nitrate (as N)	1.70	0.04	0.01	mg/L	1.7		100	85-115		
Nitrite (as N)	1.43	0.04	0.01	mg/L	1.4		102	85-115		
Sulfate	9.00	0.60	0.20	mg/L	9.0		100	85-115		
Fluoride	0.815	0.040	0.010	mg/L	0.90		91	85-115		
Chloride	2.93	0.20	0.050	mg/L	3.0		98	85-115		
LCS Dup (BH23015-BSD1)					Prepared & Analyzed: 08/30/12					
Orthophosphate as P	0.857	0.040	0.010	mg/L	0.90		95	85-115	9	200
Sulfate	8.93	0.60	0.20	mg/L	9.0		99	85-115	0.8	200
Nitrate (as N)	1.68	0.04	0.01	mg/L	1.7		99	85-115	1	200
Chloride	2.92	0.20	0.050	mg/L	3.0		97	85-115	0.3	200
Fluoride	0.841	0.040	0.010	mg/L	0.90		93	85-115	3	200
Nitrite (as N)	1.42	0.04	0.01	mg/L	1.4		101	85-115	0.7	200
Matrix Spike (BH23015-MS1)		**Source: 1209773-01**			Prepared & Analyzed: 08/30/12					
Sulfate	45.7	0.60	0.20	mg/L	9.0	36.0	108	85-115		
Chloride	46.5 +O	0.20	0.050	mg/L	3.0	97.8	NR	80-120		
Nitrate (as N)	3.53	0.04	0.01	mg/L	1.7	1.75	105	85-115		
Fluoride	0.967	0.040	0.010	mg/L	0.90	0.155	90	85-115		
Orthophosphate as P	1.92	0.040	0.010	mg/L	0.90	0.928	110	85-115		
Nitrite (as N)	1.53	0.04	0.01	mg/L	1.4	ND	109	85-115		
Matrix Spike (BH23015-MS2)		**Source: 1209583-03**			Prepared & Analyzed: 08/30/12					
Sulfate	36.2	0.60	0.20	mg/L	9.0	26.8	104	85-115		
Orthophosphate as P	1.88	0.040	0.010	mg/L	0.90	0.989	99	85-115		
Chloride	12.9	0.20	0.050	mg/L	3.0	9.66	108	80-120		
Nitrate (as N)	5.25	0.04	0.01	mg/L	1.7	3.50	103	85-115		
Fluoride	0.905	0.040	0.010	mg/L	0.90	ND	101	85-115		
Nitrite (as N)	1.34	0.04	0.01	mg/L	1.4	ND	96	85-115		

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BH23019 - Digestion for TP by EPA 365.2/SM4500PE										
Blank (BH23019-BLK1)					Prepared: 08/30/12 Analyzed: 08/31/12					
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						
LCS (BH23019-BS1)					Prepared: 08/30/12 Analyzed: 08/31/12					
Phosphorous - Total as P	0.746	0.040	0.010	mg/L	0.80		93	90-110		
Matrix Spike (BH23019-MS1)		**Source: 1209764-07**			Prepared: 08/30/12 Analyzed: 08/31/12					
Phosphorous - Total as P	1.06	0.040	0.010	mg/L	1.0	0.0996	96	75-125		
Matrix Spike Dup (BH23019-MSD1)		**Source: 1209764-07**			Prepared: 08/30/12 Analyzed: 08/31/12					
Phosphorous - Total as P	1.02	0.040	0.010	mg/L	1.0	0.0996	92	75-125	4	25
Batch BH23032 - Ammonia by SEAL										
Blank (BH23032-BLK1)					Prepared & Analyzed: 08/30/12					
Ammonia as N	0.009 U	0.040	0.009	mg/L						
LCS (BH23032-BS1)					Prepared & Analyzed: 08/30/12					
Ammonia as N	0.52	0.040	0.009	mg/L	0.50		104	90-110		
Matrix Spike (BH23032-MS1)		**Source: 1209667-07**			Prepared & Analyzed: 08/30/12					
Ammonia as N	0.51	0.040	0.009	mg/L	0.50	0.020	98	90-110		
Matrix Spike Dup (BH23032-MSD1)		**Source: 1209667-07**			Prepared & Analyzed: 08/30/12					
Ammonia as N	0.48	0.040	0.009	mg/L	0.50	0.020	93	90-110	5	10
Batch BH23131 - Digestion for TKN by EPA 351.2										
Blank (BH23131-BLK1)					Prepared: 08/31/12 Analyzed: 09/05/12					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						

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

September 14, 2012
Work Order: 1209581

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BH23131 - Digestion for TKN by EPA 351.2										
LCS (BH23131-BS1)					Prepared: 08/31/12 Analyzed: 09/05/12					
Total Kjeldahl Nitrogen	2.50	0.20	0.05	mg/L	2.5		99	90-110		
Matrix Spike (BH23131-MS1)		**Source: 1209592-04**			Prepared: 08/31/12 Analyzed: 09/05/12					
Total Kjeldahl Nitrogen	4.57	0.20	0.05	mg/L	2.5	1.85	107	80-120		
Matrix Spike Dup (BH23131-MSD1)		**Source: 1209592-04**			Prepared: 08/31/12 Analyzed: 09/05/12					
Total Kjeldahl Nitrogen	4.39	0.20	0.05	mg/L	2.5	1.85	100	80-120	4	20
Batch BI20102 - alkalinity										
Blank (BI20102-BLK1)					Prepared & Analyzed: 09/01/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
Blank (BI20102-BLK2)					Prepared & Analyzed: 09/01/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
LCS (BI20102-BS1)					Prepared & Analyzed: 09/01/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		
LCS (BI20102-BS2)					Prepared & Analyzed: 09/01/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		
Matrix Spike (BI20102-MS1)		**Source: 1209615-12**			Prepared & Analyzed: 09/01/12					
Total Alkalinity	150	8.0	2.0	mg/L	120	25	101	80-120		
Matrix Spike (BI20102-MS2)		**Source: 1209615-13**			Prepared & Analyzed: 09/01/12					
Total Alkalinity	190	8.0	2.0	mg/L	120	60	107	80-120		

Hazen and Sawyer
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Work Order: 1209581

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI20102 - alkalinity										
Matrix Spike Dup (BI20102-MSD1)		**Source: 1209615-12**			Prepared & Analyzed: 09/01/12					
Total Alkalinity	160	8.0	2.0	mg/L	120	25	109	80-120	7	26
Matrix Spike Dup (BI20102-MSD2)		**Source: 1209615-13**			Prepared & Analyzed: 09/01/12					
Total Alkalinity	180	8.0	2.0	mg/L	120	60	99	80-120	6	26
Batch BI20402 - COD prep										
Blank (BI20402-BLK1)					Prepared & Analyzed: 09/04/12					
Chemical Oxygen Demand	10 U	25	10	mg/L						
LCS (BI20402-BS1)					Prepared & Analyzed: 09/04/12					
Chemical Oxygen Demand	47	25	10	mg/L	50		94	90-110		
Matrix Spike (BI20402-MS1)		**Source: 1209581-02**			Prepared & Analyzed: 09/04/12					
Chemical Oxygen Demand	51	25	10	mg/L	50	ND	102	85-115		
Matrix Spike Dup (BI20402-MSD1)		**Source: 1209581-02**			Prepared & Analyzed: 09/04/12					
Chemical Oxygen Demand	47	25	10	mg/L	50	ND	94	85-115	8	32

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Inorganic, Dissolved - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI20431 - TOC prep										
Blank (BI20431-BLK1)					Prepared & Analyzed: 09/01/12					
Dissolved Organic Carbon	0.50 U	1.0	0.50	mg/L						
LCS (BI20431-BS1)					Prepared & Analyzed: 09/01/12					
Dissolved Organic Carbon	10.3	1.0	0.50	mg/L	10		103	90-110		
Matrix Spike (BI20431-MS1)		**Source: 1209647-01**			Prepared & Analyzed: 09/01/12					
Dissolved Organic Carbon	8.69	1.0	0.50	mg/L	10	ND	87	85-125		
Matrix Spike Dup (BI20431-MSD1)		**Source: 1209647-01**			Prepared & Analyzed: 09/01/12					
Dissolved Organic Carbon	9.79	1.0	0.50	mg/L	10	ND	98	85-125	12	25

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Work Order: 1209581

Metals - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BH22403 - Metals Preparation for EPA Method 200.7										
Blank (BH22403-BLK1)					Prepared & Analyzed: 08/29/12					
Boron	0.050 U	0.10	0.050	mg/L						
Manganese	0.0010 U	0.010	0.0010	mg/L						
Potassium	0.010 U	0.050	0.010	mg/L						
Sodium	0.13 U	0.50	0.13	mg/L						
Magnesium	0.020 U	0.50	0.020	mg/L						
Calcium	0.042 U	0.50	0.042	mg/L						
Iron	0.020 U	0.10	0.020	mg/L						
LCS (BH22403-BS1)					Prepared & Analyzed: 08/29/12					
Magnesium	20	0.50	0.020	mg/L	20		98	85-115		
Iron	7.8	0.10	0.020	mg/L	8.0		98	85-115		
Calcium	20	0.50	0.042	mg/L	20		99	85-115		
Potassium	18	0.050	0.010	mg/L	20		92	85-115		
Sodium	20	0.50	0.13	mg/L	20		99	85-115		
Boron	0.39	0.10	0.050	mg/L	0.40		98	85-115		
Manganese	0.39	0.010	0.0010	mg/L	0.40		98	85-115		
Matrix Spike (BH22403-MS1)		**Source: 1209534-01**			Prepared & Analyzed: 08/29/12					
Potassium	35	0.050	0.010	mg/L	20	16	95	70-130		
Boron	0.64	0.10	0.050	mg/L	0.40	0.23	100	70-130		
Iron	7.8	0.10	0.020	mg/L	8.0	0.023	98	70-130		
Calcium	72	0.50	0.042	mg/L	20	53	99	70-130		
Sodium	210	0.50	0.13	mg/L	20	200	41	70-130		
Manganese	0.39	0.010	0.0010	mg/L	0.40	0.0016	97	70-130		
Magnesium	59	0.50	0.020	mg/L	20	39	101	70-130		
Matrix Spike (BH22403-MS2)		**Source: 1209547-02**			Prepared & Analyzed: 08/29/12					
Magnesium	24	0.50	0.020	mg/L	20	4.5	99	70-130		
Potassium	23	0.050	0.010	mg/L	20	3.8	97	70-130		
Boron	0.43	0.10	0.050	mg/L	0.40	ND	108	70-130		
Sodium	29	0.50	0.13	mg/L	20	8.5	102	70-130		
Iron	9.9	0.10	0.020	mg/L	8.0	1.9	100	70-130		
Calcium	25	0.50	0.042	mg/L	20	5.9	97	70-130		
Manganese	0.46	0.010	0.0010	mg/L	0.40	0.072	97	70-130		

Hazen and Sawyer
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Work Order: 1209581

Metals - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BH22403 - Metals Preparation for EPA Method 200.7										
Matrix Spike Dup (BH22403-MSD1)		**Source: 1209534-01**			Prepared & Analyzed: 08/29/12					
Boron	0.64	0.10	0.050	mg/L	0.40	0.23	101	70-130	0.2	30
Calcium	75	0.50	0.042	mg/L	20	53	112	70-130	3	30
Iron	7.8	0.10	0.020	mg/L	8.0	0.023	97	70-130	1	30
Potassium	36	0.050	0.010	mg/L	20	16	97	70-130	1	30
Magnesium	61	0.50	0.020	mg/L	20	39	110	70-130	3	30
Sodium	220	0.50	0.13	mg/L	20	200	84	70-130	4	30
Manganese	0.39	0.010	0.0010	mg/L	0.40	0.0016	96	70-130	0.7	30
Matrix Spike Dup (BH22403-MSD2)		**Source: 1209547-02**			Prepared & Analyzed: 08/29/12					
Calcium	25	0.50	0.042	mg/L	20	5.9	96	70-130	0.8	30
Iron	9.8	0.10	0.020	mg/L	8.0	1.9	99	70-130	0.8	30
Boron	0.42	0.10	0.050	mg/L	0.40	ND	104	70-130	3	30
Magnesium	24	0.50	0.020	mg/L	20	4.5	99	70-130	0.04	30
Sodium	29	0.50	0.13	mg/L	20	8.5	103	70-130	0.5	30
Manganese	0.45	0.010	0.0010	mg/L	0.40	0.072	93	70-130	3	30
Potassium	23	0.050	0.010	mg/L	20	3.8	98	70-130	0.9	30

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September 14, 2012
Work Order: 1209581

* 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.

+O Matrix spike source sample was over the reccommended range for the method.

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

SAL Project No. 1209581

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: C-HS3 SE#1

Samplers: (Signature)

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

PARAMETER / CONTAINER DESCRIPTION

SAL Use Only Sample No.	Sample Description	Date	Time	Matrix	Composite	Grab	1LP, Cool Alkalinity, NOx, Cl, F, OP, SO_4	250mL P, H_2SO_4 COD, TKN, NH_3, TP	40mLaV, HCl TOC	250mLaG, Cool DOC	250mL P, HNO_3 B, Ca, Fe, Mg, Mn, K, Na						DO	pH	Conductivity	Temperature	No. of Containers (Total per each location)
01	PZ-O3A-15	08/28/12	09:15	GW		X	1	1	2	1	1						7.4	6.0	54	28.0	6
02	PZ-O3A-15 Dup	08/28/12	09:45	GW		X	1	1	2	1	1						7.4	6.0	54	28.0	6
03	PZ-O3A-17	08/28/12	10:30	GW		X	1	1									6.5	5.8	79.6	28.2	2
04	PZ-O3A-21	08/28/12	11:05	GW		X	1	1									2.0	5.6	267	28.4	2
05	PZ-O3A-34	08/28/12	1506	GW		X	1	1									1.70	4.2	292.8	27.0	

Containers Prepared/ Relinquished:	Date/Time: 8-27-12 1200	Received:	Date/Time: 1200 08/27/12
Relinquished:	Date/Time: 1555 08/28/12	Received:	Date/Time: 1555 08-28-12
Relinquished:	Date/Time: 1655 08-28-12	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

1209581

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

Chain of Custody

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:	CHS3	Contact:	
				Phone:	
Date Sampled	08/28/12 0915	SAL Project #	1209581	Project Name	C-HS3 SE#1
Well Number	PZ-03A-15	Sample ID	01	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1"	WELL CAPACITY (gal/ft)		Screen Interval (Feet)	UNK 15 To 10 UNK		Static Depth to Water (Feet)	11.32	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	14.64	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)	3/16"	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	513 mL	1/4 WELL VOLUME		3 WELL VOLUMES	1540 mL	5 WELL VOLUMES	

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

PUMP VOLUME		TUBING LEGNTH	30'	FLOW CELL VOLUME		EQUIPMENT VOLUME	

INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START	08:45	PURGE TIME END	09:15	TOTAL PURGED	2500 mL
INST. ID				SAL-SAM-63-____	SAL-SAM-65-____	SAL-SAM-63-____	SAL-SAM-55-__	SAL-SAM-0____	

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
0845	500 mL →				5.53	27.6	55.8				
0850	1000 mL →				6.02	27.5	53.0				
0855	1500 mL →				5.83	27.4	53.4		46.4		
0900	2000 mL →				5.97	27.4	53.9	7.27	41.6		
0905	2500 mL →				6.01	28.0		7.41	39.3		

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

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

SAMPLING DATA

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

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

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

Reviewed By:		Date:	

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:	CHS 3	Contact:	
				Phone:	
Date Sampled	08/28/12 09:45	SAL Project #	1209581	Project Name	C-HS3 SE#1
Well Number	PZ-03A-15 Dup	Sample ID	02	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1"	WELL CAPACITY (gal/ft)		Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	11.32	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	14.64	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	513mL	1/4 WELL VOLUME			3 WELL VOLUMES	1540mL		5 WELL VOLUMES		
EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME										
PUMP VOLUME		TUBING LEGNTH			FLOW CELL VOLUME			EQUIPMENT VOLUME		
INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)			PURGE TIME START		PURGE TIME END		TOTAL PURGED	
INST. ID					SAL-SAM-63-____	SAL-SAM-65-____	SAL-SAM-63-____	SAL-SAM-55-__	SAL-SAM-0____	

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
0845	500 mL	500 mL			5.53	27.6	55.8				
0850	↓	1000 mL			6.02	27.5	53.0				
0855		1500 mL			5.83	27.4	53.4		46.4		
0900		2000 mL			5.94	27.4	53.9	7.27	41.6		
0905		2500 mL			6.01	28.0		7.41	39.3		

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

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

SAMPLING DATA

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

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

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

Reviewed By: Date:

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:	CHS3	Contact:	
				Phone:	
Date Sampled	08/28/12 10:30am	SAL Project #	1209581	Project Name	C-HS3 SE#1
Well Number	PZ-03A-17	Sample ID	03	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	3/4"	WELL CAPACITY (gal/ft)		Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	11.23	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	16.85	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	

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

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

ONE WELL VOLUME	488mL	1/4 WELL VOLUME		3 WELL VOLUMES	1465mL	5 WELL VOLUMES	2441mL

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	10:10	TOTAL PURGED	
INST. ID				SAL-SAM-63-____	SAL-SAM-65-____	SAL-SAM-63-____	SAL-SAM-55-__	SAL-SAM-0____	

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
10:15	500mL	500 mL			6.02	29.1	84.3		891		
10:17		1000			5.84	28.2	85.7		44.4		
10:22		1500			5.83	28.1	82.5	6.18	36.4		
10:25		2000			5.74	28.2	80.7	6.47	22.4		
10:27		2500			5.80	28.2	79.6	6.45	18.5		

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

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

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

Reviewed By:		Date:	

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:	CHS3	Contact:	
				Phone:	
Date Sampled	08/28/12 11:05am	SAL Project #	1209581	Project Name	C-HS3 SE#1
Well Number	PZ-03A-21	Sample ID	~~PZ~~ 04	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	3/4"	WELL CAPACITY (gal/ft)		Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	11.33	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	20.84	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	

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

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

ONE WELL VOLUME	826 mL	1/4 WELL VOLUME		3 WELL VOLUMES	2478 mL	5 WELL VOLUMES	4130 mL

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

PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME		EQUIPMENT VOLUME	

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

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
10:54	1000mL	1000 mL			5.58	28.6	263	2.15	28.1	brown	none
10:58	1000	2000mL			5.50	28.3	266	1.97	19.7	clear	↓
11:02	500	~~2000~~ 2500 mL			5.55	28.4	267	2.03	17.9	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)						SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)		PP PE NP TL TT		SAMPLE TUBING LEGNTH IN WELL (FEET)				SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED		SAMPLING ENDED		FIELD CLEANED	Y N	CLEANING STEPS			
FIELD FILTERED?	Y N	FILTER SIZE (µm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?		Y N N/A	LIST PRESERVATIVES ADDED						
WEATHER CONDITIONS									
COMMENTS									

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

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

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:	CHS3	Contact:	
				Phone:	
Date Sampled	082912	SAL Project #	1209581	Project Name	C-HS3 SE#1
Well Number	PZ-03A-34	Sample ID	05	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	2"	WELL CAPACITY (gal/ft)	0.16	Screen Interval (Feet)	UNK To UNK	Static Depth to Water (Feet)	11.59	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	33.90'	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)		TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	

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

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

ONE WELL VOLUME	3.64	1/4 WELL VOLUME	0.91	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	1445	PURGE TIME END	1505	TOTAL PURGED	10.00
INST. ID				SAL-SAM-63-01	SAL-SAM-65-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01	

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
1453	4.00	4.00	0.50	12.68	4.3	28.1	271.2	0.96	MAX	BROWN	NONE
1456	1.50	5.50			4.2	27.3	283.1	0.76	MAX	BEIGE	
1459	1.50	7.00			4.2	27.2	288.2	0.73	MAX	BEIGE	
1502	1.50	8.50			4.2	27.1	290.7	0.72	MAX	BEIGE	
1505	1.50	10.00			4.2	27.0	292.8	0.70	MAX	BEIGE	

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	1506	SAMPLING ENDED	1507	FIELD CLEANED	Y N	CLEANING STEPS	
FIELD FILTERED?	Y N	FILTER SIZE (µm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A
SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A						
PRESERVATION CHECKED IN FIELD?	Y N N/A	LIST PRESERVATIVES ADDED					
WEATHER CONDITIONS	Clear, 90°						
COMMENTS							

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

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

Reviewed By: Date:

Revision Date 09/25/09

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

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

September 10, 2012
Work Order: 1209582

Laboratory Report

Project Name **C-HS3 SE#1**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**PZ-O3I-15**						
Matrix		**Groundwater**						
SAL Sample Number		**1209582-01**						
Date/Time Collected		**08/28/12 11:50**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/28/12 15:55**						
Field Parameters								
pH	SU	5.7	DEP FT1100	0.1	0.1		08/28/12 11:50	SAS
Water Temperature	°C	28.4	DEP FT1400	0.1	0.1		08/28/12 11:50	SAS
Specific conductance	umhos/cm	81	DEP FT1200	0.1	0.1		08/28/12 11:50	SAS
Dissolved Oxygen	mg/L	6.4	DEP FT1500	0.1	0.1		08/28/12 11:50	SAS
Inorganics								
Ammonia as N	mg/L	0.066	EPA 350.1	0.040	0.009		09/04/12 12:52	MMF
Chemical Oxygen Demand	mg/L	11 I	EPA 410.4	25	10	09/04/12 08:40	09/04/12 10:55	CDB
Chloride	mg/L	1.7	EPA 300.0	0.20	0.050		08/29/12 17:36	JAG
Fluoride	mg/L	0.55	EPA 300.0	0.040	0.010		08/29/12 17:36	JAG
Nitrate (as N)	mg/L	2.2	EPA 300.0	0.04	0.01		08/29/12 17:36	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		08/29/12 17:36	JAG
Orthophosphate as P	mg/L	0.16	EPA 300.0	0.040	0.010		08/29/12 17:36	JAG
Phosphorous - Total as P	mg/L	1.0	SM 4500P-E	0.040	0.010	08/30/12 10:50	08/31/12 14:02	MMF
Sulfate	mg/L	14	EPA 300.0	0.60	0.20		08/29/12 17:36	JAG
Total Alkalinity	mg/L	5.2 I	SM 2320B	8.0	2.0	08/29/12 10:00	08/29/12 16:46	AES
Total Kjeldahl Nitrogen	mg/L	1.3	EPA 351.2	0.20	0.05	08/29/12 14:00	09/04/12 11:46	MMF
Nitrate+Nitrite (N)	mg/L	2.2	EPA 300.0	0.08	0.02		08/29/12 17:36	JAG

Sample Description		**PZ-O3I-17**						
Matrix		**Groundwater**						
SAL Sample Number		**1209582-02**						
Date/Time Collected		**08/28/12 13:05**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/28/12 15:55**						
Field Parameters								
pH	SU	6.0	DEP FT1100	0.1	0.1		08/28/12 13:05	SAS
Water Temperature	°C	29.8	DEP FT1400	0.1	0.1		08/28/12 13:05	SAS
Specific conductance	umhos/cm	56	DEP FT1200	0.1	0.1		08/28/12 13:05	SAS
Dissolved Oxygen	mg/L	6.7	DEP FT1500	0.1	0.1		08/28/12 13:05	SAS
Inorganics								
Ammonia as N	mg/L	0.22	EPA 350.1	0.040	0.009		09/04/12 12:54	MMF
Chloride	mg/L	1.9	EPA 300.0	0.20	0.050		08/29/12 17:36	JAG
Fluoride	mg/L	0.010 U	EPA 300.0	0.040	0.010		08/29/12 17:36	JAG
Nitrate (as N)	mg/L	0.70	EPA 300.0	0.04	0.01		08/29/12 17:36	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		08/29/12 17:36	JAG
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		08/29/12 17:36	JAG
Sulfate	mg/L	7.3	EPA 300.0	0.60	0.20		08/29/12 17:36	JAG

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

September 10, 2012
Work Order: 1209582

Laboratory Report

Project Name **C-HS3 SE#1**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**PZ-O3I-17**						
Matrix		**Groundwater**						
SAL Sample Number		**1209582-02**						
Date/Time Collected		**08/28/12 13:05**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/28/12 15:55**						
Total Alkalinity	mg/L	10	SM 2320B	8.0	2.0	08/29/12 10:00	08/29/12 16:46	AES
Total Kjeldahl Nitrogen	mg/L	1.5	EPA 351.2	0.20	0.05	08/29/12 14:00	09/04/12 11:48	MMF
Nitrate+Nitrite (N)	mg/L	0.70	EPA 300.0	0.08	0.02		08/29/12 17:36	JAG
Sample Description		**PZ-O3I-21**						
Matrix		**Groundwater**						
SAL Sample Number		**1209582-03**						
Date/Time Collected		**08/28/12 13:35**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/28/12 15:55**						
Field Parameters								
pH	SU	4.7	DEP FT1100	0.1	0.1		08/28/12 13:35	SAS
Water Temperature	°C	29.4	DEP FT1400	0.1	0.1		08/28/12 13:35	SAS
Specific conductance	umhos/cm	180	DEP FT1200	0.1	0.1		08/28/12 13:35	SAS
Dissolved Oxygen	mg/L	4.3	DEP FT1500	0.1	0.1		08/28/12 13:35	SAS
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		09/04/12 12:56	MMF
Chloride	mg/L	8.6	EPA 300.0	0.20	0.050		08/29/12 17:36	JAG
Fluoride	mg/L	0.010 U	EPA 300.0	0.040	0.010		08/29/12 17:36	JAG
Nitrate (as N)	mg/L	2.6	EPA 300.0	0.04	0.01		08/29/12 17:36	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		08/29/12 17:36	JAG
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		08/29/12 17:36	JAG
Sulfate	mg/L	39	EPA 300.0	0.60	0.20		08/29/12 17:36	JAG
Total Alkalinity	mg/L	3.2 I	SM 2320B	8.0	2.0	08/29/12 10:00	08/29/12 16:46	AES
Total Kjeldahl Nitrogen	mg/L	0.69	EPA 351.2	0.20	0.05	08/29/12 14:00	09/04/12 11:50	MMF
Nitrate+Nitrite (N)	mg/L	2.6	EPA 300.0	0.08	0.02		08/29/12 17:36	JAG

Hazen and Sawyer
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Tampa, FL 33619

September 10, 2012
Work Order: 1209582

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BH22908 - Ion Chromatography 300.0 Prep										
Blank (BH22908-BLK1)					Prepared & Analyzed: 08/29/12					
Sulfate	0.20 U	0.60	0.20	mg/L						
Chloride	0.050 U	0.20	0.050	mg/L						
Fluoride	0.010 U	0.040	0.010	mg/L						
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						
Orthophosphate as P	0.010 U	0.040	0.010	mg/L						
LCS (BH22908-BS1)					Prepared & Analyzed: 08/29/12					
Chloride	2.89	0.20	0.050	mg/L	3.0		96	85-115		
Fluoride	0.936	0.040	0.010	mg/L	0.90		104	85-115		
Nitrate (as N)	1.68	0.04	0.01	mg/L	1.7		99	85-115		
Nitrite (as N)	1.41	0.04	0.01	mg/L	1.4		101	85-115		
Orthophosphate as P	0.987	0.040	0.010	mg/L	0.90		110	85-115		
Sulfate	8.89	0.60	0.20	mg/L	9.0		99	85-115		
LCS Dup (BH22908-BSD1)					Prepared & Analyzed: 08/29/12					
Nitrate (as N)	1.67	0.04	0.01	mg/L	1.7		98	85-115	0.6	200
Chloride	2.88	0.20	0.050	mg/L	3.0		96	85-115	0.3	200
Orthophosphate as P	0.990	0.040	0.010	mg/L	0.90		110	85-115	0.3	200
Sulfate	8.83	0.60	0.20	mg/L	9.0		98	85-115	0.7	200
Fluoride	0.964	0.040	0.010	mg/L	0.90		107	85-115	3	200
Nitrite (as N)	1.41	0.04	0.01	mg/L	1.4		101	85-115	0	200
Matrix Spike (BH22908-MS1)		**Source: 1209592-09**			Prepared & Analyzed: 08/29/12					
Sulfate	35.5	0.60	0.20	mg/L	9.0	26.0	106	85-115		
Orthophosphate as P	0.812	0.040	0.010	mg/L	0.90	ND	90	85-115		
Nitrate (as N)	5.01	0.04	0.01	mg/L	1.7	3.14	110	85-115		
Nitrite (as N)	1.38	0.04	0.01	mg/L	1.4	ND	99	85-115		
Fluoride	0.832	0.040	0.010	mg/L	0.90	ND	92	85-115		
Chloride	9.35	0.20	0.050	mg/L	3.0	6.11	108	80-120		

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September 10, 2012
Work Order: 1209582

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BH22908 - Ion Chromatography 300.0 Prep										
Matrix Spike (BH22908-MS2)		**Source: 1209601-10**			Prepared & Analyzed: 08/29/12					
Fluoride	0.881	0.040	0.010	mg/L	0.90	ND	98	85-115		
Orthophosphate as P	0.815	0.040	0.010	mg/L	0.90	ND	91	85-115		
Chloride	13.6	0.20	0.050	mg/L	3.0	10.7	97	80-120		
Nitrite (as N)	1.37	0.04	0.01	mg/L	1.4	ND	98	85-115		
Nitrate (as N)	8.52	0.04	0.01	mg/L	1.7	6.84	99	85-115		
Sulfate	15.0	0.60	0.20	mg/L	9.0	6.28	97	85-115		
Batch BH22915 - Digestion for TKN by EPA 351.2										
Blank (BH22915-BLK1)					Prepared: 08/29/12 Analyzed: 09/04/12					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
LCS (BH22915-BS1)					Prepared: 08/29/12 Analyzed: 09/04/12					
Total Kjeldahl Nitrogen	2.43	0.20	0.05	mg/L	2.5		96	90-110		
Matrix Spike (BH22915-MS1)		**Source: 1209592-07**			Prepared: 08/29/12 Analyzed: 09/04/12					
Total Kjeldahl Nitrogen	4.02	0.20	0.05	mg/L	2.5	1.74	90	80-120		
Matrix Spike Dup (BH22915-MSD1)		**Source: 1209592-07**			Prepared: 08/29/12 Analyzed: 09/04/12					
Total Kjeldahl Nitrogen	3.79	0.20	0.05	mg/L	2.5	1.74	81	80-120	6	20
Batch BH22934 - alkalinity										
Blank (BH22934-BLK1)					Prepared & Analyzed: 08/29/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						

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September 10, 2012
Work Order: 1209582

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BH22934 - alkalinity										
Blank (BH22934-BLK2)					Prepared & Analyzed: 08/29/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
LCS (BH22934-BS1)					Prepared & Analyzed: 08/29/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		
LCS (BH22934-BS2)					Prepared & Analyzed: 08/29/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		
Matrix Spike (BH22934-MS1)		**Source: 1209581-04**			Prepared & Analyzed: 08/29/12					
Total Alkalinity	130	8.0	2.0	mg/L	120	16	91	80-120		
Matrix Spike (BH22934-MS2)		**Source: 1209674-01**			Prepared & Analyzed: 08/29/12					
Total Alkalinity	360	8.0	2.0	mg/L	120	240	95	80-120		
Matrix Spike Dup (BH22934-MSD1)		**Source: 1209581-04**			Prepared & Analyzed: 08/29/12					
Total Alkalinity	140	8.0	2.0	mg/L	120	16	100	80-120	8	26
Matrix Spike Dup (BH22934-MSD2)		**Source: 1209674-01**			Prepared & Analyzed: 08/29/12					
Total Alkalinity	370	8.0	2.0	mg/L	120	240	103	80-120	3	26
Batch BH23010 - Digestion for TP by EPA 365.2/SM4500PE										
Blank (BH23010-BLK1)					Prepared: 08/30/12 Analyzed: 08/31/12					
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						
LCS (BH23010-BS1)					Prepared: 08/30/12 Analyzed: 08/31/12					
Phosphorous - Total as P	0.741	0.040	0.010	mg/L	0.80		93	90-110		

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BH23010 - Digestion for TP by EPA 365.2/SM4500PE										
Matrix Spike (BH23010-MS1)		**Source: 1209698-01**			Prepared: 08/30/12 Analyzed: 08/31/12					
Phosphorous - Total as P	1.25	0.040	0.010	mg/L	1.0	0.318	93	75-125		
Matrix Spike Dup (BH23010-MSD1)		**Source: 1209698-01**			Prepared: 08/30/12 Analyzed: 08/31/12					
Phosphorous - Total as P	1.30	0.040	0.010	mg/L	1.0	0.318	98	75-125	4	25
Batch BI20402 - COD prep										
Blank (BI20402-BLK1)					Prepared & Analyzed: 09/04/12					
Chemical Oxygen Demand	10 U	25	10	mg/L						
LCS (BI20402-BS1)					Prepared & Analyzed: 09/04/12					
Chemical Oxygen Demand	47	25	10	mg/L	50		94	90-110		
Matrix Spike (BI20402-MS1)		**Source: 1209581-02**			Prepared & Analyzed: 09/04/12					
Chemical Oxygen Demand	51	25	10	mg/L	50	ND	102	85-115		
Matrix Spike Dup (BI20402-MSD1)		**Source: 1209581-02**			Prepared & Analyzed: 09/04/12					
Chemical Oxygen Demand	47	25	10	mg/L	50	ND	94	85-115	8	32
Batch BI20403 - Ammonia by SEAL										
Blank (BI20403-BLK1)					Prepared & Analyzed: 09/04/12					
Ammonia as N	0.009 U	0.040	0.009	mg/L						
LCS (BI20403-BS1)					Prepared & Analyzed: 09/04/12					
Ammonia as N	0.50	0.040	0.009	mg/L	0.50		99	90-110		

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

September 10, 2012
Work Order: 1209582

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI20403 - Ammonia by SEAL										
Matrix Spike (BI20403-MS1)		**Source: 1209582-01**			Prepared & Analyzed: 09/04/12					
Ammonia as N	0.56	0.040	0.009	mg/L	0.50	0.066	98	90-110		
Matrix Spike Dup (BI20403-MSD1)		**Source: 1209582-01**			Prepared & Analyzed: 09/04/12					
Ammonia as N	0.56	0.040	0.009	mg/L	0.50	0.066	98	90-110	0.2	10

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September 10, 2012
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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.

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

SAL Project No. 1209582

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: C-HS3 SE#1

Samplers: (Signature)

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

PARAMETER / CONTAINER DESCRIPTION

SAL Use Only Sample No.	Sample Description	Date	Time	Matrix	Composite	Grab	1LP, Cool Alkalinity, NOx, Cl, F, OP, SO_4	250mL P, H_2SO_4 COD, TKN, NH_3, TP	250mL P, H_2SO_4 TKN, NH_3							DO	pH	Conductivity	Temperature	No. of Containers (Total per each location)
01	PZ-03I-15	8/28/12	11:50	GW		X	1	1								6.4	5.7	81	28.4	2
02	PZ-03I-17	8/28/12	1305	GW		X	1		1							6.7	6.0	56.5	29.8	2
03	PZ-03I-21	8/28/12	1335	GW		X	1		1							4.3	4.7	1785	29.4	2

Containers Prepared/ Relinquished: Bayling	Date/Time: 1885 8/27/12	Received:	Date/Time: 0935 082712
Relinquished:	Date/Time: 1555 08/28/12	Received:	Date/Time: 1255 08-28-12
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

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

1209582

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

Chain of Custody

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:	CHS3	Contact:	
				Phone:	
Date Sampled	8/28/12 11:50am	SAL Project #	1209582	Project Name	C-HS3 SE#1
Well Number	PZ-03I-15	Sample ID	01	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)		WELL CAPACITY (gal/ft)		Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	11.06	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	14.63	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	550mL	1/4 WELL VOLUME			3 WELL VOLUMES	1651		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	11:30	PURGE TIME END		TOTAL PURGED	
INST. ID				SAL-SAM-63-____	SAL-SAM-65-____	SAL-SAM-63-____	SAL-SAM-55-__	SAL-SAM-0____		

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
11:36	500mL	500mL			6.01	32.6	99.1	5.86	823		
11:40	500	1000			5.61	30.1	78.7	5.90	18		
11:43	500	1500			5.64	30.2	82.1	5.88	89.3		
11:46	500	2000			5.70	30.0	81.6	6.17	92.4		
11:50	500	2500			5.67	28.4	81.0	6.43	91.3		

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

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

SAMPLING DATA

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

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

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

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:	CHS3	Contact:	
				Phone:	
Date Sampled	8/28/12 13:05pm	SAL Project #	1209582	Project Name	C-HS3 SE#1
Well Number	PZ-03I-17	Sample ID	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	509 mL		1/4 WELL VOLUME		3 WELL VOLUMES	1527 mL		5 WELL VOLUMES	2545	
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	12:50	PURGE TIME END		TOTAL PURGED	
INST. ID					SAL-SAM-63-____	SAL-SAM-65-____	SAL-SAM-63-____	SAL-SAM-55-__	SAL-SAM-0____	
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
12:50	500 mL	500 mL			6.34	31.5	57.2	6.32			
12:55	500 mL	1000 mL			6.02	32.6	56.9	6.30	2713		
12:59	500	1500 mL			5.94	31.2	56.3	6.36	1923		
1:03	500	2000 mL			6.00	29.9	56.6	6.58	1346		
1:05	500	2500 mL			6.00	29.8	56.5	6.66			
Well Capacity (gallons/foot): 0.75"=0.02, 1.25"=0.06, 2"=0.16, 3"=0.37, 4"=0.65, 5"=1.02, 6"=1.47, 12"5.88											
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016											

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)					SAMPLER(S) SIGNATURES:				
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED		SAMPLING ENDED		FIELD CLEANED	Y N	CLEANING STEPS			
FIELD FILTERED?	Y N	FILTER SIZE (µm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?		Y N N/A	LIST PRESERVATIVES ADDED						
WEATHER CONDITIONS									
COMMENTS									
PUMP CODES: PP=Peristaltic Pump, GP= Submersible Grundfos Pump, IBP= In-place Bladder Pump									
TUBING MATERIAL CODES: PP= Polypropylene, PE= Polyethylene, NP= Non-inert Plastic, TL= Teflon Lined, TT= Teflon									
Reviewed By:						Date:			

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:	CHS3	Contact:	
				Phone:	
Date Sampled	8/28/12 13:35	SAL Project #	1209582	Project Name	C-HS3 SE#1
Well Number	PZ-03I-21	Sample ID	03	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)		WELL CAPACITY (gal/ft)		Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)		PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)		REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	
Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)										
WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =										
ONE WELL VOLUME	853 mL		1/4 WELL VOLUME		3 WELL VOLUMES	2559.2 mL		5 WELL VOLUMES	4265 mL	
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	13:20	PURGE TIME END	13:35	TOTAL PURGED	
INST. ID					SAL-SAM-63-____	SAL-SAM-65-____	SAL-SAM-63-____	SAL-SAM-55-__	SAL-SAM-0____	

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
01:25	1000 mL	1000 mL			4.72	29.4°C	178.5	4.10	44.2		
13:29	2000	2000			4.71	29.7°C	178.5	3.66	24.3		
13:34	1000	3000			4.73	29.4°C	179.5	4.28	13.09		

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

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

SAMPLING DATA

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

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

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

Reviewed By: Date:

Revision Date 09/25/09

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

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

September 14, 2012
Work Order: 1209583

Laboratory Report

Project Name **C-HS3 SE#1**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**PZ-O3K-15**						
Matrix		**Groundwater**						
SAL Sample Number		**1209583-01**						
Date/Time Collected		**08/29/12 14:01**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/29/12 17:30**						
Field Parameters								
pH	SU	6.3	DEP FT1100	0.1	0.1		08/29/12 14:01	SAS
Water Temperature	°C	28.0	DEP FT1400	0.1	0.1		08/29/12 14:01	SAS
Specific conductance	umhos/cm	333	DEP FT1200	0.1	0.1		08/29/12 14:01	SAS
Dissolved Oxygen	mg/L	5.1	DEP FT1500	0.1	0.1		08/29/12 14:01	SAS
Inorganics								
Ammonia as N	mg/L	0.020 I	EPA 350.1	0.040	0.009		09/05/12 10:49	MMF
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	09/04/12 08:40	09/04/12 10:55	CDB
Chloride	mg/L	10	EPA 300.0	0.20	0.050		08/30/12 17:33	JAG
Nitrate (as N)	mg/L	16	EPA 300.0	0.04	0.01		08/30/12 17:33	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		08/30/12 17:33	JAG
Phosphorous - Total as P	mg/L	4.4	SM 4500P-E	0.40	0.10	09/04/12 12:01	09/06/12 14:48	MMF
Total Alkalinity	mg/L	43	SM 2320B	8.0	2.0	09/01/12 09:00	09/01/12 14:23	AES
Total Kjeldahl Nitrogen	mg/L	2.4	EPA 351.2	0.20	0.05	08/31/12 16:25	09/05/12 11:46	MMF
Nitrate+Nitrite (N)	mg/L	16	EPA 300.0	0.08	0.02		08/30/12 17:33	JAG
Sample Description		**PZ-O3K-17**						
Matrix		**Groundwater**						
SAL Sample Number		**1209583-02**						
Date/Time Collected		**08/29/12 14:20**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/29/12 17:30**						
Field Parameters								
pH	SU	6.3	DEP FT1100	0.1	0.1		08/29/12 14:20	SAS
Water Temperature	°C	27.4	DEP FT1400	0.1	0.1		08/29/12 14:20	SAS
Specific conductance	umhos/cm	53	DEP FT1200	0.1	0.1		08/29/12 14:20	SAS
Dissolved Oxygen	mg/L	4.6	DEP FT1500	0.1	0.1		08/29/12 14:20	SAS
Inorganics								
Ammonia as N	mg/L	0.38	EPA 350.1	0.040	0.009		09/05/12 10:51	MMF
Chloride	mg/L	1.3	EPA 300.0	0.20	0.050		08/30/12 17:33	JAG
Nitrate (as N)	mg/L	0.62	EPA 300.0	0.04	0.01		08/30/12 17:33	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		08/30/12 17:33	JAG
Total Alkalinity	mg/L	22	SM 2320B	8.0	2.0	09/01/12 09:00	09/01/12 14:23	AES
Total Kjeldahl Nitrogen	mg/L	1.6	EPA 351.2	0.20	0.05	08/31/12 16:25	09/05/12 11:47	MMF
Nitrate+Nitrite (N)	mg/L	0.62	EPA 300.0	0.08	0.02		08/30/12 17:33	JAG

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

September 14, 2012
Work Order: 1209583

Laboratory Report

Project Name		**C-HS3 SE#1**						
Parameters	**Units**	**Results ***	**Method**	**PQL**	**MDL**	**Prepared**	**Analyzed**	**By**
Sample Description		**PZ-O3K-21**						
Matrix		**Groundwater**						
SAL Sample Number		**1209583-03**						
Date/Time Collected		**08/29/12 14:41**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/29/12 17:30**						
Field Parameters								
pH	SU	5.8	DEP FT1100	0.1	0.1		08/29/12 14:41	SAS
Water Temperature	°C	27.5	DEP FT1400	0.1	0.1		08/29/12 14:41	SAS
Specific conductance	umhos/cm	174	DEP FT1200	0.1	0.1		08/29/12 14:41	SAS
Dissolved Oxygen	mg/L	2.8	DEP FT1500	0.1	0.1		08/29/12 14:41	SAS
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		09/05/12 10:53	MMF
Chloride	mg/L	9.7	EPA 300.0	0.20	0.050		08/30/12 17:33	JAG
Nitrate (as N)	mg/L	3.5	EPA 300.0	0.04	0.01		08/30/12 17:33	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		08/30/12 17:33	JAG
Total Alkalinity	mg/L	22	SM 2320B	8.0	2.0	09/01/12 09:00	09/01/12 14:23	AES
Total Kjeldahl Nitrogen	mg/L	1.0	EPA 351.2	0.20	0.05	08/31/12 16:25	09/05/12 11:49	MMF
Nitrate+Nitrite (N)	mg/L	3.5	EPA 300.0	0.08	0.02		08/30/12 17:33	JAG

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

September 14, 2012
Work Order: 1209583

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BH23015 - Ion Chromatography 300.0 Prep										
Blank (BH23015-BLK1)					Prepared & Analyzed: 08/30/12					
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						
Chloride	0.050 U	0.20	0.050	mg/L						
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
LCS (BH23015-BS1)					Prepared & Analyzed: 08/30/12					
Nitrite (as N)	1.43	0.04	0.01	mg/L	1.4		102	85-115		
Chloride	2.93	0.20	0.050	mg/L	3.0		98	85-115		
Nitrate (as N)	1.70	0.04	0.01	mg/L	1.7		100	85-115		
LCS Dup (BH23015-BSD1)					Prepared & Analyzed: 08/30/12					
Nitrite (as N)	1.42	0.04	0.01	mg/L	1.4		101	85-115	0.7	200
Nitrate (as N)	1.68	0.04	0.01	mg/L	1.7		99	85-115	1	200
Chloride	2.92	0.20	0.050	mg/L	3.0		97	85-115	0.3	200
Matrix Spike (BH23015-MS1)		**Source: 1209773-01**			Prepared & Analyzed: 08/30/12					
Chloride	46.5 +O	0.20	0.050	mg/L	3.0	97.8	NR	80-120		
Nitrite (as N)	1.53	0.04	0.01	mg/L	1.4	ND	109	85-115		
Nitrate (as N)	3.53	0.04	0.01	mg/L	1.7	1.75	105	85-115		
Matrix Spike (BH23015-MS2)		**Source: 1209583-03**			Prepared & Analyzed: 08/30/12					
Chloride	12.9	0.20	0.050	mg/L	3.0	9.66	108	80-120		
Nitrite (as N)	1.34	0.04	0.01	mg/L	1.4	ND	96	85-115		
Nitrate (as N)	5.25	0.04	0.01	mg/L	1.7	3.50	103	85-115		
Batch BH23131 - Digestion for TKN by EPA 351.2										
Blank (BH23131-BLK1)					Prepared: 08/31/12 Analyzed: 09/05/12					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						

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Tampa, FL 33619

September 14, 2012
Work Order: 1209583

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BH23131 - Digestion for TKN by EPA 351.2										
LCS (BH23131-BS1)					Prepared: 08/31/12 Analyzed: 09/05/12					
Total Kjeldahl Nitrogen	2.50	0.20	0.05	mg/L	2.5		99	90-110		
Matrix Spike (BH23131-MS1)		**Source: 1209592-04**			Prepared: 08/31/12 Analyzed: 09/05/12					
Total Kjeldahl Nitrogen	4.57	0.20	0.05	mg/L	2.5	1.85	107	80-120		
Matrix Spike Dup (BH23131-MSD1)		**Source: 1209592-04**			Prepared: 08/31/12 Analyzed: 09/05/12					
Total Kjeldahl Nitrogen	4.39	0.20	0.05	mg/L	2.5	1.85	100	80-120	4	20
Batch BI20102 - alkalinity										
Blank (BI20102-BLK1)					Prepared & Analyzed: 09/01/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
Blank (BI20102-BLK2)					Prepared & Analyzed: 09/01/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
LCS (BI20102-BS1)					Prepared & Analyzed: 09/01/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		
LCS (BI20102-BS2)					Prepared & Analyzed: 09/01/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		
Matrix Spike (BI20102-MS1)		**Source: 1209615-12**			Prepared & Analyzed: 09/01/12					
Total Alkalinity	150	8.0	2.0	mg/L	120	25	101	80-120		
Matrix Spike (BI20102-MS2)		**Source: 1209615-13**			Prepared & Analyzed: 09/01/12					
Total Alkalinity	190	8.0	2.0	mg/L	120	60	107	80-120		

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

September 14, 2012
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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI20102 - alkalinity										
Matrix Spike Dup (BI20102-MSD1)		**Source: 1209615-12**			Prepared & Analyzed: 09/01/12					
Total Alkalinity	160	8.0	2.0	mg/L	120	25	109	80-120	7	26
Matrix Spike Dup (BI20102-MSD2)		**Source: 1209615-13**			Prepared & Analyzed: 09/01/12					
Total Alkalinity	180	8.0	2.0	mg/L	120	60	99	80-120	6	26
Batch BI20402 - COD prep										
Blank (BI20402-BLK1)					Prepared & Analyzed: 09/04/12					
Chemical Oxygen Demand	10 U	25	10	mg/L						
LCS (BI20402-BS1)					Prepared & Analyzed: 09/04/12					
Chemical Oxygen Demand	47	25	10	mg/L	50		94	90-110		
Matrix Spike (BI20402-MS1)		**Source: 1209581-02**			Prepared & Analyzed: 09/04/12					
Chemical Oxygen Demand	51	25	10	mg/L	50	ND	102	85-115		
Matrix Spike Dup (BI20402-MSD1)		**Source: 1209581-02**			Prepared & Analyzed: 09/04/12					
Chemical Oxygen Demand	47	25	10	mg/L	50	ND	94	85-115	8	32
Batch BI20425 - Digestion for TP by EPA 365.2/SM4500PE										
Blank (BI20425-BLK1)					Prepared: 09/04/12 Analyzed: 09/06/12					
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						
Blank (BI20425-BLK2)					Prepared: 09/04/12 Analyzed: 09/06/12					
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						

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Tampa, FL 33619

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI20425 - Digestion for TP by EPA 365.2/SM4500PE										
LCS (BI20425-BS1)					Prepared: 09/04/12 Analyzed: 09/06/12					
Phosphorous - Total as P	0.772	0.040	0.010	mg/L	0.80		97	90-110		
LCS (BI20425-BS2)					Prepared: 09/04/12 Analyzed: 09/06/12					
Phosphorous - Total as P	0.790	0.040	0.010	mg/L	0.80		99	90-110		
Matrix Spike (BI20425-MS1)		**Source: 1209819-02**			Prepared: 09/04/12 Analyzed: 09/06/12					
Phosphorous - Total as P	1.03	0.040	0.010	mg/L	1.0	0.0396	99	75-125		
Matrix Spike (BI20425-MS2)		**Source: 1209840-07**			Prepared: 09/04/12 Analyzed: 09/06/12					
Phosphorous - Total as P	1.17	0.040	0.010	mg/L	1.0	0.158	101	75-125		
Matrix Spike Dup (BI20425-MSD1)		**Source: 1209819-02**			Prepared: 09/04/12 Analyzed: 09/06/12					
Phosphorous - Total as P	0.992	0.040	0.010	mg/L	1.0	0.0396	95	75-125	4	25
Matrix Spike Dup (BI20425-MSD2)		**Source: 1209840-07**			Prepared: 09/04/12 Analyzed: 09/06/12					
Phosphorous - Total as P	1.16	0.040	0.010	mg/L	1.0	0.158	100	75-125	0.6	25
Batch BI20502 - Ammonia by SEAL										
Blank (BI20502-BLK1)					Prepared & Analyzed: 09/05/12					
Ammonia as N	0.009 U	0.040	0.009	mg/L						
LCS (BI20502-BS1)					Prepared & Analyzed: 09/05/12					
Ammonia as N	0.52	0.040	0.009	mg/L	0.50		105	90-110		
Matrix Spike (BI20502-MS1)		**Source: 1209598-03**			Prepared & Analyzed: 09/05/12					
Ammonia as N	0.48	0.040	0.009	mg/L	0.50	ND	96	90-110		

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI20502 - Ammonia by SEAL										
Matrix Spike Dup (BI20502-MSD1)		**Source: 1209598-03**			Prepared & Analyzed: 09/05/12					
Ammonia as N	0.52	0.040	0.009	mg/L	0.50	ND	103	90-110	7	10

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

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September 14, 2012
Work Order: 1209583

* 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.

+O Matrix spike source sample was over the reccommended range for the method.

SOUTHERN ANALYTICAL LABORATORIES, INC.

110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 fax 813-855-2219

SAL Project No. 1209583

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: C-HS3 SE#1

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 Alkalinity, NOx, Cl	250mL P, H_2SO_4 COD, TKN, NH_3, TP	250mL P, H_2SO_4 TKN, NH_3							DO	pH	Conductivity	Temperature	No. of Containers (Total per each location)
01	PZ-O3K-15	082912	1401	GW		X	1	1								5.08	6.3	332.6	28.0	
02	PZ-O3K-17		1420	GW		X	1		1							4.57	6.3	53.0	27.4	
03	PZ-O3K-21		1441	GW		X	1		1							2.82	5.8	173.7	27.5	

Containers Prepared/ Relinquished: Bowling	Date/Time: 835 8/27/12	Received:	Date/Time: 0835 082712
Relinquished:	Date/Time: 1730 082912.	Received:	Date/Time: ~~08~~ 1730 08-29-12
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

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

1209583

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

Chain of Custody

SOUTHERN ANALYTICAL LABORATORIES, INC.

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GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	082912	SAL Project #	1209583-01	Project Name	C-HS3 SE#1
Well Number	PZ-03K-15	Sample ID		GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1.0	WELL CAPACITY (gal/ft)	0.04	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	10.67	PURGE PUMP CODE (PP) GP IBP
TOTAL WELL DEPTH (Feet)	14.78	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)
Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)									
WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =									
ONE WELL VOLUME	0.164	1/4 WELL VOLUME		3 WELL VOLUMES	0.493		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	1351	PURGE TIME END	1400	TOTAL PURGED	0.90
INST. ID				SAL-SAM-63-01	SAL-SAM-65-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01	

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
1354	0.30	0.30	0.10	11.30	6.1	28.0	336.8	5.35	59.8	CLOUDY	NONE
1357	0.30	0.60	|	|	6.2	28.0	334.2	5.23	58.2	|	|
1400	0.30	0.90	|	|	6.3	28.0	332.6	5.08	57.4	|	|

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	1401	SAMPLING ENDED	1402	FIELD CLEANED	Y (N)	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)
PRESERVATION CHECKED IN FIELD?	Y N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Clear, 88°								
COMMENTS									

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

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

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	082912	SAL Project #	1209583	Project Name	C-HS3 SE#1
Well Number	PZ-03K-17	Sample ID	02	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)	10.72	PURGE PUMP CODE (PP) GP IBP
TOTAL WELL DEPTH (Feet)	17.00	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	0.125	1/4 WELL VOLUME		3 WELL VOLUMES	0.376	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	1404	PURGE TIME END	1419	TOTAL PURGED	1.50

INST. ID					SAL-SAM-63-01	SAL-SAM-65-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
1407	0.30	0.30	0.10	11.08	6.6	27.9	72.7	4.59	MAX	BROWN	NONE
1410	0.30	0.60			6.4	27.9	54.6	4.94	MAX		
1413	0.30	0.90			6.3	27.4	54.5	4.84	MAX		
1416	0.30	1.20			6.3	27.5	53.2	4.60	MAX		
1419	0.30	1.50			6.3	27.4	53.0	4.57	MAX		

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL			SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP (TL) TT		SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED	1420	SAMPLING ENDED	1421	FIELD CLEANED	Y (N)	CLEANING STEPS	
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)
SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)						
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED					
WEATHER CONDITIONS	Clear, 88°						
COMMENTS							

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

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

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	08/28/12	SAL Project #	1209583	Project Name	C-HS3 SE#1
Well Number	PZ-03K-21	Sample ID	03	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)	10.70	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	21.00	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	0.206	1/4 WELL VOLUME		3 WELL VOLUMES	0.618	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	1425	PURGE TIME END	1440	TOTAL PURGED	1.50
INST. ID	X	X	X	X	SAL-SAM-63-01	SAL-SAM-65-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
1428	0.30	0.30	0.10	11.14	6.0	28.2	78.9	3.09	MAX	BROWN	NONE
1431	0.30	0.60			5.9	28.0	114.8	2.92	69.8		
1434	0.30	0.90			5.9	27.7	165.3	2.86	34.7		
1437	0.30	1.20			5.9	27.5	171.3	2.83	55.7	CLOUDY	
1440	0.30	1.50			5.8	27.5	173.7	2.82	27.4		

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	1441	SAMPLING ENDED	1442	FIELD CLEANED	Y (N)	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Clear, 90°								
COMMENTS									

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

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

Reviewed By:		Date:	

Revision Date 09/25/09

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

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

September 14, 2012
Work Order: 1209592

Laboratory Report

Project Name **C-HS3 SE#1**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**PZ-O2L-15**						
Matrix		**Groundwater**						
SAL Sample Number		**1209592-01**						
Date/Time Collected		**08/29/12 08:08**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/29/12 17:00**						
Field Parameters								
pH	SU	6.2	DEP FT1100	0.1	0.1		08/29/12 08:08	SAS
Water Temperature	°C	27.2	DEP FT1400	0.1	0.1		08/29/12 08:08	SAS
Specific conductance	umhos/cm	176	DEP FT1200	0.1	0.1		08/29/12 08:08	SAS
Dissolved Oxygen	mg/L	4.5	DEP FT1500	0.1	0.1		08/29/12 08:08	SAS
Inorganics								
Ammonia as N	mg/L	0.017 I	EPA 350.1	0.040	0.009		09/04/12 12:58	MMF
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	09/04/12 08:40	09/04/12 10:55	CDB
Chloride	mg/L	3.3	EPA 300.0	0.20	0.050		08/30/12 17:33	JAG
Nitrate (as N)	mg/L	4.2	EPA 300.0	0.04	0.01		08/30/12 17:33	JAG
Nitrite (as N)	mg/L	0.01 I	EPA 300.0	0.04	0.01		08/30/12 17:33	JAG
Phosphorous - Total as P	mg/L	1.3	SM 4500P-E	0.040	0.010	08/30/12 11:33	08/31/12 14:38	MMF
Total Alkalinity	mg/L	32	SM 2320B	8.0	2.0	09/01/12 09:00	09/01/12 14:23	AES
Total Kjeldahl Nitrogen	mg/L	1.1	EPA 351.2	0.20	0.05	08/31/12 16:25	09/05/12 11:51	MMF
Nitrate+Nitrite (N)	mg/L	4.3	EPA 300.0	0.08	0.02		08/30/12 17:33	JAG
Sample Description		**PZ-O2L-17**						
Matrix		**Groundwater**						
SAL Sample Number		**1209592-02**						
Date/Time Collected		**08/29/12 08:29**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/29/12 17:30**						
Field Parameters								
pH	SU	6.3	DEP FT1100	0.1	0.1		08/29/12 08:29	SAS
Water Temperature	°C	26.7	DEP FT1400	0.1	0.1		08/29/12 08:29	SAS
Specific conductance	umhos/cm	58	DEP FT1200	0.1	0.1		08/29/12 08:29	SAS
Dissolved Oxygen	mg/L	4.9	DEP FT1500	0.1	0.1		08/29/12 08:29	SAS
Inorganics								
Ammonia as N	mg/L	0.062	EPA 350.1	0.040	0.009		09/04/12 13:00	MMF
Chloride	mg/L	1.2	EPA 300.0	0.20	0.050		08/30/12 17:33	JAG
Nitrate (as N)	mg/L	1.1	EPA 300.0	0.04	0.01		08/30/12 17:33	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		08/30/12 17:33	JAG
Total Alkalinity	mg/L	22	SM 2320B	8.0	2.0	09/01/12 09:00	09/01/12 14:23	AES
Total Kjeldahl Nitrogen	mg/L	0.67	EPA 351.2	0.20	0.05	08/31/12 16:25	09/05/12 11:52	MMF
Nitrate+Nitrite (N)	mg/L	1.1	EPA 300.0	0.08	0.02		08/30/12 17:33	JAG

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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

September 14, 2012
Work Order: 1209592

Laboratory Report

Project Name **C-HS3 SE#1**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**PZ-O2L-21**						
Matrix		**Groundwater**						
SAL Sample Number		**1209592-03**						
Date/Time Collected		**08/29/12 08:43**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/29/12 17:30**						
Field Parameters								
pH	SU	5.3	DEP FT1100	0.1	0.1		08/29/12 08:43	SAS
Water Temperature	°C	26.5	DEP FT1400	0.1	0.1		08/29/12 08:43	SAS
Specific conductance	umhos/cm	182	DEP FT1200	0.1	0.1		08/29/12 08:43	SAS
Dissolved Oxygen	mg/L	2.5	DEP FT1500	0.1	0.1		08/29/12 08:43	SAS
Inorganics								
Ammonia as N	mg/L	0.035 I	EPA 350.1	0.040	0.009		09/04/12 13:03	MMF
Chloride	mg/L	10	EPA 300.0	0.20	0.050		08/30/12 17:33	JAG
Nitrate (as N)	mg/L	5.0	EPA 300.0	0.04	0.01		08/30/12 17:33	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		08/30/12 17:33	JAG
Total Alkalinity	mg/L	5.2 I	SM 2320B	8.0	2.0	09/01/12 09:00	09/01/12 14:23	AES
Total Kjeldahl Nitrogen	mg/L	1.8	EPA 351.2	0.20	0.05	08/31/12 16:25	09/05/12 11:54	MMF
Nitrate+Nitrite (N)	mg/L	5.0	EPA 300.0	0.08	0.02		08/30/12 17:33	JAG

Sample Description		**PZ-O4L-15**						
Matrix		**Groundwater**						
SAL Sample Number		**1209592-04**						
Date/Time Collected		**08/29/12 09:03**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/29/12 17:30**						
Field Parameters								
pH	SU	6.2	DEP FT1100	0.1	0.1		08/29/12 09:03	SAS
Water Temperature	°C	27.3	DEP FT1400	0.1	0.1		08/29/12 09:03	SAS
Specific conductance	umhos/cm	161	DEP FT1200	0.1	0.1		08/29/12 09:03	SAS
Dissolved Oxygen	mg/L	5.1	DEP FT1500	0.1	0.1		08/29/12 09:03	SAS
Inorganics								
Ammonia as N	mg/L	0.12	EPA 350.1	0.040	0.009		09/04/12 13:05	MMF
Chemical Oxygen Demand	mg/L	40	EPA 410.4	25	10	09/04/12 08:40	09/04/12 10:55	CDB
Chloride	mg/L	1.5	EPA 300.0	0.20	0.050		08/30/12 17:33	JAG
Nitrate (as N)	mg/L	3.5	EPA 300.0	0.04	0.01		08/30/12 17:33	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		08/30/12 17:33	JAG
Phosphorous - Total as P	mg/L	1.6	SM 4500P-E	0.20	0.050	08/30/12 10:50	08/31/12 15:11	MMF
Total Alkalinity	mg/L	32	SM 2320B	8.0	2.0	09/01/12 09:00	09/01/12 14:23	AES
Total Kjeldahl Nitrogen	mg/L	1.8	EPA 351.2	0.20	0.05	08/31/12 16:25	09/05/12 11:56	MMF
Nitrate+Nitrite (N)	mg/L	3.5	EPA 300.0	0.08	0.02		08/30/12 17:33	JAG

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September 14, 2012
Work Order: 1209592

Laboratory Report

Project Name **C-HS3 SE#1**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**PZ-O4L-17**						
Matrix		**Groundwater**						
SAL Sample Number		**1209592-05**						
Date/Time Collected		**08/29/12 08:23**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/28/12 17:30**						
Field Parameters								
pH	SU	6.3	DEP FT1100	0.1	0.1		08/29/12 08:23	SAS
Water Temperature	°C	26.8	DEP FT1400	0.1	0.1		08/29/12 08:23	SAS
Specific conductance	umhos/cm	59	DEP FT1200	0.1	0.1		08/29/12 08:23	SAS
Dissolved Oxygen	mg/L	4.0	DEP FT1500	0.1	0.1		08/29/12 08:23	SAS
Inorganics								
Ammonia as N	mg/L	0.23	EPA 350.1	0.040	0.009		09/04/12 13:07	MMF
Chloride	mg/L	1.0	EPA 300.0	0.20	0.050		08/30/12 17:33	JAG
Nitrate (as N)	mg/L	0.68	EPA 300.0	0.04	0.01		08/30/12 17:33	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		08/30/12 17:33	JAG
Total Alkalinity	mg/L	22	SM 2320B	8.0	2.0	09/01/12 09:00	09/01/12 14:23	AES
Total Kjeldahl Nitrogen	mg/L	1.3	EPA 351.2	0.20	0.05	08/31/12 16:25	09/05/12 12:01	MMF
Nitrate+Nitrite (N)	mg/L	0.68	EPA 300.0	0.08	0.02		08/30/12 17:33	JAG

Sample Description		**PZ-O4L-21**						
Matrix		**Groundwater**						
SAL Sample Number		**1209592-06**						
Date/Time Collected		**08/29/12 09:42**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/29/12 17:30**						
Field Parameters								
pH	SU	5.3	DEP FT1100	0.1	0.1		08/29/12 09:42	SAS
Water Temperature	°C	26.5	DEP FT1400	0.1	0.1		08/29/12 09:42	SAS
Specific conductance	umhos/cm	192	DEP FT1200	0.1	0.1		08/29/12 09:42	SAS
Dissolved Oxygen	mg/L	2.5	DEP FT1500	0.1	0.1		08/29/12 09:42	SAS
Inorganics								
Ammonia as N	mg/L	0.010 I	EPA 350.1	0.040	0.009		09/04/12 13:09	MMF
Chloride	mg/L	9.4	EPA 300.0	0.20	0.050		08/30/12 17:33	JAG
Nitrate (as N)	mg/L	3.7	EPA 300.0	0.04	0.01		08/30/12 17:33	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		08/30/12 17:33	JAG
Total Alkalinity	mg/L	11	SM 2320B	8.0	2.0	09/01/12 09:00	09/01/12 14:23	AES
Total Kjeldahl Nitrogen	mg/L	1.1	EPA 351.2	0.20	0.05	08/31/12 16:25	09/05/12 12:02	MMF
Nitrate+Nitrite (N)	mg/L	3.7	EPA 300.0	0.08	0.02		08/30/12 17:33	JAG

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Laboratory Report

Project Name **C-HS3 SE#1**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**PZ-O7L-15**						
Matrix		**Groundwater**						
SAL Sample Number		**1209592-07**						
Date/Time Collected		**08/28/12 12:48**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/29/12 17:30**						
Field Parameters								
pH	SU	6.1	DEP FT1100	0.1	0.1		08/28/12 12:48	SAS
Water Temperature	°C	27.6	DEP FT1400	0.1	0.1		08/28/12 12:48	SAS
Specific conductance	umhos/cm	93	DEP FT1200	0.1	0.1		08/28/12 12:48	SAS
Dissolved Oxygen	mg/L	5.8	DEP FT1500	0.1	0.1		08/28/12 12:48	SAS
Inorganics								
Ammonia as N	mg/L	0.20	EPA 350.1	0.040	0.009		09/04/12 13:11	MMF
Chemical Oxygen Demand	mg/L	22 I	EPA 410.4	25	10	09/04/12 08:40	09/04/12 10:55	CDB
Chloride	mg/L	1.2	EPA 300.0	0.20	0.050		08/29/12 17:36	JAG
Nitrate (as N)	mg/L	1.9	EPA 300.0	0.04	0.01		08/29/12 17:36	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		08/29/12 17:36	JAG
Phosphorous - Total as P	mg/L	1.7	SM 4500P-E	0.20	0.050	08/30/12 10:50	08/31/12 15:12	MMF
Total Alkalinity	mg/L	21	SM 2320B	8.0	2.0	08/29/12 10:00	08/29/12 16:46	AES
Total Kjeldahl Nitrogen	mg/L	1.7	EPA 351.2	0.20	0.05	08/29/12 14:00	09/04/12 11:51	MMF
Nitrate+Nitrite (N)	mg/L	1.9	EPA 300.0	0.08	0.02		08/29/12 17:36	JAG
Sample Description		**PZ-O7L-17**						
Matrix		**Groundwater**						
SAL Sample Number		**1209592-08**						
Date/Time Collected		**08/28/12 13:08**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/29/12 17:30**						
Field Parameters								
pH	SU	6.2	DEP FT1100	0.1	0.1		08/28/12 13:08	SAS
Water Temperature	°C	27.0	DEP FT1400	0.1	0.1		08/28/12 13:08	SAS
Specific conductance	umhos/cm	60	DEP FT1200	0.1	0.1		08/28/12 13:08	SAS
Dissolved Oxygen	mg/L	4.8	DEP FT1500	0.1	0.1		08/28/12 13:08	SAS
Inorganics								
Ammonia as N	mg/L	0.065	EPA 350.1	0.040	0.009		09/04/12 13:17	MMF
Chloride	mg/L	1.1	EPA 300.0	0.20	0.050		08/29/12 17:36	JAG
Nitrate (as N)	mg/L	0.70	EPA 300.0	0.04	0.01		08/29/12 17:36	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		08/29/12 17:36	JAG
Total Alkalinity	mg/L	22	SM 2320B	8.0	2.0	08/29/12 10:00	08/29/12 16:46	AES
Total Kjeldahl Nitrogen	mg/L	0.80	EPA 351.2	0.20	0.05	08/29/12 14:00	09/04/12 11:53	MMF
Nitrate+Nitrite (N)	mg/L	0.70	EPA 300.0	0.08	0.02		08/29/12 17:36	JAG

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Project Name		**C-HS3 SE#1**						
Parameters	**Units**	**Results ***	**Method**	**PQL**	**MDL**	**Prepared**	**Analyzed**	**By**
Sample Description		**PZ-O7L-21**						
Matrix		**Groundwater**						
SAL Sample Number		**1209592-09**						
Date/Time Collected		**08/28/12 13:29**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/29/12 17:30**						
Field Parameters								
pH	SU	5.1	DEP FT1100	0.1	0.1		08/28/12 13:29	SAS
Water Temperature	°C	26.7	DEP FT1400	0.1	0.1		08/28/12 13:29	SAS
Specific conductance	umhos/cm	128	DEP FT1200	0.1	0.1		08/28/12 13:29	SAS
Dissolved Oxygen	mg/L	2.8	DEP FT1500	0.1	0.1		08/28/12 13:29	SAS
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		09/04/12 13:19	MMF
Chloride	mg/L	6.1	EPA 300.0	0.20	0.050		08/29/12 17:36	JAG
Nitrate (as N)	mg/L	3.1	EPA 300.0	0.04	0.01		08/29/12 17:36	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		08/29/12 17:36	JAG
Total Alkalinity	mg/L	5.2 I	SM 2320B	8.0	2.0	08/29/12 10:00	08/29/12 16:46	AES
Total Kjeldahl Nitrogen	mg/L	0.67	EPA 351.2	0.20	0.05	08/29/12 14:00	09/04/12 11:55	MMF
Nitrate+Nitrite (N)	mg/L	3.1	EPA 300.0	0.08	0.02		08/29/12 17:36	JAG

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BH22908 - Ion Chromatography 300.0 Prep										
Blank (BH22908-BLK1)					Prepared & Analyzed: 08/29/12					
Chloride	0.050 U	0.20	0.050	mg/L						
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						
LCS (BH22908-BS1)					Prepared & Analyzed: 08/29/12					
Chloride	2.89	0.20	0.050	mg/L	3.0		96	85-115		
Nitrite (as N)	1.41	0.04	0.01	mg/L	1.4		101	85-115		
Nitrate (as N)	1.68	0.04	0.01	mg/L	1.7		99	85-115		
LCS Dup (BH22908-BSD1)					Prepared & Analyzed: 08/29/12					
Nitrite (as N)	1.41	0.04	0.01	mg/L	1.4		101	85-115	0	200
Chloride	2.88	0.20	0.050	mg/L	3.0		96	85-115	0.3	200
Nitrate (as N)	1.67	0.04	0.01	mg/L	1.7		98	85-115	0.6	200
Matrix Spike (BH22908-MS1)		**Source: 1209592-09**			Prepared & Analyzed: 08/29/12					
Chloride	9.35	0.20	0.050	mg/L	3.0	6.11	108	80-120		
Nitrate (as N)	5.01	0.04	0.01	mg/L	1.7	3.14	110	85-115		
Nitrite (as N)	1.38	0.04	0.01	mg/L	1.4	ND	99	85-115		
Matrix Spike (BH22908-MS2)		**Source: 1209601-10**			Prepared & Analyzed: 08/29/12					
Nitrite (as N)	1.37	0.04	0.01	mg/L	1.4	ND	98	85-115		
Chloride	13.6	0.20	0.050	mg/L	3.0	10.7	97	80-120		
Nitrate (as N)	8.52	0.04	0.01	mg/L	1.7	6.84	99	85-115		
Batch BH22915 - Digestion for TKN by EPA 351.2										
Blank (BH22915-BLK1)					Prepared: 08/29/12 Analyzed: 09/04/12					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	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 BH22915 - Digestion for TKN by EPA 351.2										
LCS (BH22915-BS1)					Prepared: 08/29/12 Analyzed: 09/04/12					
Total Kjeldahl Nitrogen	2.43	0.20	0.05	mg/L	2.5		96	90-110		
Matrix Spike (BH22915-MS1)		**Source: 1209592-07**			Prepared: 08/29/12 Analyzed: 09/04/12					
Total Kjeldahl Nitrogen	4.02	0.20	0.05	mg/L	2.5	1.74	90	80-120		
Matrix Spike Dup (BH22915-MSD1)		**Source: 1209592-07**			Prepared: 08/29/12 Analyzed: 09/04/12					
Total Kjeldahl Nitrogen	3.79	0.20	0.05	mg/L	2.5	1.74	81	80-120	6	20
Batch BH22934 - alkalinity										
Blank (BH22934-BLK1)					Prepared & Analyzed: 08/29/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
Blank (BH22934-BLK2)					Prepared & Analyzed: 08/29/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
LCS (BH22934-BS1)					Prepared & Analyzed: 08/29/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		
LCS (BH22934-BS2)					Prepared & Analyzed: 08/29/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		
Matrix Spike (BH22934-MS1)		**Source: 1209581-04**			Prepared & Analyzed: 08/29/12					
Total Alkalinity	130	8.0	2.0	mg/L	120	16	91	80-120		
Matrix Spike (BH22934-MS2)		**Source: 1209674-01**			Prepared & Analyzed: 08/29/12					
Total Alkalinity	360	8.0	2.0	mg/L	120	240	95	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 BH22934 - alkalinity										
Matrix Spike Dup (BH22934-MSD1)		**Source: 1209581-04**			Prepared & Analyzed: 08/29/12					
Total Alkalinity	140	8.0	2.0	mg/L	120	16	100	80-120	8	26
Matrix Spike Dup (BH22934-MSD2)		**Source: 1209674-01**			Prepared & Analyzed: 08/29/12					
Total Alkalinity	370	8.0	2.0	mg/L	120	240	103	80-120	3	26
Batch BH23010 - Digestion for TP by EPA 365.2/SM4500PE										
Blank (BH23010-BLK1)					Prepared: 08/30/12 Analyzed: 08/31/12					
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						
LCS (BH23010-BS1)					Prepared: 08/30/12 Analyzed: 08/31/12					
Phosphorous - Total as P	0.741	0.040	0.010	mg/L	0.80		93	90-110		
Matrix Spike (BH23010-MS1)		**Source: 1209698-01**			Prepared: 08/30/12 Analyzed: 08/31/12					
Phosphorous - Total as P	1.25	0.040	0.010	mg/L	1.0	0.318	93	75-125		
Matrix Spike Dup (BH23010-MSD1)		**Source: 1209698-01**			Prepared: 08/30/12 Analyzed: 08/31/12					
Phosphorous - Total as P	1.30	0.040	0.010	mg/L	1.0	0.318	98	75-125	4	25
Batch BH23015 - Ion Chromatography 300.0 Prep										
Blank (BH23015-BLK1)					Prepared & Analyzed: 08/30/12					
Chloride	0.050 U	0.20	0.050	mg/L						
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						

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

September 14, 2012
Work Order: 1209592

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BH23015 - Ion Chromatography 300.0 Prep										
LCS (BH23015-BS1)					Prepared & Analyzed: 08/30/12					
Chloride	2.93	0.20	0.050	mg/L	3.0		98	85-115		
Nitrate (as N)	1.70	0.04	0.01	mg/L	1.7		100	85-115		
Nitrite (as N)	1.43	0.04	0.01	mg/L	1.4		102	85-115		
LCS Dup (BH23015-BSD1)					Prepared & Analyzed: 08/30/12					
Chloride	2.92	0.20	0.050	mg/L	3.0		97	85-115	0.3	200
Nitrate (as N)	1.68	0.04	0.01	mg/L	1.7		99	85-115	1	200
Nitrite (as N)	1.42	0.04	0.01	mg/L	1.4		101	85-115	0.7	200
Matrix Spike (BH23015-MS1)		**Source: 1209773-01**			Prepared & Analyzed: 08/30/12					
Nitrite (as N)	1.53	0.04	0.01	mg/L	1.4	ND	109	85-115		
Nitrate (as N)	3.53	0.04	0.01	mg/L	1.7	1.75	105	85-115		
Chloride	46.5 +O	0.20	0.050	mg/L	3.0	97.8	NR	80-120		
Matrix Spike (BH23015-MS2)		**Source: 1209583-03**			Prepared & Analyzed: 08/30/12					
Nitrite (as N)	1.34	0.04	0.01	mg/L	1.4	ND	96	85-115		
Chloride	12.9	0.20	0.050	mg/L	3.0	9.66	108	80-120		
Nitrate (as N)	5.25	0.04	0.01	mg/L	1.7	3.50	103	85-115		
Batch BH23019 - Digestion for TP by EPA 365.2/SM4500PE										
Blank (BH23019-BLK1)					Prepared: 08/30/12 Analyzed: 08/31/12					
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						
LCS (BH23019-BS1)					Prepared: 08/30/12 Analyzed: 08/31/12					
Phosphorous - Total as P	0.746	0.040	0.010	mg/L	0.80		93	90-110		

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September 14, 2012
Work Order: 1209592

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BH23019 - Digestion for TP by EPA 365.2/SM4500PE										
Matrix Spike (BH23019-MS1)		**Source: 1209764-07**			Prepared: 08/30/12 Analyzed: 08/31/12					
Phosphorous - Total as P	1.06	0.040	0.010	mg/L	1.0	0.0996	96	75-125		
Matrix Spike Dup (BH23019-MSD1)		**Source: 1209764-07**			Prepared: 08/30/12 Analyzed: 08/31/12					
Phosphorous - Total as P	1.02	0.040	0.010	mg/L	1.0	0.0996	92	75-125	4	25
Batch BH23131 - Digestion for TKN by EPA 351.2										
Blank (BH23131-BLK1)					Prepared: 08/31/12 Analyzed: 09/05/12					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
LCS (BH23131-BS1)					Prepared: 08/31/12 Analyzed: 09/05/12					
Total Kjeldahl Nitrogen	2.50	0.20	0.05	mg/L	2.5		99	90-110		
Matrix Spike (BH23131-MS1)		**Source: 1209592-04**			Prepared: 08/31/12 Analyzed: 09/05/12					
Total Kjeldahl Nitrogen	4.57	0.20	0.05	mg/L	2.5	1.85	107	80-120		
Matrix Spike Dup (BH23131-MSD1)		**Source: 1209592-04**			Prepared: 08/31/12 Analyzed: 09/05/12					
Total Kjeldahl Nitrogen	4.39	0.20	0.05	mg/L	2.5	1.85	100	80-120	4	20
Batch BI20102 - alkalinity										
Blank (BI20102-BLK1)					Prepared & Analyzed: 09/01/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
Blank (BI20102-BLK2)					Prepared & Analyzed: 09/01/12					
Total Alkalinity	2.0 U	8.0	2.0	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 BI20102 - alkalinity										
LCS (BI20102-BS1)					Prepared & Analyzed: 09/01/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		
LCS (BI20102-BS2)					Prepared & Analyzed: 09/01/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		
Matrix Spike (BI20102-MS1)		**Source: 1209615-12**			Prepared & Analyzed: 09/01/12					
Total Alkalinity	150	8.0	2.0	mg/L	120	25	101	80-120		
Matrix Spike (BI20102-MS2)		**Source: 1209615-13**			Prepared & Analyzed: 09/01/12					
Total Alkalinity	190	8.0	2.0	mg/L	120	60	107	80-120		
Matrix Spike Dup (BI20102-MSD1)		**Source: 1209615-12**			Prepared & Analyzed: 09/01/12					
Total Alkalinity	160	8.0	2.0	mg/L	120	25	109	80-120	7	26
Matrix Spike Dup (BI20102-MSD2)		**Source: 1209615-13**			Prepared & Analyzed: 09/01/12					
Total Alkalinity	180	8.0	2.0	mg/L	120	60	99	80-120	6	26
Batch BI20402 - COD prep										
Blank (BI20402-BLK1)					Prepared & Analyzed: 09/04/12					
Chemical Oxygen Demand	10 U	25	10	mg/L						
LCS (BI20402-BS1)					Prepared & Analyzed: 09/04/12					
Chemical Oxygen Demand	47	25	10	mg/L	50		94	90-110		
Matrix Spike (BI20402-MS1)		**Source: 1209581-02**			Prepared & Analyzed: 09/04/12					
Chemical Oxygen Demand	51	25	10	mg/L	50	ND	102	85-115		

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI20402 - COD prep										
Matrix Spike Dup (BI20402-MSD1)		**Source: 1209581-02**			Prepared & Analyzed: 09/04/12					
Chemical Oxygen Demand	47	25	10	mg/L	50	ND	94	85-115	8	32
Batch BI20403 - Ammonia by SEAL										
Blank (BI20403-BLK1)					Prepared & Analyzed: 09/04/12					
Ammonia as N	0.009 U	0.040	0.009	mg/L						
LCS (BI20403-BS1)					Prepared & Analyzed: 09/04/12					
Ammonia as N	0.50	0.040	0.009	mg/L	0.50		99	90-110		
Matrix Spike (BI20403-MS1)		**Source: 1209582-01**			Prepared & Analyzed: 09/04/12					
Ammonia as N	0.56	0.040	0.009	mg/L	0.50	0.066	98	90-110		
Matrix Spike Dup (BI20403-MSD1)		**Source: 1209582-01**			Prepared & Analyzed: 09/04/12					
Ammonia as N	0.56	0.040	0.009	mg/L	0.50	0.066	98	90-110	0.2	10

Hazen and Sawyer
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September 14, 2012
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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.

+O Matrix spike source sample was over the reccommended range for the method.

1209592

SAL Project No. ~~1209598~~

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: C-HS3 SE#1

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 Alkalinity, NOx, Cl	250mL P, H_2SO_4 COD, TKN, NH_3, TP	250mL P, H_2SO_4 TKN, NH_3							DO	pH	Conductivity	Temperature	No. of Containers (Total per each location)
01	PZ-O2L-15	082912	0808	GW		X	1	1								4.47	6.2	175.8	27.2	
02	PZ-O2L-17		0829	GW		X	1		1							4.86	6.3	58.5	26.7	
03	PZ-O2L-21		0843	GW		X	1		1							2.48	5.3	191.8	26.5	
04	PZ-O4L-15	082912	~~0805~~ 0803	GW		X	1	1								5.13	6.2	161.0	27.3	
05	PZ-O4L-17		0923	GW		X	1		1							3.96	6.3	58.8	26.8	
06	PZ-O4L-21		0942	GW		X	1		1							2.48	5.3	191.8	26.5	
07	PZ-O7L-15	082812	1248	GW		X	1	1								5.82	6.1	93.0	27.6	
08	PZ-O7L-17		1308	GW		X	1		1							4.78	6.2	60.5	27.0	
09	PZ-O7L-21		1329	GW		X	1		1							2.81	5.1	127.8	26.7	

Containers Prepared/ Relinquished:	Date/Time: 8/27/12 835	Received:	Date/Time: 082712 0835
Relinquished:	Date/Time: 082912 1730	Received:	Date/Time: 08.29-12 1730
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

1209592

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

Chain of Custody

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	082912	SAL Project #	1209592	Project Name	C-HS3 SE#1
Well Number	PZ-02-15	Sample ID	01	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1.0	WELL CAPACITY (gal/ft)	0.04	Screen Interval (Feet)	UNK To UNK	Static Depth to Water (Feet)	10.42	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	14.80	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)		TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	

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

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

ONE WELL VOLUME	0.175	1/4 WELL VOLUME		3 WELL VOLUMES	0.525	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	SS 0757 ~~1342~~	PURGE TIME END	0807	TOTAL PURGED	1.50

INST. ID					SAL-SAM-63-01	SAL-SAM-65-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
SS ~~1347~~ 0755	0.30	0.30	0.10	11.20	5.5	26.6	233.8	6.16	MAX	BROWN	NONE
SS ~~1348~~ 0758	0.30	0.60			5.8	26.9	211.6	5.85	300	CLOUDY	
SS ~~1350~~ 0801	0.30	0.90			6.0	27.1	193.2	5.08	141		
0804	0.30	1.20			6.1	27.2	181.6	5.94	77.7		
0807	0.30	1.50			6.2	27.2	175.8	4.47	48.9		

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	0808	SAMPLING ENDED	0809	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	Cloudy, ~~82°~~ SS 77°								
COMMENTS									

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

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

Reviewed By:		Date:	

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	082812	SAL Project #	1209592	Project Name	C-HS3 SE#1
Well Number	PZ-02L-17	Sample ID	02	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)	10.62	PURGE PUMP CODE (PP) GP IBP
TOTAL WELL DEPTH (Feet)	17.00	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	0.127	1/4 WELL VOLUME		3 WELL VOLUMES	0.382	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	0813	PURGE TIME END	0828	TOTAL PURGED	1.50

INST. ID					SAL-SAM-63-01	SAL-SAM-65-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
0816	0.30	0.30	0.10	11.27	6.3	27.0	70.1	4.32	MAX	BROWN	NONE
0819	0.30	0.60			6.3	26.9	62.6	4.82	900		
0822	0.30	0.90			6.3	26.8	60.6	4.89	687		
0825	0.30	1.20			6.3	26.8	59.9	4.88	468		
0828	0.30	1.50			6.3	26.7	58.5	4.86	254		

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	0830	FIELD CLEANED	Y (N)	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	clear, 77°								
COMMENTS									

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

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

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	082912	SAL Project #	1209592	Project Name	C-HS3 SE#1
Well Number	PZ-02L-21	Sample ID	03	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)	10.58	PURGE PUMP CODE (PP) GP IBP
TOTAL WELL DEPTH (Feet)	21.00	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	0.208	1/4 WELL VOLUME		3 WELL VOLUMES	0.625		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	0833	PURGE TIME END	0842	TOTAL PURGED	0.90
INST. ID				SAL-SAM-63-01	SAL-SAM-65-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01	

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
0836	0.30	0.30	0.10	16.20	5.4	26.5	182.4	2.62	429	BROWN	NONE
0839	0.30	0.60	/	/	5.4	26.5	180.7	2.58	427	/	
0842	0.30	0.90	/	/	5.3	26.5	181.8	2.48	425	/	

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	0843	SAMPLING ENDED	0844	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, 78°								
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	082912	SAL Project #	1209592	Project Name	C-HS3 SE#1
Well Number	PZ-0[illegible]L-15	Sample ID	DU	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1.0	WELL CAPACITY (gal/ft)	0.04	Screen Interval (Feet)	UNK	To	UNK	Static Depth to Water (Feet)	10.50	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	14.78	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)				TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	

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

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

ONE WELL VOLUME	0.171	1/4 WELL VOLUME		3 WELL VOLUMES	0.513	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	0847	PURGE TIME END	0902	TOTAL PURGED	1.50
INST. ID					SAL-SAM-63-01	SAL-SAM-65-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
0850	0.30	0.30	0.10	11.09	6.0	27.1	168.0	5.72	MAX	BROWN	NONE
0853	0.30	0.60			6.1	27.2	166.4	5.33	MAX		
0856	0.30	0.90			6.2	27.3	163.5	5.18	640		
0859	0.30	1.20			6.2	27.3	161.6	5.15	515		
0902	0.30	1.50			6.2	27.3	161.0	5.13	419		

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	0903	SAMPLING ENDED	0904	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, 78								
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	082812	SAL Project #	1209592	Project Name	C-HS3 SE#1
Well Number	PZ-04L-17	Sample ID	05	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	0.75	WELL CAPACITY (gal/ft)	0.02	Screen Interval (Feet)	UNK	To	UNK	Static Depth to Water (Feet)	10.68	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	17.00	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	0.126	1/4 WELL VOLUME		3 WELL VOLUMES	0.379	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	0907	PURGE TIME END	0922	TOTAL PURGED	1.50

INST. ID					SAL-SAM-63-01	SAL-SAM-65-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
0910	0.30	0.30	0.10	11.21	6.5	27.2	58.3	3.88	MAX	BROWN	NONE
0913	0.30	0.60			6.4	26.8	58.2	4.04	MAX		
0916	0.30	0.90			6.4	26.8	58.5	3.88	MAX		
0919	0.30	1.20			6.3	26.8	58.5	3.95	MAX		
0922	0.30	1.50			6.3	26.8	58.8	3.96	TTO		

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	0923	SAMPLING ENDED	0924	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, 78°								
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	082912	SAL Project #	1209592	Project Name	C-HS3 SE#1
Well Number	PZ-04L-21	Sample ID	0L	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)	10.40	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	21.00	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	0.212	1/4 WELL VOLUME		3 WELL VOLUMES	0.636	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	0926	PURGE TIME END	0941	TOTAL PURGED	1.50
INST. ID					SAL-SAM-63-01	SAL-SAM-65-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
0929	0.30	0.30	0.10	11.14	6.0	26.9	58.9	2.37	MAX	BROWN	NONE
0932	0.30	0.60			5.4	26.5	163.7	2.50	MAX		
0935	0.30	0.90			5.3	26.5	188.0	2.49	148	CLOUDY	
0938	0.30	1.20			5.3	26.5	189.9	2.49	104		
0941	0.30	1.50			5.3	26.5	191.8	2.48	40.5		

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	0942	SAMPLING ENDED	0943	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, 78°						
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:	1209592	Contact:	
				Phone:	
Date Sampled	082812	SAL Project #	~~1209582~~	Project Name	C-HS3 SE#1
Well Number	PZ-07L-15	Sample ID	07	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1.0	WELL CAPACITY (gal/ft)	0.04	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	10.62	PURGE PUMP CODE: PP GP IBP
TOTAL WELL DEPTH (Feet)	14.82	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	0.168	1/4 WELL VOLUME		3 WELL VOLUMES	0.504	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	1232	PURGE TIME END	1247	TOTAL PURGED	1.50

INST. ID					SAL-SAM-63-01	SAL-SAM-65-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
1235	0.30	0.30	0.10	11.08	6.0	27.8	87.8	6.11	MAX	BROWN	NONE
1238	0.30	0.60			6.1	27.8	90.8	6.09	MAX		
1241	0.30	0.90			6.1	27.6	92.3	5.83	MAX		
1244	0.30	1.20			6.1	27.6	93.2	5.80	944		
1247	0.30	1.50			6.1	27.6	93.0	5.82	570		

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	1248	SAMPLING ENDED	1249	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	Cloudy, 80°, Rain in past hour.						
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	082812	SAL Project #	1209592	Project Name	C-HS3 SE#1
Well Number	PZ-07L-17	Sample ID	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)	10.62	PURGE PUMP CODE (PP) GP IBP
TOTAL WELL DEPTH (Feet)	17.00	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	0.127	1/4 WELL VOLUME		3 WELL VOLUMES	0.382	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	1252	PURGE TIME END	1307	TOTAL PURGED	1.50
INST. ID	X	X	X	X	SAL-SAM-63-01	SAL-SAM-65-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
1255	0.30	0.30	0.10	11.09	6.2	28.0	55.5	5.04	MAX	BROWN	NONE
1258	0.30	0.60			6.2	27.3	60.8	5.06	MAX		
1301	0.30	0.90			6.2	27.2	61.0	4.89	MAX		
1304	0.30	1.20			6.2	27.1	60.9	4.77	MAX		
1307	0.30	1.50			6.2	27.0	60.5	4.78	518		

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	1308	SAMPLING ENDED	1309	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	Cloudy, 85°, Rain in past hour.								
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	082812	SAL Project #	1209592	Project Name	C-HS3 SE#1
Well Number	PZ-07L-21	Sample ID	09	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)	10.64	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	21.00	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	0.207	1/4 WELL VOLUME		3 WELL VOLUMES	0.621	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	1313	PURGE TIME END	1328	TOTAL PURGED	1.50
INST. ID				SAL-SAM-63-01	SAL-SAM-65-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01	

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
1316	0.30	0.30	0.10	11.12	5.7	27.3	77.2	3.01	MAX	BROWN	NONE
1319	0.30	0.60			5.3	26.8	110.8	3.12	MAX		
1322	0.30	0.90			5.2	26.8	117.4	2.95	621		
1325	0.30	1.20			5.2	26.7	123.4	2.92	109	CLOUDY	
1328	0.30	1.50			5.1	26.7	127.8	2.81	33.0		

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	1329	SAMPLING ENDED	1330	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	Cloudy, 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

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

September 18, 2012
Work Order: 1209598

Laboratory Report

Project Name **C-HS3 SE#1**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**PZ-OON-15**						
Matrix		**Groundwater**						
SAL Sample Number		**1209598-01**						
Date/Time Collected		**08/29/12 13:05**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/29/12 17:30**						
Field Parameters								
pH	SU	6.2	DEP FT1100	0.1	0.1		08/29/12 13:05	SAS
Water Temperature	°C	27.5	DEP FT1400	0.1	0.1		08/29/12 13:05	SAS
Specific conductance	umhos/cm	88	DEP FT1200	0.1	0.1		08/29/12 13:05	SAS
Dissolved Oxygen	mg/L	6.0	DEP FT1500	0.1	0.1		08/29/12 13:05	SAS
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		09/05/12 10:55	MMF
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	09/04/12 08:40	09/04/12 10:55	CDB
Chloride	mg/L	1.3	EPA 300.0	0.20	0.050		08/31/12 12:00	JAG
Nitrate (as N)	mg/L	3.9	EPA 300.0	0.04	0.01		08/31/12 12:00	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		08/31/12 12:00	JAG
Phosphorous - Total as P	mg/L	0.43	SM 4500P-E	0.040	0.010	09/04/12 12:01	09/06/12 13:56	MMF
Total Alkalinity	mg/L	22	SM 2320B	8.0	2.0	09/01/12 09:00	09/01/12 14:23	AES
Total Kjeldahl Nitrogen	mg/L	1.2	EPA 351.2	0.20	0.05	08/31/12 16:25	09/05/12 12:04	MMF
Nitrate+Nitrite (N)	mg/L	3.9	EPA 300.0	0.08	0.02		08/31/12 12:00	JAG
Sample Description		**PZ-OON-17**						
Matrix		**Groundwater**						
SAL Sample Number		**1209598-02**						
Date/Time Collected		**08/29/12 13:23**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/29/12 17:30**						
Field Parameters								
pH	SU	6.2	DEP FT1100	0.1	0.1		08/29/12 13:23	SAS
Water Temperature	°C	27.1	DEP FT1400	0.1	0.1		08/29/12 13:23	SAS
Specific conductance	umhos/cm	57	DEP FT1200	0.1	0.1		08/29/12 13:23	SAS
Dissolved Oxygen	mg/L	4.6	DEP FT1500	0.1	0.1		08/29/12 13:23	SAS
Inorganics								
Ammonia as N	mg/L	0.015 I	EPA 350.1	0.040	0.009		09/05/12 10:57	MMF
Chloride	mg/L	0.71	EPA 300.0	0.20	0.050		08/31/12 12:00	JAG
Nitrate (as N)	mg/L	1.0	EPA 300.0	0.04	0.01		08/31/12 12:00	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		08/31/12 12:00	JAG
Total Alkalinity	mg/L	11	SM 2320B	8.0	2.0	09/01/12 09:00	09/01/12 14:23	AES
Total Kjeldahl Nitrogen	mg/L	0.60	EPA 351.2	0.20	0.05	08/31/12 16:25	09/05/12 12:05	MMF
Nitrate+Nitrite (N)	mg/L	1.0	EPA 300.0	0.08	0.02		08/31/12 12:00	JAG

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

September 18, 2012
Work Order: 1209598

Laboratory Report

Project Name **C-HS3 SE#1**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**PZ-OON-21**						
Matrix		**Groundwater**						
SAL Sample Number		**1209598-03**						
Date/Time Collected		**08/29/12 13:43**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/29/12 17:30**						
Field Parameters								
pH	SU	4.6	DEP FT1100	0.1	0.1		08/29/12 13:43	SAS
Water Temperature	°C	26.8	DEP FT1400	0.1	0.1		08/29/12 13:43	SAS
Specific conductance	umhos/cm	154	DEP FT1200	0.1	0.1		08/29/12 13:43	SAS
Dissolved Oxygen	mg/L	2.9	DEP FT1500	0.1	0.1		08/29/12 13:43	SAS
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		09/05/12 10:59	MMF
Chloride	mg/L	10	EPA 300.0	0.20	0.050		08/31/12 12:00	JAG
Nitrate (as N)	mg/L	4.6	EPA 300.0	0.04	0.01		08/31/12 12:00	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		08/31/12 12:00	JAG
Total Alkalinity	mg/L	2.1 I	SM 2320B	8.0	2.0	09/01/12 09:00	09/01/12 14:23	AES
Total Kjeldahl Nitrogen	mg/L	1.3	EPA 351.2	0.20	0.05	08/31/12 16:25	09/05/12 12:06	MMF
Nitrate+Nitrite (N)	mg/L	4.6	EPA 300.0	0.08	0.02		08/31/12 12:00	JAG
Sample Description		**PZ-O2N-15**						
Matrix		**Groundwater**						
SAL Sample Number		**1209598-04**						
Date/Time Collected		**08/29/12 12:06**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/29/12 17:30**						
Field Parameters								
pH	SU	6.4	DEP FT1100	0.1	0.1		08/29/12 12:06	SAS
Water Temperature	°C	27.6	DEP FT1400	0.1	0.1		08/29/12 12:06	SAS
Specific conductance	umhos/cm	110	DEP FT1200	0.1	0.1		08/29/12 12:06	SAS
Dissolved Oxygen	mg/L	6.2	DEP FT1500	0.1	0.1		08/29/12 12:06	SAS
Inorganics								
Ammonia as N	mg/L	0.015 I	EPA 350.1	0.040	0.009		09/05/12 11:02	MMF
Chemical Oxygen Demand	mg/L	13 I	EPA 410.4	25	10	09/04/12 08:40	09/04/12 10:55	CDB
Chloride	mg/L	1.7	EPA 300.0	0.20	0.050		08/31/12 12:00	JAG
Nitrate (as N)	mg/L	2.2	EPA 300.0	0.04	0.01		08/31/12 12:00	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		08/31/12 12:00	JAG
Phosphorous - Total as P	mg/L	1.5	SM 4500P-E	0.040	0.010	09/04/12 12:01	09/06/12 13:57	MMF
Total Alkalinity	mg/L	22	SM 2320B	8.0	2.0	09/01/12 09:00	09/01/12 14:23	AES
Total Kjeldahl Nitrogen	mg/L	0.73	EPA 351.2	0.20	0.05	08/31/12 16:25	09/05/12 12:08	MMF
Nitrate+Nitrite (N)	mg/L	2.2	EPA 300.0	0.08	0.02		08/31/12 12:00	JAG

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Hazen and Sawyer
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Tampa, FL 33619

September 18, 2012
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Laboratory Report

Project Name **C-HS3 SE#1**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**PZ-O2N-17**						
Matrix		**Groundwater**						
SAL Sample Number		**1209598-05**						
Date/Time Collected		**08/29/12 12:24**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/29/12 17:30**						
Field Parameters								
pH	SU	6.1	DEP FT1100	0.1	0.1		08/29/12 12:24	SAS
Water Temperature	°C	27.2	DEP FT1400	0.1	0.1		08/29/12 12:24	SAS
Specific conductance	umhos/cm	44	DEP FT1200	0.1	0.1		08/29/12 12:24	SAS
Dissolved Oxygen	mg/L	4.6	DEP FT1500	0.1	0.1		08/29/12 12:24	SAS
Inorganics								
Ammonia as N	mg/L	0.098	EPA 350.1	0.040	0.009		09/05/12 11:04	MMF
Chloride	mg/L	0.82	EPA 300.0	0.20	0.050		08/31/12 12:00	JAG
Nitrate (as N)	mg/L	0.77	EPA 300.0	0.04	0.01		08/31/12 12:00	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		08/31/12 12:00	JAG
Total Alkalinity	mg/L	11	SM 2320B	8.0	2.0	09/01/12 09:00	09/01/12 14:23	AES
Total Kjeldahl Nitrogen	mg/L	0.65	EPA 351.2	0.20	0.05	08/31/12 16:25	09/05/12 12:09	MMF
Nitrate+Nitrite (N)	mg/L	0.77	EPA 300.0	0.08	0.02		08/31/12 12:00	JAG

Sample Description		**PZ-O2N-21**						
Matrix		**Groundwater**						
SAL Sample Number		**1209598-06**						
Date/Time Collected		**08/29/12 12:45**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/29/12 17:30**						
Field Parameters								
pH	SU	4.6	DEP FT1100	0.1	0.1		08/29/12 12:45	SAS
Water Temperature	°C	26.6	DEP FT1400	0.1	0.1		08/29/12 12:45	SAS
Specific conductance	umhos/cm	210	DEP FT1200	0.1	0.1		08/29/12 12:45	SAS
Dissolved Oxygen	mg/L	2.2	DEP FT1500	0.1	0.1		08/29/12 12:45	SAS
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		09/05/12 11:10	MMF
Chloride	mg/L	13	EPA 300.0	0.20	0.050		08/31/12 12:00	JAG
Nitrate (as N)	mg/L	9.8	EPA 300.0	0.04	0.01		08/31/12 12:00	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		08/31/12 12:00	JAG
Total Alkalinity	mg/L	3.2 I	SM 2320B	8.0	2.0	09/01/12 09:00	09/01/12 14:23	AES
Total Kjeldahl Nitrogen	mg/L	1.3	EPA 351.2	0.20	0.05	08/31/12 16:25	09/05/12 12:10	MMF
Nitrate+Nitrite (N)	mg/L	9.8	EPA 300.0	0.08	0.02		08/31/12 12:00	JAG

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Laboratory Report

Project Name **C-HS3 SE#1**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**PZ-O4N-15**						
Matrix		**Groundwater**						
SAL Sample Number		**1209598-07**						
Date/Time Collected		**08/29/12 11:06**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/29/12 17:30**						
Field Parameters								
pH	SU	6.2	DEP FT1100	0.1	0.1		08/29/12 11:06	SAS
Water Temperature	°C	27.5	DEP FT1400	0.1	0.1		08/29/12 11:06	SAS
Specific conductance	umhos/cm	188	DEP FT1200	0.1	0.1		08/29/12 11:06	SAS
Dissolved Oxygen	mg/L	5.0	DEP FT1500	0.1	0.1		08/29/12 11:06	SAS
Inorganics								
Ammonia as N	mg/L	0.033 I	EPA 350.1	0.040	0.009		09/05/12 11:12	MMF
Chemical Oxygen Demand	mg/L	56	EPA 410.4	25	10	09/04/12 12:30	09/04/12 14:45	CDB
Chloride	mg/L	3.4	EPA 300.0	0.20	0.050		08/31/12 11:00	JAG
Fluoride	mg/L	0.48	EPA 300.0	0.040	0.010		08/31/12 11:00	JAG
Nitrate (as N)	mg/L	6.4	EPA 300.0	0.04	0.01		08/31/12 11:00	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		08/31/12 11:00	JAG
Orthophosphate as P	mg/L	0.68	EPA 300.0	0.040	0.010		08/31/12 11:00	JAG
Phosphorous - Total as P	mg/L	1.1	SM 4500P-E	0.040	0.010	09/04/12 12:01	09/06/12 13:58	MMF
Sulfate	mg/L	16	EPA 300.0	0.60	0.20		08/31/12 11:00	JAG
Total Alkalinity	mg/L	39	SM 2320B	8.0	2.0	09/01/12 09:00	09/01/12 14:23	AES
Total Kjeldahl Nitrogen	mg/L	2.0	EPA 351.2	0.20	0.05	08/31/12 16:25	09/05/12 12:11	MMF
Total Organic Carbon	mg/L	17	SM 5310B	1.0	0.50		08/31/12 16:25	MEJ
Nitrate+Nitrite (N)	mg/L	6.4	EPA 300.0	0.08	0.02		08/31/12 11:00	JAG
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	16	SM 5310B	1.0	0.50		09/01/12 10:10	MEJ
Metals								
Boron	mg/L	0.050 U	EPA 200.7	0.10	0.050	08/30/12 12:31	08/31/12 17:57	VWC
Calcium	mg/L	25	EPA 200.7	0.50	0.042	08/30/12 12:31	08/31/12 17:57	VWC
Iron	mg/L	0.14	EPA 200.7	0.10	0.020	08/30/12 12:31	09/11/12 12:26	VWC
Magnesium	mg/L	2.6	EPA 200.7	0.50	0.020	08/30/12 12:31	08/31/12 17:57	VWC
Manganese	mg/L	0.0021 I	EPA 200.7	0.010	0.0010	08/30/12 12:31	08/31/12 17:57	VWC
Potassium	mg/L	4.3	EPA 200.7	0.050	0.010	08/30/12 12:31	08/31/12 17:57	VWC
Sodium	mg/L	10	EPA 200.7	0.50	0.13	08/30/12 12:31	08/31/12 17:57	VWC
Sample Description		**PZ-O4N-17**						
Matrix		**Groundwater**						
SAL Sample Number		**1209598-08**						
Date/Time Collected		**08/29/12 11:27**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/29/12 17:30**						
Field Parameters								
pH	SU	6.3	DEP FT1100	0.1	0.1		08/29/12 11:27	SAS

Hazen and Sawyer
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Laboratory Report

Project Name **C-HS3 SE#1**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**PZ-O4N-17**						
Matrix		**Groundwater**						
SAL Sample Number		**1209598-08**						
Date/Time Collected		**08/29/12 11:27**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/29/12 17:30**						
Water Temperature	°C	27.0	DEP FT1400	0.1	0.1		08/29/12 11:27	SAS
Specific conductance	umhos/cm	65	DEP FT1200	0.1	0.1		08/29/12 11:27	SAS
Dissolved Oxygen	mg/L	3.4	DEP FT1500	0.1	0.1		08/29/12 11:27	SAS
Inorganics								
Ammonia as N	mg/L	0.29	EPA 350.1	0.040	0.009		09/05/12 11:14	MMF
Chloride	mg/L	2.4	EPA 300.0	0.20	0.050		08/31/12 11:00	JAG
Nitrate (as N)	mg/L	0.96	EPA 300.0	0.04	0.01		08/31/12 11:00	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		08/31/12 11:00	JAG
Total Alkalinity	mg/L	22	SM 2320B	8.0	2.0	09/01/12 09:00	09/01/12 14:23	AES
Total Kjeldahl Nitrogen	mg/L	2.5	EPA 351.2	0.20	0.05	08/31/12 16:28	09/05/12 15:03	MMF
Nitrate+Nitrite (N)	mg/L	0.96	EPA 300.0	0.08	0.02		08/31/12 11:00	JAG
Sample Description		**PZ-O4N-17 Dup**						
Matrix		**Groundwater**						
SAL Sample Number		**1209598-09**						
Date/Time Collected		**08/29/12 11:32**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/24/12 17:30**						
Field Parameters								
pH	SU	6.3	DEP FT1100	0.1	0.1		08/29/12 11:32	SAS
Water Temperature	°C	27.0	DEP FT1400	0.1	0.1		08/29/12 11:32	SAS
Specific conductance	umhos/cm	65	DEP FT1200	0.1	0.1		08/29/12 11:32	SAS
Dissolved Oxygen	mg/L	3.4	DEP FT1500	0.1	0.1		08/29/12 11:32	SAS
Inorganics								
Ammonia as N	mg/L	0.24	EPA 350.1	0.040	0.009		09/05/12 11:53	MMF
Chloride	mg/L	2.3	EPA 300.0	0.20	0.050		08/31/12 11:00	JAG
Nitrate (as N)	mg/L	0.79	EPA 300.0	0.04	0.01		08/31/12 11:00	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		08/31/12 11:00	JAG
Total Alkalinity	mg/L	22	SM 2320B	8.0	2.0	09/01/12 09:00	09/01/12 14:23	AES
Total Kjeldahl Nitrogen	mg/L	2.5	EPA 351.2	0.20	0.05	08/31/12 16:28	09/05/12 14:06	MMF
Nitrate+Nitrite (N)	mg/L	0.79	EPA 300.0	0.08	0.02		08/31/12 11:00	JAG

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Project Name **C-HS3 SE#1**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**PZ-O4N-21**						
Matrix		**Groundwater**						
SAL Sample Number		**1209598-10**						
Date/Time Collected		**08/29/12 11:48**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/29/12 17:30**						
Field Parameters								
pH	SU	5.7	DEP FT1100	0.1	0.1		08/29/12 11:48	SAS
Water Temperature	°C	26.7	DEP FT1400	0.1	0.1		08/29/12 11:48	SAS
Specific conductance	umhos/cm	197	DEP FT1200	0.1	0.1		08/29/12 11:48	SAS
Dissolved Oxygen	mg/L	3.0	DEP FT1500	0.1	0.1		08/29/12 11:48	SAS
Inorganics								
Ammonia as N	mg/L	0.020 I	EPA 350.1	0.040	0.009		09/05/12 11:18	MMF
Chloride	mg/L	10	EPA 300.0	0.20	0.050		08/31/12 11:00	JAG
Nitrate (as N)	mg/L	3.4	EPA 300.0	0.04	0.01		08/31/12 11:00	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		08/31/12 11:00	JAG
Total Alkalinity	mg/L	11	SM 2320B	8.0	2.0	09/01/12 09:00	09/01/12 14:23	AES
Total Kjeldahl Nitrogen	mg/L	1.0	EPA 351.2	0.20	0.05	08/31/12 16:25	09/05/12 12:13	MMF
Nitrate+Nitrite (N)	mg/L	3.4	EPA 300.0	0.08	0.02		08/31/12 11:00	JAG

Sample Description		**PZ-O6N-15**						
Matrix		**Groundwater**						
SAL Sample Number		**1209598-11**						
Date/Time Collected		**08/29/12 10:11**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/29/12 17:30**						
Field Parameters								
pH	SU	6.0	DEP FT1100	0.1	0.1		08/29/12 10:11	SAS
Water Temperature	°C	27.1	DEP FT1400	0.1	0.1		08/29/12 10:11	SAS
Specific conductance	umhos/cm	79	DEP FT1200	0.1	0.1		08/29/12 10:11	SAS
Dissolved Oxygen	mg/L	4.6	DEP FT1500	0.1	0.1		08/29/12 10:11	SAS
Inorganics								
Ammonia as N	mg/L	0.13	EPA 350.1	0.040	0.009		09/05/12 11:20	MMF
Chemical Oxygen Demand	mg/L	20 I	EPA 410.4	25	10	09/04/12 08:40	09/04/12 10:55	CDB
Chloride	mg/L	0.98	EPA 300.0	0.20	0.050		08/31/12 10:00	JAG
Nitrate (as N)	mg/L	1.6	EPA 300.0	0.04	0.01		08/31/12 10:00	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		08/31/12 10:00	JAG
Phosphorous - Total as P	mg/L	1.3	SM 4500P-E	0.040	0.010	09/04/12 12:01	09/06/12 13:59	MMF
Total Alkalinity	mg/L	11	SM 2320B	8.0	2.0	09/01/12 09:00	09/01/12 14:23	AES
Total Kjeldahl Nitrogen	mg/L	1.4	EPA 351.2	0.20	0.05	08/31/12 16:28	09/05/12 14:08	MMF
Nitrate+Nitrite (N)	mg/L	1.6	EPA 300.0	0.08	0.02		08/31/12 10:00	JAG

Hazen and Sawyer
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Tampa, FL 33619

September 18, 2012
Work Order: 1209598

Laboratory Report

Project Name **C-HS3 SE#1**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**PZ-O6N-17**						
Matrix		**Groundwater**						
SAL Sample Number		**1209598-12**						
Date/Time Collected		**08/29/12 10:32**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/29/12 17:30**						
Field Parameters								
pH	SU	6.2	DEP FT1100	0.1	0.1		08/29/12 10:32	SAS
Water Temperature	°C	26.7	DEP FT1400	0.1	0.1		08/29/12 10:32	SAS
Specific conductance	umhos/cm	72	DEP FT1200	0.1	0.1		08/29/12 10:32	SAS
Dissolved Oxygen	mg/L	3.6	DEP FT1500	0.1	0.1		08/29/12 10:32	SAS
Inorganics								
Ammonia as N	mg/L	0.068	EPA 350.1	0.040	0.009		09/05/12 11:21	MMF
Chloride	mg/L	0.96	EPA 300.0	0.20	0.050		08/31/12 10:00	JAG
Nitrate (as N)	mg/L	0.96	EPA 300.0	0.04	0.01		08/31/12 10:00	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		08/31/12 10:00	JAG
Total Alkalinity	mg/L	22	SM 2320B	8.0	2.0	09/01/12 09:00	09/01/12 14:23	AES
Total Kjeldahl Nitrogen	mg/L	0.86	EPA 351.2	0.20	0.05	08/31/12 16:28	09/05/12 14:10	MMF
Nitrate+Nitrite (N)	mg/L	0.96	EPA 300.0	0.08	0.02		08/31/12 10:00	JAG

Sample Description		**PZ-O6N-21**						
Matrix		**Groundwater**						
SAL Sample Number		**1209598-13**						
Date/Time Collected		**08/29/12 10:52**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/29/12 17:30**						
Field Parameters								
pH	SU	5.3	DEP FT1100	0.1	0.1		08/29/12 10:52	SAS
Water Temperature	°C	26.7	DEP FT1400	0.1	0.1		08/29/12 10:52	SAS
Specific conductance	umhos/cm	93	DEP FT1200	0.1	0.1		08/29/12 10:52	SAS
Dissolved Oxygen	mg/L	2.9	DEP FT1500	0.1	0.1		08/29/12 10:52	SAS
Inorganics								
Ammonia as N	mg/L	0.017 I	EPA 350.1	0.040	0.009		09/05/12 11:23	MMF
Chloride	mg/L	3.8	EPA 300.0	0.20	0.050		08/31/12 10:00	JAG
Nitrate (as N)	mg/L	1.6	EPA 300.0	0.04	0.01		08/31/12 10:00	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		08/31/12 10:00	JAG
Total Alkalinity	mg/L	8.4	SM 2320B	8.0	2.0	09/01/12 09:00	09/01/12 14:23	AES
Total Kjeldahl Nitrogen	mg/L	0.73	EPA 351.2	0.20	0.05	08/31/12 16:28	09/05/12 14:11	MMF
Nitrate+Nitrite (N)	mg/L	1.6	EPA 300.0	0.08	0.02		08/31/12 10:00	JAG

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BH23106 - Ion Chromatography 300.0 Prep										
Blank (BH23106-BLK1)					Prepared & Analyzed: 08/31/12					
Orthophosphate as P	0.010 U	0.040	0.010	mg/L						
Fluoride	0.010 U	0.040	0.010	mg/L						
Sulfate	0.20 U	0.60	0.20	mg/L						
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						
Chloride	0.050 U	0.20	0.050	mg/L						
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
LCS (BH23106-BS1)					Prepared & Analyzed: 08/31/12					
Fluoride	0.928	0.040	0.010	mg/L	0.90		103	85-115		
Nitrite (as N)	1.40	0.04	0.01	mg/L	1.4		100	85-115		
Sulfate	9.02	0.60	0.20	mg/L	9.0		100	85-115		
Orthophosphate as P	0.975	0.040	0.010	mg/L	0.90		108	85-115		
Nitrate (as N)	1.69	0.04	0.01	mg/L	1.7		99	85-115		
Chloride	2.97	0.20	0.050	mg/L	3.0		99	85-115		
LCS Dup (BH23106-BSD1)					Prepared & Analyzed: 08/31/12					
Nitrite (as N)	1.45	0.04	0.01	mg/L	1.4		104	85-115	4	200
Chloride	2.97	0.20	0.050	mg/L	3.0		99	85-115	0	200
Nitrate (as N)	1.70	0.04	0.01	mg/L	1.7		100	85-115	0.6	200
Fluoride	0.923	0.040	0.010	mg/L	0.90		103	85-115	0.5	200
Orthophosphate as P	0.973	0.040	0.010	mg/L	0.90		108	85-115	0.2	200
Sulfate	9.01	0.60	0.20	mg/L	9.0		100	85-115	0.1	200
Matrix Spike (BH23106-MS1)		**Source: 1209598-08**			Prepared & Analyzed: 08/31/12					
Chloride	5.50	0.20	0.050	mg/L	3.0	2.40	103	80-120		
Fluoride	0.881	0.040	0.010	mg/L	0.90	0.0687	90	85-115		
Nitrate (as N)	2.62	0.04	0.01	mg/L	1.7	0.956	98	85-115		
Orthophosphate as P	1.18	0.040	0.010	mg/L	0.90	0.282	100	85-115		
Sulfate	12.8	0.60	0.20	mg/L	9.0	3.96	98	85-115		
Nitrite (as N)	1.47	0.04	0.01	mg/L	1.4	ND	105	85-115		

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BH23106 - Ion Chromatography 300.0 Prep										
Matrix Spike (BH23106-MS2)		**Source: 1209615-05**			Prepared & Analyzed: 08/31/12					
Nitrite (as N)	1.38	0.04	0.01	mg/L	1.4	ND	99	85-115		
Fluoride	1.41	0.040	0.010	mg/L	0.90	0.498	101	85-115		
Orthophosphate as P	2.48	0.040	0.010	mg/L	0.90	1.57	101	85-115		
Chloride	4.60	0.20	0.050	mg/L	3.0	1.69	97	80-120		
Sulfate	14.9	0.60	0.20	mg/L	9.0	6.16	97	85-115		
Nitrate (as N)	3.55	0.04	0.01	mg/L	1.7	1.82	102	85-115		
Batch BH23131 - Digestion for TKN by EPA 351.2										
Blank (BH23131-BLK1)					Prepared: 08/31/12 Analyzed: 09/05/12					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
LCS (BH23131-BS1)					Prepared: 08/31/12 Analyzed: 09/05/12					
Total Kjeldahl Nitrogen	2.50	0.20	0.05	mg/L	2.5		99	90-110		
Matrix Spike (BH23131-MS1)		**Source: 1209592-04**			Prepared: 08/31/12 Analyzed: 09/05/12					
Total Kjeldahl Nitrogen	4.57	0.20	0.05	mg/L	2.5	1.85	107	80-120		
Matrix Spike Dup (BH23131-MSD1)		**Source: 1209592-04**			Prepared: 08/31/12 Analyzed: 09/05/12					
Total Kjeldahl Nitrogen	4.39	0.20	0.05	mg/L	2.5	1.85	100	80-120	4	20
Batch BH23132 - Digestion for TKN by EPA 351.2										
Blank (BH23132-BLK1)					Prepared: 08/31/12 Analyzed: 09/05/12					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	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 BH23132 - Digestion for TKN by EPA 351.2										
LCS (BH23132-BS1)					Prepared: 08/31/12 Analyzed: 09/05/12					
Total Kjeldahl Nitrogen	2.44	0.20	0.05	mg/L	2.5		96	90-110		
Matrix Spike (BH23132-MS1)		**Source: 1209615-12**			Prepared: 08/31/12 Analyzed: 09/05/12					
Total Kjeldahl Nitrogen	28.9	0.20	0.05	mg/L	25	7.85	83	80-120		
Matrix Spike Dup (BH23132-MSD1)		**Source: 1209615-12**			Prepared: 08/31/12 Analyzed: 09/05/12					
Total Kjeldahl Nitrogen	28.4	0.20	0.05	mg/L	25	7.85	81	80-120	2	20
Batch BI20101 - TOC prep										
Blank (BI20101-BLK1)					Prepared & Analyzed: 08/31/12					
Total Organic Carbon	0.50 U	1.0	0.50	mg/L						
Blank (BI20101-BLK2)					Prepared & Analyzed: 08/31/12					
Total Organic Carbon	0.50 U	1.0	0.50	mg/L						
LCS (BI20101-BS1)					Prepared & Analyzed: 08/31/12					
Total Organic Carbon	9.02	1.0	0.50	mg/L	10		90	90-110		
LCS (BI20101-BS2)					Prepared & Analyzed: 08/31/12					
Total Organic Carbon	10.8	1.0	0.50	mg/L	10		108	90-110		
Matrix Spike (BI20101-MS1)		**Source: 1209848-02**			Prepared & Analyzed: 08/31/12					
Total Organic Carbon	23.0	1.0	0.50	mg/L	10	14.0	90	85-115		
Matrix Spike (BI20101-MS2)		**Source: 1209848-10**			Prepared & Analyzed: 08/31/12					
Total Organic Carbon	21.7	1.0	0.50	mg/L	10	12.7	90	85-115		

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI20101 - TOC prep										
Matrix Spike Dup (BI20101-MSD1)		**Source: 1209848-02**			Prepared & Analyzed: 08/31/12					
Total Organic Carbon	22.5	1.0	0.50	mg/L	10	14.0	85	85-115	2	10
Matrix Spike Dup (BI20101-MSD2)		**Source: 1209848-10**			Prepared & Analyzed: 08/31/12					
Total Organic Carbon	21.9	1.0	0.50	mg/L	10	12.7	92	85-115	0.9	10
Batch BI20102 - alkalinity										
Blank (BI20102-BLK1)					Prepared & Analyzed: 09/01/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
Blank (BI20102-BLK2)					Prepared & Analyzed: 09/01/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
LCS (BI20102-BS1)					Prepared & Analyzed: 09/01/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		
LCS (BI20102-BS2)					Prepared & Analyzed: 09/01/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		
Matrix Spike (BI20102-MS1)		**Source: 1209615-12**			Prepared & Analyzed: 09/01/12					
Total Alkalinity	150	8.0	2.0	mg/L	120	25	101	80-120		
Matrix Spike (BI20102-MS2)		**Source: 1209615-13**			Prepared & Analyzed: 09/01/12					
Total Alkalinity	190	8.0	2.0	mg/L	120	60	107	80-120		
Matrix Spike Dup (BI20102-MSD1)		**Source: 1209615-12**			Prepared & Analyzed: 09/01/12					
Total Alkalinity	160	8.0	2.0	mg/L	120	25	109	80-120	7	26

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI20102 - alkalinity										
Matrix Spike Dup (BI20102-MSD2)		**Source: 1209615-13**			Prepared & Analyzed: 09/01/12					
Total Alkalinity	180	8.0	2.0	mg/L	120	60	99	80-120	6	26
Batch BI20402 - COD prep										
Blank (BI20402-BLK1)					Prepared & Analyzed: 09/04/12					
Chemical Oxygen Demand	10 U	25	10	mg/L						
LCS (BI20402-BS1)					Prepared & Analyzed: 09/04/12					
Chemical Oxygen Demand	47	25	10	mg/L	50		94	90-110		
Matrix Spike (BI20402-MS1)		**Source: 1209581-02**			Prepared & Analyzed: 09/04/12					
Chemical Oxygen Demand	51	25	10	mg/L	50	ND	102	85-115		
Matrix Spike Dup (BI20402-MSD1)		**Source: 1209581-02**			Prepared & Analyzed: 09/04/12					
Chemical Oxygen Demand	47	25	10	mg/L	50	ND	94	85-115	8	32
Batch BI20416 - COD prep										
Blank (BI20416-BLK1)					Prepared & Analyzed: 09/04/12					
Chemical Oxygen Demand	10 U	25	10	mg/L						
LCS (BI20416-BS1)					Prepared & Analyzed: 09/04/12					
Chemical Oxygen Demand	54	25	10	mg/L	50		108	90-110		
Matrix Spike (BI20416-MS1)		**Source: 1209647-02**			Prepared & Analyzed: 09/04/12					
Chemical Oxygen Demand	54	25	10	mg/L	50	ND	108	85-115		

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI20416 - COD prep										
Matrix Spike Dup (BI20416-MSD1)		**Source: 1209647-02**			Prepared & Analyzed: 09/04/12					
Chemical Oxygen Demand	54	25	10	mg/L	50	ND	108	85-115	0	32
Batch BI20425 - Digestion for TP by EPA 365.2/SM4500PE										
Blank (BI20425-BLK1)					Prepared: 09/04/12 Analyzed: 09/06/12					
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						
Blank (BI20425-BLK2)					Prepared: 09/04/12 Analyzed: 09/06/12					
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						
LCS (BI20425-BS1)					Prepared: 09/04/12 Analyzed: 09/06/12					
Phosphorous - Total as P	0.772	0.040	0.010	mg/L	0.80		97	90-110		
LCS (BI20425-BS2)					Prepared: 09/04/12 Analyzed: 09/06/12					
Phosphorous - Total as P	0.790	0.040	0.010	mg/L	0.80		99	90-110		
Matrix Spike (BI20425-MS1)		**Source: 1209819-02**			Prepared: 09/04/12 Analyzed: 09/06/12					
Phosphorous - Total as P	1.03	0.040	0.010	mg/L	1.0	0.0396	99	75-125		
Matrix Spike (BI20425-MS2)		**Source: 1209840-07**			Prepared: 09/04/12 Analyzed: 09/06/12					
Phosphorous - Total as P	1.17	0.040	0.010	mg/L	1.0	0.158	101	75-125		
Matrix Spike Dup (BI20425-MSD1)		**Source: 1209819-02**			Prepared: 09/04/12 Analyzed: 09/06/12					
Phosphorous - Total as P	0.992	0.040	0.010	mg/L	1.0	0.0396	95	75-125	4	25
Matrix Spike Dup (BI20425-MSD2)		**Source: 1209840-07**			Prepared: 09/04/12 Analyzed: 09/06/12					
Phosphorous - Total as P	1.16	0.040	0.010	mg/L	1.0	0.158	100	75-125	0.6	25

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI20502 - Ammonia by SEAL										
Blank (BI20502-BLK1)					Prepared & Analyzed: 09/05/12					
Ammonia as N	0.009 U	0.040	0.009	mg/L						
LCS (BI20502-BS1)					Prepared & Analyzed: 09/05/12					
Ammonia as N	0.52	0.040	0.009	mg/L	0.50		105	90-110		
Matrix Spike (BI20502-MS1)		**Source: 1209598-03**			Prepared & Analyzed: 09/05/12					
Ammonia as N	0.48	0.040	0.009	mg/L	0.50	ND	96	90-110		
Matrix Spike Dup (BI20502-MSD1)		**Source: 1209598-03**			Prepared & Analyzed: 09/05/12					
Ammonia as N	0.52	0.040	0.009	mg/L	0.50	ND	103	90-110	7	10

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Inorganic, Dissolved - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI20431 - TOC prep										
Blank (BI20431-BLK1)					Prepared & Analyzed: 09/01/12					
Dissolved Organic Carbon	0.50 U	1.0	0.50	mg/L						
LCS (BI20431-BS1)					Prepared & Analyzed: 09/01/12					
Dissolved Organic Carbon	10.3	1.0	0.50	mg/L	10		103	90-110		
Matrix Spike (BI20431-MS1)		**Source: 1209647-01**			Prepared & Analyzed: 09/01/12					
Dissolved Organic Carbon	8.69	1.0	0.50	mg/L	10	ND	87	85-125		
Matrix Spike Dup (BI20431-MSD1)		**Source: 1209647-01**			Prepared & Analyzed: 09/01/12					
Dissolved Organic Carbon	9.79	1.0	0.50	mg/L	10	ND	98	85-125	12	25

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Metals - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BH23029 - Metals Preparation for EPA Method 200.7										
Blank (BH23029-BLK1)					Prepared: 08/30/12 Analyzed: 08/31/12					
Potassium	0.010 U	0.050	0.010	mg/L						
Iron	0.020 U	0.10	0.020	mg/L						
Boron	0.050 U	0.10	0.050	mg/L						
Calcium	0.042 U	0.50	0.042	mg/L						
Magnesium	0.020 U	0.50	0.020	mg/L						
Manganese	0.0010 U	0.010	0.0010	mg/L						
Sodium	0.13 U	0.50	0.13	mg/L						
LCS (BH23029-BS1)					Prepared: 08/30/12 Analyzed: 08/31/12					
Calcium	20	0.50	0.042	mg/L	20		98	85-115		
Iron	8.1	0.10	0.020	mg/L	8.0		101	85-115		
Potassium	19	0.050	0.010	mg/L	20		93	85-115		
Boron	0.43	0.10	0.050	mg/L	0.40		107	85-115		
Manganese	0.41	0.010	0.0010	mg/L	0.40		102	85-115		
Magnesium	19	0.50	0.020	mg/L	20		97	85-115		
Sodium	21	0.50	0.13	mg/L	20		103	85-115		
Matrix Spike (BH23029-MS1)		**Source: 1209724-02**			Prepared: 08/30/12 Analyzed: 08/31/12					
Iron	9.0	0.10	0.020	mg/L	8.0	0.81	102	70-130		
Sodium	46	0.50	0.13	mg/L	20	27	96	70-130		
Potassium	140	0.050	0.010	mg/L	20	120	94	70-130		
Calcium	210 J5	0.50	0.042	mg/L	20	200	36	70-130		
Boron	0.70	0.10	0.050	mg/L	0.40	0.27	107	70-130		
Magnesium	38	0.50	0.020	mg/L	20	20	90	70-130		
Manganese	0.83	0.010	0.0010	mg/L	0.40	0.45	96	70-130		
Matrix Spike (BH23029-MS2)		**Source: 1209790-01**			Prepared: 08/30/12 Analyzed: 08/31/12					
Calcium	100	0.50	0.042	mg/L	20	83	104	70-130		
Iron	8.1	0.10	0.020	mg/L	8.0	ND	101	70-130		
Sodium	33	0.50	0.13	mg/L	20	12	103	70-130		
Boron	0.44	0.10	0.050	mg/L	0.40	ND	110	70-130		
Manganese	0.40	0.010	0.0010	mg/L	0.40	ND	100	70-130		
Magnesium	21	0.50	0.020	mg/L	20	1.9	96	70-130		
Potassium	20	0.050	0.010	mg/L	20	0.59	95	70-130		

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Tampa, FL 33619

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Metals - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BH23029 - Metals Preparation for EPA Method 200.7										
Matrix Spike Dup (BH23029-MSD1)		**Source: 1209724-02**			Prepared: 08/30/12 Analyzed: 08/31/12					
Boron	0.69	0.10	0.050	mg/L	0.40	0.27	104	70-130	2	30
Sodium	46	0.50	0.13	mg/L	20	27	95	70-130	0.7	30
Manganese	0.83	0.010	0.0010	mg/L	0.40	0.45	94	70-130	0.7	30
Iron	9.0	0.10	0.020	mg/L	8.0	0.81	102	70-130	0.3	30
Magnesium	39	0.50	0.020	mg/L	20	20	96	70-130	3	30
Potassium	140	0.050	0.010	mg/L	20	120	94	70-130	0.03	30
Calcium	210 J5	0.50	0.042	mg/L	20	200	27	70-130	0.9	30
Matrix Spike Dup (BH23029-MSD2)		**Source: 1209790-01**			Prepared: 08/30/12 Analyzed: 08/31/12					
Boron	0.45	0.10	0.050	mg/L	0.40	ND	113	70-130	3	30
Calcium	100	0.50	0.042	mg/L	20	83	92	70-130	2	30
Iron	8.1	0.10	0.020	mg/L	8.0	ND	102	70-130	0.5	30
Potassium	19	0.050	0.010	mg/L	20	0.59	93	70-130	3	30
Sodium	32	0.50	0.13	mg/L	20	12	101	70-130	1	30
Magnesium	21	0.50	0.020	mg/L	20	1.9	96	70-130	0.05	30
Manganese	0.40	0.010	0.0010	mg/L	0.40	ND	101	70-130	1	30

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

September 18, 2012
Work Order: 1209598

* Qualifiers, Notes and Definitions

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

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

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

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

J5 Matrix spike of this sample was outside typical range. All other QC criteria were acceptable.

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

SAL Project No. 1209598

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: C-HS3 SE#1

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 Alkalinity, NOx, Cl	250mL P, H_2SO_4 COD, TKN, NH_3, TP	250mL P, H_2SO_4 TKN, NH_3	1LP, Cool Alkalinity, NOx, Cl, F, OP, SO_4	40mLaV, HCl TOC	250mLaG, Cool DOC	250mL P, HNO_3 B, Ca, Fe, Mg, Mn, K, Na				DO	pH	Conductivity	Temperature	No. of Containers (Total per each location)
01	PZ-OON-15	082912	1305	GW		X	1	1									5.97	6.2	88.2	27.5	
02	PZ-OON-17		1323	GW		X	1		1								4.55	6.2	56.6	27.1	
03	PZ-OON-21		1343	GW		X	1		1								2.88	4.6	154.5	26.8	
04	PZ-O2N-15		1206	GW		X	1	1									6.25	6.4	119.2	27.6	
05	PZ-O2N-17		1224	GW		X	1		1								4.57	6.1	44.3	27.2	
06	PZ-O2N-21		1245	GW		X	1		1								2.25	4.6	209.6	26.6	
07	PZ-O4N-15		1106	GW		X		1		1	2	1	1				5.02	6.2	188.4	27.5	
08	PZ-O4N-17		1127	GW		X	1		1								3.40	6.3	65.3	27.0	
09	PZ-O4N-17 Dup		1152	GW		X	1		1								3.40	6.3	65.3	27.0	
10	PZ-O4N-21		1148	GW		X	1		1								2.95	5.7	197.1	26.7	
11	PZ-O6N-15		1011	GW		X	1	1									4.65	6.0	78.6	27.1	
12	PZ-O6N-17		1032	GW			1		1								3.65	6.2	72.5	26.7	

Containers Prepared/ Relinquished: Bowling	Date/Time: 1145 8/27/12	Received:	Date/Time: 1145 082712
Relinquished:	Date/Time: 1730 082912	Received: HH	Date/Time: 1730 08-29-12
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

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

1209598

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

Chain of Custody

SOUTHERN ANALYTICAL LABORATORIES, INC.

110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1044 fax 813-855-2218

SAL Project No. 1209598

Client Name: Hazen and Sawyer	Contact / Phone:
Project Name / Location: C-HS3 SE#1	
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 Alkalinity, NOx, Cl	250mL P, H_2SO_4 TKN, NH_3									DO	pH	Conductivity	Temperature	No. of Containers (Total per each location)
13	PZ-06N-21	08/29/12	1052	GW		X	1	1									2.92	5.3	92.8	26.7	

Containers Prepared/ Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	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

1209598

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

Chain of Custody

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	6-8-2012	SAL Project #	1209598	Project Name	C-HS3 SE#1
Well Number	PZ-00N-15	Sample ID	01	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1.0	WELL CAPACITY (gal/ft)	0.04	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	10.41	PURGE PUMP CODE: (PP) GP IBP
TOTAL WELL DEPTH (Feet)	14.78	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)

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

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

ONE WELL VOLUME	0.174	1/4 WELL VOLUME		3 WELL VOLUMES	0.524	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	1249	PURGE TIME END	1304	TOTAL PURGED	1.50

INST. ID					SAL-SAM-63-01	SAL-SAM-65-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
1252	0.30	0.30	0.10	11.04	5.9	27.8	88.0	6.08	676	BROWN	NONE
1255	0.30	0.60			6.0	27.6	87.3	6.02	101	CLOUDY	
1258	0.30	0.90			6.1	27.6	87.7	6.00	61.0		
1301	0.30	1.20			6.2	27.5	87.8	5.99	41.9		
1304	0.30	1.50			6.2	27.5	88.2	5.97	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	1305	SAMPLING ENDED	1306	FIELD CLEANED	Y (N)	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Clear, 88°								
COMMENTS									

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

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

Reviewed By:		Date:	

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	082912	SAL Project #	1209598	Project Name	C-HS3 SE#1
Well Number	PZ-00N-17	Sample ID	02	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)	10.35	PURGE PUMP CODE (PP) GP IBP
TOTAL WELL DEPTH (Feet)	17.00	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)

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

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

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

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

PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME		EQUIPMENT VOLUME	

INITIAL TUBING LEGNTH IN WELL (FEET)			FINAL TUBING LEGNTH IN WELL (FEET)			PURGE TIME START	1307	PURGE TIME END	1322	TOTAL PURGED	1.50
INST. ID					SAL-SAM-63-01	SAL-SAM-65-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
1310	0.30	0.30	0.10	10.99	6.3	28.0	51.0	4.62	MAX	BROWN	NONE
1313	0.30	0.60			6.3	27.6	52.5	4.80	MAX		
1316	0.30	0.90			6.2	27.1	55.5	4.39	MAX		
1319	0.30	1.20			6.2	27.1	55.9	4.29	400		
1322	0.30	1.50			6.2	27.1	56.6	4.55	74.7	CLOUDY	

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	1323	SAMPLING ENDED	1324	FIELD CLEANED	Y (N)	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	clear, 88°								
COMMENTS									

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

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

Reviewed By:		Date:	

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	082912	SAL Project #	1209598	Project Name	C-HS3 SE#1
Well Number	PZ-00N-21	Sample ID	03	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)	10.40	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	21.00	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	0.212	1/4 WELL VOLUME		3 WELL VOLUMES	0.636	5 WELL VOLUMES	

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

PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME		EQUIPMENT VOLUME	

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

INST. ID					SAL-SAM-63-01	SAL-SAM-65-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
1330	0.30	0.30	0.10	11.02	5.4	27.5	65.0	3.05	MAX	BROWN	NONE
1333	0.30	0.60			4.9	27.1	133.2	3.06	MAX		
1336	0.30	0.90			4.7	26.9	146.5	3.00	145	CLOUDY	
1339	0.30	1.20			4.6	26.8	151.9	2.91	31.9		
1342	0.30	1.50			4.6	26.8	154.5	2.88	14.2	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	1343	SAMPLING ENDED	1344	FIELD CLEANED	Y (N)	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS									
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	082912	SAL Project #	1209598	Project Name	C-HS3 SE#1
Well Number	PZ-02N-15	Sample ID	04	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1.0	WELL CAPACITY (gal/ft)	0.04	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	10.52	PURGE PUMP CODE: (PP) GP IBP
TOTAL WELL DEPTH (Feet)	14.78	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)

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

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

ONE WELL VOLUME	0.17	1/4 WELL VOLUME		3 WELL VOLUMES	0.511	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	1156	PURGE TIME END	1205	TOTAL PURGED	0.90

INST. ID					SAL-SAM-63-01	SAL-SAM-65-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
1159	0.30	0.30	0.10	11.07	6.2	27.7	110.0	6.36	51.6	CLOUDY	NONE
1202	0.30	0.60	|	|	6.3	27.6	109.5	6.30	51.4	|	|
1205	0.30	0.90	|	|	6.4	27.6	110.2	6.25	50.2	|	|

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	1200	SAMPLING ENDED	1207	FIELD CLEANED	Y (N)	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Clear, 85°								
COMMENTS									

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

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

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	082912	SAL Project #	1209598	Project Name	C-HS3 SE#1
Well Number	PZ-02N-17	Sample ID	05	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	0.75	WELL CAPACITY (gal/ft)	0.02	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	10.50	PURGE PUMP CODE: (PP) GP IBP
TOTAL WELL DEPTH (Feet)	17.00	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	1208	PURGE TIME END	1223	TOTAL PURGED	1.50	
INST. ID	X	X	X	X	SAL-SAM-63-01	SAL-SAM-65-01	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)
1211	0.30	0.30	0.10	11.12	6.4	27.7	54.8	4.88	MAX	BROWN	NONE
1214	0.30	0.60			6.3	27.2	45.2	4.72	MAX		
1217	0.30	0.90			6.2	27.2	44.7	4.56	MAX		
1220	0.30	1.20			6.2	27.3	44.3	4.25	951		
1223	0.30	1.50			6.1	27.2	44.3	4.57	465		

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	1224	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	clear, 87°								
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	082912	SAL Project #	1209598	Project Name	C-HS3 SE#1
Well Number	PZ-02N-21	Sample ID	06	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	0.75	WELL CAPACITY (gal/ft)	0.02	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	10.50	PURGE PUMP CODE: (PP) GP IBP
TOTAL WELL DEPTH (Feet)	21.00	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	0.21	1/4 WELL VOLUME		3 WELL VOLUMES	0.63	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	1229	PURGE TIME END	1244	TOTAL PURGED	1.50
INST. ID	X	X	X	X	SAL-SAM-63-01	SAL-SAM-65-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
1232	0.30	0.30	0.10	11.13	5.1	27.3	65.1	2.84	MAX	BROWN	NONE
1235	0.30	0.60			4.8	26.8	198.7	2.59	MAX		
1238	0.30	0.90			4.7	26.7	208.1	2.36	576		
1241	0.30	1.20			4.6	26.6	209.6	2.28	92.8	CLOUDY	
1244	0.30	1.50			4.6	26.6	209.6	2.25	44.4		

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	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	Clear, 88°						
COMMENTS							

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

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

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	08 29 12	SAL Project #	1209598	Project Name	C-HS3 SE#1
Well Number	PZ-04N-15	Sample ID	07	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1.0	WELL CAPACITY (gal/ft)	0.04	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	10.27	PURGE PUMP CODE (PP) GP IBP
TOTAL WELL DEPTH (Feet)	14.78	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)

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

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

ONE WELL VOLUME	0.18	1/4 WELL VOLUME		3 WELL VOLUMES	0.54	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	1056	PURGE TIME END	1105	TOTAL PURGED	0.90

INST. ID					SAL-SAM-63-01	SAL-SAM-65-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
1059	0.30	0.30	0.10	11.07	6.0	27.5	185.2	5.14	84.3	CLOUDY	NONE
1102	0.30	0.60	/	/	6.1	27.5	187.7	5.04	82.8	/	/
1105	0.30	0.90	/	/	6.2	27.5	188.4	5.02	81.6	/	/

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	1106	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, 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	082912	SAL Project #	1209598	Project Name	C-HS3 SE#1
Well Number	PZ-04N-17	Sample ID	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)	10.28	PURGE PUMP CODE (PP) GP IBP
TOTAL WELL DEPTH (Feet)	17.00	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	0.134	1/4 WELL VOLUME		3 WELL VOLUMES	0.403	5 WELL VOLUMES	

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

PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME	~~0~~ ES	EQUIPMENT VOLUME	

INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START	1111	PURGE TIME END	1126	TOTAL PURGED	1.50
INST. ID	X	X	X	X	SAL-SAM-63-01	SAL-SAM-65-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
1114	0.30	0.30	0.10	11.09	6.5	27.9	37.6	3.77	MAX	BROWN	NONE
1117	0.30	0.60			6.4	27.1	64.0	4.02	MAX		
1120	0.30	0.90			6.3	27.1	64.1	3.73	MAX		
1123	0.30	1.20			6.3	27.0	64.8	3.37	MAX		
1126	0.30	1.50			6.3	27.0	65.3	3.40	MAX		

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL					SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP (TL) TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	1127	SAMPLING ENDED	1128	FIELD CLEANED	Y (N)	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Clear, 84°								
COMMENTS									

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

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

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	082912	SAL Project #	1209598	Project Name	C-HS3 SE#1
Well Number	PZ-04N-17 Dup	Sample ID	09	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)	10.28	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	17.00	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	0.134	1/4 WELL VOLUME		3 WELL VOLUMES	0.403	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	1111	PURGE TIME END	1126	TOTAL PURGED	1.50	
INST. ID				SAL-SAM-63-01	SAL-SAM-65-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01		

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
1114	0.30	0.30	0.10	11.09	6.5	27.9	37.6	3.77	MAX	BROWN	NONE
1117	0.30	0.60			6.4	27.1	64.0	4.02	MAX		
1120	0.30	0.90			6.3	27.1	64.1	3.73	MAX		
1123	0.30	1.20			6.3	27.0	64.8	3.37	MAX		
1126	0.30	1.50			6.3	27.0	65.3	3.40	MAX		

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL				SAMPLER(S) SIGNATURES:				
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP (TL) TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	1132	SAMPLING ENDED	1133	FIELD CLEANED	Y (N)	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Clear, 84°								
COMMENTS									

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

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

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	082912	SAL Project #	1209598	Project Name	C-HS3 SE#1
Well Number	PZ-04N-21	Sample ID	1D	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)	10.30	PURGE PUMP CODE (PP) GP IBP
TOTAL WELL DEPTH (Feet)	21.00	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	0.214	1/4 WELL VOLUME		3 WELL VOLUMES	0.642	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	1132	PURGE TIME END	1147	TOTAL PURGED	1.50

INST. ID					SAL-SAM-63-01	SAL-SAM-65-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
1135	0.30	0.30	0.60	11.18	5.9	27.4	119.3	3.28	MAX	BROWN	NONE
1138	0.30	0.60			5.8	27.0	179.0	3.29	MAX		
1141	0.30	0.90			5.7	26.8	188.3	3.14	MAX		
1144	0.30	1.20			5.7	26.7	194.1	3.07	421		
1147	0.30	1.50			5.7	26.7	197.1	2.95	123	CLOUDY	

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	1148	SAMPLING ENDED	1149	FIELD CLEANED	Y (N)	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Clear, 85°								
COMMENTS									

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

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

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	082912	SAL Project #	1209598	Project Name	C-HS3 SE#1
Well Number	PZ-06N-15	Sample ID	11	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1.0	WELL CAPACITY (gal/ft)	0.04	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	10.42	PURGE PUMP CODE (PP) GP IBP
TOTAL WELL DEPTH (Feet)	14.78	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)

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

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

ONE WELL VOLUME	0.174	1/4 WELL VOLUME		3 WELL VOLUMES	0.523	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	0955	PURGE TIME END	1010	TOTAL PURGED	1.50

INST. ID					SAL-SAM-63-01	SAL-SAM-65-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
0958	0.30	0.30	0.10	11.20	5.9	27.2	76.1	4.71	MAX	BROWN	NONE
1001	0.30	0.60			6.0	27.2	76.7	4.59	MAX	BROWN	
1004	0.30	0.90			6.0	27.2	77.2	4.27	MAX		
1007	0.30	1.20			6.0	27.1	78.0	4.33	692		
1010	0.30	1.50			6.0	27.1	78.6	4.65	425		

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	1011	SAMPLING ENDED	1012	FIELD CLEANED	Y (N)	CLEANING STEPS	
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)
SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)						
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED					
WEATHER CONDITIONS	Clear, 80°						
COMMENTS							

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

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

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	082912	SAL Project #	1209598	Project Name	C-HS3 SE#1
Well Number	PZ-06N-17	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)	10.61	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	17.00	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	0.127	1/4 WELL VOLUME		3 WELL VOLUMES	0.383	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	X	X	X	X	SAL-SAM-63-01	SAL-SAM-65-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
1019	0.30	0.30	0.10	11.22	6.1	26.8	69.5	4.30	MAX	BROWN	NONE
1022	0.30	0.60			6.1	26.7	69.7	4.20	MAX		
1025	0.30	0.90			6.1	26.7	70.2	3.88	MAX		
1028	0.30	1.20			6.2	26.7	71.3	3.75	925		
1031	0.30	1.50			6.2	26.7	72.5	3.65	457		

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	1033	FIELD CLEANED	Y (N)	CLEANING STEPS	
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)
SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)						
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED					
WEATHER CONDITIONS	Clear, 80°						
COMMENTS							

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

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

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	082912	SAL Project #	1209598	Project Name	C-HS3 SE#1
Well Number	PZ-06N-21	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)	10.49	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	21.00	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	0.21	1/4 WELL VOLUME		3 WELL VOLUMES	0.63	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	1.50

INST. ID					SAL-SAM-63-01	SAL-SAM-65-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
1039	0.30	0.30	0.10	11.18	6.1	26.9	38.8	3.51	MAX	BROWN	NONE
1042	0.30	0.60			5.5	26.7	82.6	3.12	MAX		
1045	0.30	0.90			5.4	26.7	86.3	2.88	MAX		
1048	0.30	1.20			5.3	26.7	90.3	2.81	428		
1051	0.30	1.50			5.3	26.7	92.8	2.92	121	CLOUDY	

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	1052	SAMPLING ENDED	1053	FIELD CLEANED	Y (N)	CLEANING STEPS	
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)
SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)						
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED					
WEATHER CONDITIONS	Clear, 82°						
COMMENTS							

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

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

Reviewed By: Date:

Revision Date 09/25/09

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

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

September 10, 2012
Work Order: 1209601

Laboratory Report

Project Name **C-HS3 SE#1**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**PZ-03O-15**						
Matrix		**Groundwater**						
SAL Sample Number		**1209601-01**						
Date/Time Collected		**08/28/12 08:58**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/28/12 15:55**						
Field Parameters								
pH	SU	6.5	DEP FT1100	0.1	0.1		08/28/12 08:58	SAS
Water Temperature	°C	26.1	DEP FT1400	0.1	0.1		08/28/12 08:58	SAS
Specific conductance	umhos/cm	152	DEP FT1200	0.1	0.1		08/28/12 08:58	SAS
Dissolved Oxygen	mg/L	2.4	DEP FT1500	0.1	0.1		08/28/12 08:58	SAS
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		09/04/12 13:21	MMF
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	09/04/12 08:40	09/04/12 10:55	CDB
Chloride	mg/L	2.3	EPA 300.0	0.20	0.050		08/29/12 17:36	JAG
Nitrate (as N)	mg/L	2.0	EPA 300.0	0.04	0.01		08/29/12 17:36	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		08/29/12 17:36	JAG
Phosphorous - Total as P	mg/L	0.56	SM 4500P-E	0.040	0.010	08/30/12 10:50	08/31/12 14:06	MMF
Total Alkalinity	mg/L	54	SM 2320B	8.0	2.0	08/29/12 10:00	08/29/12 16:46	AES
Total Kjeldahl Nitrogen	mg/L	0.85	EPA 351.2	0.20	0.05	08/29/12 14:00	09/04/12 12:00	MMF
Nitrate+Nitrite (N)	mg/L	2.0	EPA 300.0	0.08	0.02		08/29/12 17:36	JAG

Sample Description		**PZ-03O-17**						
Matrix		**Groundwater**						
SAL Sample Number		**1209601-02**						
Date/Time Collected		**08/28/12 09:20**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/28/12 15:55**						
Field Parameters								
pH	SU	6.3	DEP FT1100	0.1	0.1		08/28/12 09:20	SAS
Water Temperature	°C	25.8	DEP FT1400	0.1	0.1		08/28/12 09:20	SAS
Specific conductance	umhos/cm	60	DEP FT1200	0.1	0.1		08/28/12 09:20	SAS
Dissolved Oxygen	mg/L	2.3	DEP FT1500	0.1	0.1		08/28/12 09:20	SAS
Inorganics								
Ammonia as N	mg/L	0.025 I	EPA 350.1	0.040	0.009		09/04/12 14:15	MMF
Chloride	mg/L	0.94	EPA 300.0	0.20	0.050		08/29/12 17:36	JAG
Nitrate (as N)	mg/L	1.1	EPA 300.0	0.04	0.01		08/29/12 17:36	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		08/29/12 17:36	JAG
Total Alkalinity	mg/L	22	SM 2320B	8.0	2.0	08/29/12 10:00	08/29/12 16:46	AES
Total Kjeldahl Nitrogen	mg/L	0.52	EPA 351.2	0.20	0.05	08/29/12 14:00	09/04/12 12:01	MMF
Nitrate+Nitrite (N)	mg/L	1.1	EPA 300.0	0.08	0.02		08/29/12 17:36	JAG

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

September 10, 2012
Work Order: 1209601

Laboratory Report

Project Name **C-HS3 SE#1**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**PZ-03O-17 Dup**						
Matrix		**Groundwater**						
SAL Sample Number		**1209601-03**						
Date/Time Collected		**08/28/12 09:25**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/28/12 15:55**						
Field Parameters								
pH	SU	6.3	DEP FT1100	0.1	0.1		08/28/12 09:25	SAS
Water Temperature	°C	25.8	DEP FT1400	0.1	0.1		08/28/12 09:25	SAS
Specific conductance	umhos/cm	60	DEP FT1200	0.1	0.1		08/28/12 09:25	SAS
Dissolved Oxygen	mg/L	2.3	DEP FT1500	0.1	0.1		08/28/12 09:25	SAS
Inorganics								
Ammonia as N	mg/L	0.028 I	EPA 350.1	0.040	0.009		09/04/12 14:16	MMF
Chloride	mg/L	0.92	EPA 300.0	0.20	0.050		08/29/12 17:36	JAG
Nitrate (as N)	mg/L	1.1	EPA 300.0	0.04	0.01		08/29/12 17:36	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		08/29/12 17:36	JAG
Total Alkalinity	mg/L	16	SM 2320B	8.0	2.0	08/29/12 10:00	08/29/12 16:46	AES
Total Kjeldahl Nitrogen	mg/L	0.47	EPA 351.2	0.20	0.05	08/29/12 14:00	09/04/12 12:03	MMF
Nitrate+Nitrite (N)	mg/L	1.1	EPA 300.0	0.08	0.02		08/29/12 17:36	JAG

Sample Description		**PZ-03O-21**						
Matrix		**Groundwater**						
SAL Sample Number		**1209601-04**						
Date/Time Collected		**08/28/12 09:42**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/28/12 15:55**						
Field Parameters								
pH	SU	4.5	DEP FT1100	0.1	0.1		08/28/12 09:42	SAS
Water Temperature	°C	25.7	DEP FT1400	0.1	0.1		08/28/12 09:42	SAS
Specific conductance	umhos/cm	181	DEP FT1200	0.1	0.1		08/28/12 09:42	SAS
Dissolved Oxygen	mg/L	2.2	DEP FT1500	0.1	0.1		08/28/12 09:42	SAS
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		09/04/12 13:27	MMF
Chloride	mg/L	13	EPA 300.0	0.20	0.050		08/29/12 17:36	JAG
Nitrate (as N)	mg/L	8.3	EPA 300.0	0.04	0.01		08/29/12 17:36	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		08/29/12 17:36	JAG
Total Alkalinity	mg/L	2.1 I	SM 2320B	8.0	2.0	08/29/12 10:00	08/29/12 16:46	AES
Total Kjeldahl Nitrogen	mg/L	1.5	EPA 351.2	0.20	0.05	08/29/12 14:00	09/04/12 12:04	MMF
Nitrate+Nitrite (N)	mg/L	8.3	EPA 300.0	0.08	0.02		08/29/12 17:36	JAG

SOUTHERN ANALYTICAL LABORATORIES, INC.
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Hazen and Sawyer
10002 Princess Palm Ave, Suite 200
Tampa, FL 33619

September 10, 2012
Work Order: 1209601

Laboratory Report

Project Name **C-HS3 SE#1**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**PZ-04O-15**						
Matrix		**Groundwater**						
SAL Sample Number		**1209601-05**						
Date/Time Collected		**08/28/12 10:04**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/28/12 15:55**						
Field Parameters								
pH	SU	6.0	DEP FT1100	0.1	0.1		08/28/12 10:04	SAS
Water Temperature	°C	26.1	DEP FT1400	0.1	0.1		08/28/12 10:04	SAS
Specific conductance	umhos/cm	149	DEP FT1200	0.1	0.1		08/28/12 10:04	SAS
Dissolved Oxygen	mg/L	2.3	DEP FT1500	0.1	0.1		08/28/12 10:04	SAS
Inorganics								
Ammonia as N	mg/L	0.030 I	EPA 350.1	0.040	0.009		09/04/12 13:28	MMF
Chemical Oxygen Demand	mg/L	15 I	EPA 410.4	25	10	09/04/12 12:30	09/04/12 14:45	CDB
Chloride	mg/L	8.3	EPA 300.0	0.20	0.050		08/29/12 17:36	JAG
Fluoride	mg/L	0.14	EPA 300.0	0.040	0.010		08/29/12 17:36	JAG
Nitrate (as N)	mg/L	5.6	EPA 300.0	0.04	0.01		08/29/12 17:36	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		08/29/12 17:36	JAG
Orthophosphate as P	mg/L	0.44	EPA 300.0	0.040	0.010		08/29/12 17:36	JAG
Phosphorous - Total as P	mg/L	0.67	SM 4500P-E	0.040	0.010	08/30/12 10:50	08/31/12 14:07	MMF
Sulfate	mg/L	14	EPA 300.0	0.60	0.20		08/29/12 17:36	JAG
Total Alkalinity	mg/L	17	SM 2320B	8.0	2.0	08/29/12 10:00	08/29/12 16:46	AES
Total Kjeldahl Nitrogen	mg/L	2.0	EPA 351.2	0.20	0.05	08/29/12 14:00	09/04/12 12:05	MMF
Total Organic Carbon	mg/L	4.9	SM 5310B	1.0	0.50		08/29/12 09:37	MEJ
Nitrate+Nitrite (N)	mg/L	5.6	EPA 300.0	0.08	0.02		08/29/12 17:36	JAG
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	4.6	SM 5310B	1.0	0.50		09/01/12 10:10	MEJ
Metals								
Boron	mg/L	0.050 U	EPA 200.7	0.10	0.050	08/30/12 12:28	08/31/12 16:30	VWC
Calcium	mg/L	17	EPA 200.7	0.50	0.042	08/30/12 12:28	08/31/12 16:30	VWC
Iron	mg/L	0.21	EPA 200.7	0.10	0.020	08/30/12 12:28	08/31/12 16:30	VWC
Magnesium	mg/L	2.3	EPA 200.7	0.50	0.020	08/30/12 12:28	08/31/12 16:30	VWC
Manganese	mg/L	0.0026 I	EPA 200.7	0.010	0.0010	08/30/12 12:28	08/31/12 16:30	VWC
Potassium	mg/L	2.2	EPA 200.7	0.050	0.010	08/30/12 12:28	08/31/12 16:30	VWC
Sodium	mg/L	11	EPA 200.7	0.50	0.13	08/30/12 12:28	08/31/12 16:30	VWC

Sample Description		**PZ-04O-17**						
Matrix		**Groundwater**						
SAL Sample Number		**1209601-06**						
Date/Time Collected		**08/28/12 10:28**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/28/12 15:55**						
Field Parameters								
pH	SU	6.3	DEP FT1100	0.1	0.1		08/28/12 10:28	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

September 10, 2012
Work Order: 1209601

Laboratory Report

Project Name **C-HS3 SE#1**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**PZ-04O-17**						
Matrix		**Groundwater**						
SAL Sample Number		**1209601-06**						
Date/Time Collected		**08/28/12 10:28**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/28/12 15:55**						
Water Temperature	°C	25.8	DEP FT1400	0.1	0.1		08/28/12 10:28	SAS
Specific conductance	umhos/cm	100	DEP FT1200	0.1	0.1		08/28/12 10:28	SAS
Dissolved Oxygen	mg/L	2.4	DEP FT1500	0.1	0.1		08/28/12 10:28	SAS
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		09/04/12 13:30	MMF
Chloride	mg/L	2.4	EPA 300.0	0.20	0.050		08/29/12 17:36	JAG
Nitrate (as N)	mg/L	2.9	EPA 300.0	0.04	0.01		08/29/12 17:36	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		08/29/12 17:36	JAG
Total Alkalinity	mg/L	22	SM 2320B	8.0	2.0	08/29/12 10:00	08/29/12 16:46	AES
Total Kjeldahl Nitrogen	mg/L	1.0	EPA 351.2	0.20	0.05	08/29/12 14:00	09/04/12 12:07	MMF
Nitrate+Nitrite (N)	mg/L	2.9	EPA 300.0	0.08	0.02		08/29/12 17:36	JAG
Sample Description		**PZ-04O-21**						
Matrix		**Groundwater**						
SAL Sample Number		**1209601-07**						
Date/Time Collected		**08/28/12 10:48**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/28/12 15:55**						
Field Parameters								
pH	SU	4.9	DEP FT1100	0.1	0.1		08/28/12 10:48	SAS
Water Temperature	°C	26.0	DEP FT1400	0.1	0.1		08/28/12 10:48	SAS
Specific conductance	umhos/cm	150	DEP FT1200	0.1	0.1		08/28/12 10:48	SAS
Dissolved Oxygen	mg/L	3.3	DEP FT1500	0.1	0.1		08/28/12 10:48	SAS
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		09/04/12 13:32	MMF
Chloride	mg/L	12	EPA 300.0	0.20	0.050		08/29/12 17:36	JAG
Nitrate (as N)	mg/L	6.5	EPA 300.0	0.04	0.01		08/29/12 17:36	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		08/29/12 17:36	JAG
Total Alkalinity	mg/L	5.2 I	SM 2320B	8.0	2.0	08/29/12 10:00	08/29/12 16:46	AES
Total Kjeldahl Nitrogen	mg/L	1.3	EPA 351.2	0.20	0.05	08/29/12 14:00	09/04/12 12:08	MMF
Nitrate+Nitrite (N)	mg/L	6.5	EPA 300.0	0.08	0.02		08/29/12 17:36	JAG

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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

September 10, 2012
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Laboratory Report

Project Name **C-HS3 SE#1**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**PZ-07O-15**						
Matrix		**Groundwater**						
SAL Sample Number		**1209601-08**						
Date/Time Collected		**08/28/12 11:13**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/28/12 15:55**						
Field Parameters								
pH	SU	6.0	DEP FT1100	0.1	0.1		08/28/12 11:13	SAS
Water Temperature	°C	27.0	DEP FT1400	0.1	0.1		08/28/12 11:13	SAS
Specific conductance	umhos/cm	93	DEP FT1200	0.1	0.1		08/28/12 11:13	SAS
Dissolved Oxygen	mg/L	4.6	DEP FT1500	0.1	0.1		08/28/12 11:13	SAS
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		09/04/12 13:33	MMF
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	09/04/12 08:40	09/04/12 10:55	CDB
Chloride	mg/L	1.4	EPA 300.0	0.20	0.050		08/29/12 17:36	JAG
Nitrate (as N)	mg/L	3.4	EPA 300.0	0.04	0.01		08/29/12 17:36	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		08/29/12 17:36	JAG
Phosphorous - Total as P	mg/L	0.22	SM 4500P-E	0.040	0.010	08/30/12 10:50	08/31/12 14:08	MMF
Total Alkalinity	mg/L	21	SM 2320B	8.0	2.0	08/29/12 10:00	08/29/12 16:46	AES
Total Kjeldahl Nitrogen	mg/L	1.0	EPA 351.2	0.20	0.05	08/29/12 14:00	09/04/12 12:09	MMF
Nitrate+Nitrite (N)	mg/L	3.4	EPA 300.0	0.08	0.02		08/29/12 17:36	JAG

Sample Description		**PZ-07O-17**						
Matrix		**Groundwater**						
SAL Sample Number		**1209601-09**						
Date/Time Collected		**08/28/12 11:34**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/28/12 15:55**						
Field Parameters								
pH	SU	6.4	DEP FT1100	0.1	0.1		08/28/12 11:34	SAS
Water Temperature	°C	27.1	DEP FT1400	0.1	0.1		08/28/12 11:34	SAS
Specific conductance	umhos/cm	84	DEP FT1200	0.1	0.1		08/28/12 11:34	SAS
Dissolved Oxygen	mg/L	2.4	DEP FT1500	0.1	0.1		08/28/12 11:34	SAS
Inorganics								
Ammonia as N	mg/L	0.36	EPA 350.1	0.040	0.009		09/04/12 14:46	MMF
Chloride	mg/L	1.1	EPA 300.0	0.20	0.050		08/29/12 17:36	JAG
Nitrate (as N)	mg/L	1.8	EPA 300.0	0.04	0.01		08/29/12 17:36	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		08/29/12 17:36	JAG
Total Alkalinity	mg/L	32	SM 2320B	8.0	2.0	08/29/12 10:00	08/29/12 16:46	AES
Total Kjeldahl Nitrogen	mg/L	3.0	EPA 351.2	0.20	0.05	08/29/12 14:00	09/04/12 12:11	MMF
Nitrate+Nitrite (N)	mg/L	1.8	EPA 300.0	0.08	0.02		08/29/12 17:36	JAG

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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

September 10, 2012
Work Order: 1209601

Laboratory Report

Project Name		**C-HS3 SE#1**						
Parameters	**Units**	**Results ***	**Method**	**PQL**	**MDL**	**Prepared**	**Analyzed**	**By**
Sample Description		**PZ-07O-20**						
Matrix		**Groundwater**						
SAL Sample Number		**1209601-10**						
Date/Time Collected		**08/28/12 11:47**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/28/12 15:55**						
Field Parameters								
pH	SU	5.3	DEP FT1100	0.1	0.1		08/28/12 11:47	SAS
Water Temperature	°C	26.2	DEP FT1400	0.1	0.1		08/28/12 11:47	SAS
Specific conductance	umhos/cm	129	DEP FT1200	0.1	0.1		08/28/12 11:47	SAS
Dissolved Oxygen	mg/L	3.2	DEP FT1500	0.1	0.1		08/28/12 11:47	SAS
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		09/04/12 14:48	MMF
Chloride	mg/L	11	EPA 300.0	0.20	0.050		08/29/12 17:36	JAG
Nitrate (as N)	mg/L	6.8	EPA 300.0	0.04	0.01		08/29/12 17:36	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		08/29/12 17:36	JAG
Total Alkalinity	mg/L	7.4 I	SM 2320B	8.0	2.0	08/29/12 10:00	08/29/12 16:46	AES
Total Kjeldahl Nitrogen	mg/L	2.6	EPA 351.2	0.20	0.05	08/29/12 14:00	09/04/12 12:12	MMF
Nitrate+Nitrite (N)	mg/L	6.8	EPA 300.0	0.08	0.02		08/29/12 17:36	JAG

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Tampa, FL 33619

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BH22908 - Ion Chromatography 300.0 Prep										
Blank (BH22908-BLK1)					Prepared & Analyzed: 08/29/12					
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						
Fluoride	0.010 U	0.040	0.010	mg/L						
Sulfate	0.20 U	0.60	0.20	mg/L						
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
Orthophosphate as P	0.010 U	0.040	0.010	mg/L						
Chloride	0.050 U	0.20	0.050	mg/L						
LCS (BH22908-BS1)					Prepared & Analyzed: 08/29/12					
Chloride	2.89	0.20	0.050	mg/L	3.0		96	85-115		
Fluoride	0.936	0.040	0.010	mg/L	0.90		104	85-115		
Nitrite (as N)	1.41	0.04	0.01	mg/L	1.4		101	85-115		
Nitrate (as N)	1.68	0.04	0.01	mg/L	1.7		99	85-115		
Orthophosphate as P	0.987	0.040	0.010	mg/L	0.90		110	85-115		
Sulfate	8.89	0.60	0.20	mg/L	9.0		99	85-115		
LCS Dup (BH22908-BSD1)					Prepared & Analyzed: 08/29/12					
Nitrite (as N)	1.41	0.04	0.01	mg/L	1.4		101	85-115	0	200
Fluoride	0.964	0.040	0.010	mg/L	0.90		107	85-115	3	200
Orthophosphate as P	0.990	0.040	0.010	mg/L	0.90		110	85-115	0.3	200
Chloride	2.88	0.20	0.050	mg/L	3.0		96	85-115	0.3	200
Sulfate	8.83	0.60	0.20	mg/L	9.0		98	85-115	0.7	200
Nitrate (as N)	1.67	0.04	0.01	mg/L	1.7		98	85-115	0.6	200
Matrix Spike (BH22908-MS1)		**Source: 1209592-09**			Prepared & Analyzed: 08/29/12					
Chloride	9.35	0.20	0.050	mg/L	3.0	6.11	108	80-120		
Nitrate (as N)	5.01	0.04	0.01	mg/L	1.7	3.14	110	85-115		
Nitrite (as N)	1.38	0.04	0.01	mg/L	1.4	ND	99	85-115		
Orthophosphate as P	0.812	0.040	0.010	mg/L	0.90	ND	90	85-115		
Fluoride	0.832	0.040	0.010	mg/L	0.90	ND	92	85-115		
Sulfate	35.5	0.60	0.20	mg/L	9.0	26.0	106	85-115		

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BH22908 - Ion Chromatography 300.0 Prep										
Matrix Spike (BH22908-MS2)		**Source: 1209601-10**			Prepared & Analyzed: 08/29/12					
Fluoride	0.881	0.040	0.010	mg/L	0.90	ND	98	85-115		
Nitrate (as N)	8.52	0.04	0.01	mg/L	1.7	6.84	99	85-115		
Nitrite (as N)	1.37	0.04	0.01	mg/L	1.4	ND	98	85-115		
Orthophosphate as P	0.815	0.040	0.010	mg/L	0.90	ND	91	85-115		
Sulfate	15.0	0.60	0.20	mg/L	9.0	6.28	97	85-115		
Chloride	13.6	0.20	0.050	mg/L	3.0	10.7	97	80-120		
Batch BH22915 - Digestion for TKN by EPA 351.2										
Blank (BH22915-BLK1)					Prepared: 08/29/12 Analyzed: 09/04/12					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
LCS (BH22915-BS1)					Prepared: 08/29/12 Analyzed: 09/04/12					
Total Kjeldahl Nitrogen	2.43	0.20	0.05	mg/L	2.5		96	90-110		
Matrix Spike (BH22915-MS1)		**Source: 1209592-07**			Prepared: 08/29/12 Analyzed: 09/04/12					
Total Kjeldahl Nitrogen	4.02	0.20	0.05	mg/L	2.5	1.74	90	80-120		
Matrix Spike Dup (BH22915-MSD1)		**Source: 1209592-07**			Prepared: 08/29/12 Analyzed: 09/04/12					
Total Kjeldahl Nitrogen	3.79	0.20	0.05	mg/L	2.5	1.74	81	80-120	6	20
Batch BH22925 - TOC prep										
Blank (BH22925-BLK1)					Prepared & Analyzed: 08/29/12					
Total Organic Carbon	0.50 U	1.0	0.50	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 BH22925 - TOC prep										
LCS (BH22925-BS1)					Prepared & Analyzed: 08/29/12					
Total Organic Carbon	9.94	1.0	0.50	mg/L	10		99	90-110		
Matrix Spike (BH22925-MS1)		**Source: 1209777-02**			Prepared & Analyzed: 08/29/12					
Total Organic Carbon	11.5	1.0	0.50	mg/L	10	0.962	105	85-115		
Matrix Spike Dup (BH22925-MSD1)		**Source: 1209777-02**			Prepared & Analyzed: 08/29/12					
Total Organic Carbon	10.7	1.0	0.50	mg/L	10	0.962	98	85-115	7	10
Batch BH22934 - alkalinity										
Blank (BH22934-BLK1)					Prepared & Analyzed: 08/29/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
Blank (BH22934-BLK2)					Prepared & Analyzed: 08/29/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
LCS (BH22934-BS1)					Prepared & Analyzed: 08/29/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		
LCS (BH22934-BS2)					Prepared & Analyzed: 08/29/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		
Matrix Spike (BH22934-MS1)		**Source: 1209581-04**			Prepared & Analyzed: 08/29/12					
Total Alkalinity	130	8.0	2.0	mg/L	120	16	91	80-120		
Matrix Spike (BH22934-MS2)		**Source: 1209674-01**			Prepared & Analyzed: 08/29/12					
Total Alkalinity	360	8.0	2.0	mg/L	120	240	95	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 BH22934 - alkalinity										
Matrix Spike Dup (BH22934-MSD1)		**Source: 1209581-04**			Prepared & Analyzed: 08/29/12					
Total Alkalinity	140	8.0	2.0	mg/L	120	16	100	80-120	8	26
Matrix Spike Dup (BH22934-MSD2)		**Source: 1209674-01**			Prepared & Analyzed: 08/29/12					
Total Alkalinity	370	8.0	2.0	mg/L	120	240	103	80-120	3	26
Batch BH23010 - Digestion for TP by EPA 365.2/SM4500PE										
Blank (BH23010-BLK1)					Prepared: 08/30/12 Analyzed: 08/31/12					
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						
LCS (BH23010-BS1)					Prepared: 08/30/12 Analyzed: 08/31/12					
Phosphorous - Total as P	0.741	0.040	0.010	mg/L	0.80		93	90-110		
Matrix Spike (BH23010-MS1)		**Source: 1209698-01**			Prepared: 08/30/12 Analyzed: 08/31/12					
Phosphorous - Total as P	1.25	0.040	0.010	mg/L	1.0	0.318	93	75-125		
Matrix Spike Dup (BH23010-MSD1)		**Source: 1209698-01**			Prepared: 08/30/12 Analyzed: 08/31/12					
Phosphorous - Total as P	1.30	0.040	0.010	mg/L	1.0	0.318	98	75-125	4	25
Batch BI20402 - COD prep										
Blank (BI20402-BLK1)					Prepared & Analyzed: 09/04/12					
Chemical Oxygen Demand	10 U	25	10	mg/L						
LCS (BI20402-BS1)					Prepared & Analyzed: 09/04/12					
Chemical Oxygen Demand	47	25	10	mg/L	50		94	90-110		

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI20402 - COD prep										
Matrix Spike (BI20402-MS1)		**Source: 1209581-02**			Prepared & Analyzed: 09/04/12					
Chemical Oxygen Demand	51	25	10	mg/L	50	ND	102	85-115		
Matrix Spike Dup (BI20402-MSD1)		**Source: 1209581-02**			Prepared & Analyzed: 09/04/12					
Chemical Oxygen Demand	47	25	10	mg/L	50	ND	94	85-115	8	32
Batch BI20403 - Ammonia by SEAL										
Blank (BI20403-BLK1)					Prepared & Analyzed: 09/04/12					
Ammonia as N	0.009 U	0.040	0.009	mg/L						
LCS (BI20403-BS1)					Prepared & Analyzed: 09/04/12					
Ammonia as N	0.50	0.040	0.009	mg/L	0.50		99	90-110		
Matrix Spike (BI20403-MS1)		**Source: 1209582-01**			Prepared & Analyzed: 09/04/12					
Ammonia as N	0.56	0.040	0.009	mg/L	0.50	0.066	98	90-110		
Matrix Spike Dup (BI20403-MSD1)		**Source: 1209582-01**			Prepared & Analyzed: 09/04/12					
Ammonia as N	0.56	0.040	0.009	mg/L	0.50	0.066	98	90-110	0.2	10
Batch BI20416 - COD prep										
Blank (BI20416-BLK1)					Prepared & Analyzed: 09/04/12					
Chemical Oxygen Demand	10 U	25	10	mg/L						
LCS (BI20416-BS1)					Prepared & Analyzed: 09/04/12					
Chemical Oxygen Demand	54	25	10	mg/L	50		108	90-110		

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI20416 - COD prep										
Matrix Spike (BI20416-MS1)		**Source: 1209647-02**			Prepared & Analyzed: 09/04/12					
Chemical Oxygen Demand	54	25	10	mg/L	50	ND	108	85-115		
Matrix Spike Dup (BI20416-MSD1)		**Source: 1209647-02**			Prepared & Analyzed: 09/04/12					
Chemical Oxygen Demand	54	25	10	mg/L	50	ND	108	85-115	0	32
Batch BI20435 - Ammonia by SEAL										
Blank (BI20435-BLK1)					Prepared & Analyzed: 09/04/12					
Ammonia as N	0.009 U	0.040	0.009	mg/L						
LCS (BI20435-BS1)					Prepared & Analyzed: 09/04/12					
Ammonia as N	0.50	0.040	0.009	mg/L	0.50		99	90-110		
Matrix Spike (BI20435-MS1)		**Source: 1209714-07**			Prepared & Analyzed: 09/04/12					
Ammonia as N	0.50	0.040	0.009	mg/L	0.50	0.024	95	90-110		
Matrix Spike Dup (BI20435-MSD1)		**Source: 1209714-07**			Prepared & Analyzed: 09/04/12					
Ammonia as N	0.51	0.040	0.009	mg/L	0.50	0.024	98	90-110	2	10

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Work Order: 1209601

Inorganic, Dissolved - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI20431 - TOC prep										
Blank (BI20431-BLK1)					Prepared & Analyzed: 09/01/12					
Dissolved Organic Carbon	0.50 U	1.0	0.50	mg/L						
LCS (BI20431-BS1)					Prepared & Analyzed: 09/01/12					
Dissolved Organic Carbon	10.3	1.0	0.50	mg/L	10		103	90-110		
Matrix Spike (BI20431-MS1)		**Source: 1209647-01**			Prepared & Analyzed: 09/01/12					
Dissolved Organic Carbon	8.69	1.0	0.50	mg/L	10	ND	87	85-125		
Matrix Spike Dup (BI20431-MSD1)		**Source: 1209647-01**			Prepared & Analyzed: 09/01/12					
Dissolved Organic Carbon	9.79	1.0	0.50	mg/L	10	ND	98	85-125	12	25

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

September 10, 2012
Work Order: 1209601

Metals - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BH23028 - Metals Preparation for EPA Method 200.7										
Blank (BH23028-BLK1)					Prepared: 08/30/12 Analyzed: 08/31/12					
Manganese	0.0010 U	0.010	0.0010	mg/L						
Magnesium	0.049 I	0.50	0.020	mg/L						
Calcium	0.055 I	0.50	0.042	mg/L						
Iron	0.020 U	0.10	0.020	mg/L						
Boron	0.050 U	0.10	0.050	mg/L						
Sodium	0.13 U	0.50	0.13	mg/L						
Potassium	0.033 I	0.050	0.010	mg/L						
LCS (BH23028-BS1)					Prepared: 08/30/12 Analyzed: 08/31/12					
Boron	0.41	0.10	0.050	mg/L	0.40		103	85-115		
Calcium	20	0.50	0.042	mg/L	20		99	85-115		
Sodium	21	0.50	0.13	mg/L	20		106	85-115		
Iron	8.1	0.10	0.020	mg/L	8.0		101	85-115		
Potassium	19	0.050	0.010	mg/L	20		96	85-115		
Magnesium	20	0.50	0.020	mg/L	20		98	85-115		
Manganese	0.40	0.010	0.0010	mg/L	0.40		100	85-115		
Matrix Spike (BH23028-MS1)		**Source: 1209677-01**			Prepared: 08/30/12 Analyzed: 08/31/12					
Sodium	32	0.50	0.13	mg/L	20	12	103	70-130		
Manganese	0.40	0.010	0.0010	mg/L	0.40	ND	101	70-130		
Potassium	21	0.050	0.010	mg/L	20	0.98	100	70-130		
Boron	0.46	0.10	0.050	mg/L	0.40	ND	115	70-130		
Magnesium	35	0.50	0.020	mg/L	20	16	98	70-130		
Iron	8.2	0.10	0.020	mg/L	8.0	ND	102	70-130		
Calcium	64	0.50	0.042	mg/L	20	45	98	70-130		
Matrix Spike (BH23028-MS2)		**Source: 1209724-01**			Prepared: 08/30/12 Analyzed: 08/31/12					
Magnesium	41	0.50	0.020	mg/L	20	20	105	70-130		
Potassium	33	0.050	0.010	mg/L	20	12	103	70-130		
Calcium	330 J5	0.50	0.042	mg/L	20	300	141	70-130		
Iron	9.5	0.10	0.020	mg/L	8.0	1.2	103	70-130		
Boron	0.66	0.10	0.050	mg/L	0.40	0.21	112	70-130		
Sodium	42	0.50	0.13	mg/L	20	20	112	70-130		
Manganese	0.48	0.010	0.0010	mg/L	0.40	0.072	101	70-130		

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

September 10, 2012
Work Order: 1209601

Metals - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BH23028 - Metals Preparation for EPA Method 200.7										
Matrix Spike Dup (BH23028-MSD1)		**Source: 1209677-01**			Prepared: 08/30/12 Analyzed: 08/31/12					
Potassium	20	0.050	0.010	mg/L	20	0.98	96	70-130	4	30
Calcium	63	0.50	0.042	mg/L	20	45	89	70-130	3	30
Sodium	32	0.50	0.13	mg/L	20	12	100	70-130	2	30
Boron	0.46	0.10	0.050	mg/L	0.40	ND	115	70-130	0.5	30
Manganese	0.40	0.010	0.0010	mg/L	0.40	ND	100	70-130	1	30
Iron	8.0	0.10	0.020	mg/L	8.0	ND	100	70-130	2	30
Magnesium	34	0.50	0.020	mg/L	20	16	92	70-130	3	30
Matrix Spike Dup (BH23028-MSD2)		**Source: 1209724-01**			Prepared: 08/30/12 Analyzed: 08/31/12					
Manganese	0.47	0.010	0.0010	mg/L	0.40	0.072	100	70-130	1	30
Magnesium	40	0.50	0.020	mg/L	20	20	98	70-130	3	30
Sodium	40	0.50	0.13	mg/L	20	20	101	70-130	5	30
Potassium	31	0.050	0.010	mg/L	20	12	97	70-130	4	30
Calcium	310 J5	0.50	0.042	mg/L	20	300	50	70-130	6	30
Boron	0.65	0.10	0.050	mg/L	0.40	0.21	110	70-130	1	30
Iron	9.3	0.10	0.020	mg/L	8.0	1.2	101	70-130	1	30

Hazen and Sawyer
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September 10, 2012
Work Order: 1209601

* Qualifiers, Notes and Definitions

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

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

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

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

J5 Matrix spike of this sample was outside typical range. All other QC criteria were acceptable.

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

SAL Project No. 1209601

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: C-HS3 SE#1

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 No.	Sample Description	Date	Time	Matrix	Composite	Grab	1LP, Cool Alkalinity, Cl, NOx	250mL P, H_2SO_4 COD, TKN, NH_3, TP	250mL P, H_2SO_4 TKN, NH_3	1LP, Cool Alkalinity, Nox, Cl, F, OP, SO4	40mLaV, HCl TOC	250mLaG, Cool DOC	250mL P, HNO3 B, Ca, Fe, Mg, Mn, K, Na				DO	pH	Conductivity	Temperature	No. of Containers (Total per each location)
01	PZ-03O-15	082812	0858	GW		X	1	1									2.38	6.5	152.1	26.1	
02	PZ-03O-17		0920	GW		X	1		1								2.28	6.3	59.8	25.8	
03	PZ-03O-17 Dup		0925	GW		X	1		1								2.28	6.3	59.8	25.8	
04	PZ-03O-21		0942	GW		X	1		1								2.18	4.5	180.9	25.7	
05	PZ-04O-15		1004	GW		X		1		1	2	1	1				2.30	6.0	149.4	26.1	
06	PZ-04O-17		1028	GW		X	1		1								2.40	6.3	100.1	25.8	
07	PZ-04O-21		1048	GW		X	1		1								3.28	4.9	150.1	26.0	
08	PZ-07O-15		1113	GW		X	1	1									4.58	6.0	95.0	22.0	
09	PZ-07O-17		1134	GW		X	1		1								2.45	6.4	84.3	27.1	
10	PZ-07O-20		1147	GW		X	1		1								3.18	5.3	128.8	26.2	

Relinquished:	Date/Time:	Received:	Date/Time:
Containers Prepared/ Relinquished: J Chambers	8-27-12 11:53		1153 082712
Relinquished:	1555 082812		1555 08-28-12
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

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

1209601

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

Chain of Custody

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	052812	SAL Project #	P09601	Project Name	C-HS3 SE#1
Well Number	PZ-030-15	Sample ID	01	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1.0	WELL CAPACITY (gal/ft)	0.04	Screen Interval (Feet)	UNK To UNK	Static Depth to Water (Feet)	9.44	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	14.78	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)		TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	

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

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

ONE WELL VOLUME	0.213	1/4 WELL VOLUME		3 WELL VOLUMES	0.64	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	0842	PURGE TIME END	0857	TOTAL PURGED	1.50

INST. ID					SAL-SAM-63-01	SAL-SAM-65-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
0845	0.30	0.30	0.10	10.26	6.4	26.2	121.8	2.24	426	BROWN	NONE
0848	0.30	0.60			6.5	26.1	130.1	2.92	140	CLOUDY	
0851	0.30	0.90			6.5	26.1	143.9	2.54	41.5		
0854	0.30	1.20			6.5	26.1	148.3	2.39	23.5		
0857	0.30	1.50			6.5	26.1	152.1	2.38	21.9	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	0858	SAMPLING ENDED	0859	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	cloudy, 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	082612	SAL Project #	1209601	Project Name	C-HS3 SE#1
Well Number	PZ-03O-17	Sample ID	02	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1.0	WELL CAPACITY (gal/ft)	0.04	Screen Interval (Feet)	UNK	To	UNK	Static Depth to Water (Feet)	9.20	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	11.00	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	0.312	1/4 WELL VOLUME		3 WELL VOLUMES	0.936	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	0903	PURGE TIME END	0919	TOTAL PURGED	1.60	
INST. ID				SAL-SAM-63-01	SAL-SAM-65-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01			
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
0907	0.40	0.40	0.10	10.24	6.6	25.8	59.4	0.48	MAX	BROWN	NONE
0910	0.30	0.70			6.5	25.8	59.1	0.32	MAX		
0913	0.30	1.00			6.4	25.8	59.2	0.30	MAX		
0916	0.30	1.30			6.3	25.8	59.5	0.30	599		
0919	0.30	1.60			6.3	25.8	59.8	0.28	314		

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL			SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT		SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED	0920	SAMPLING ENDED	0921	FIELD CLEANED	Y N	CLEANING STEPS	
FIELD FILTERED?	Y N	FILTER SIZE (µm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A
SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A						
PRESERVATION CHECKED IN FIELD?	Y N N/A	LIST PRESERVATIVES ADDED					
WEATHER CONDITIONS	Cloudy, 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	082812	SAL Project #	12096601	Project Name	C-HS3 SE#1
Well Number	PZ-03O-17 Dup	Sample ID	03	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1.0	WELL CAPACITY (gal/ft)	0.04	Screen Interval (Feet)	UNK To UNK	Static Depth to Water (Feet)	9.20	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	17.00	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	0.312	1/4 WELL VOLUME		3 WELL VOLUMES	0.936	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	0803	PURGE TIME END	0919	TOTAL PURGED	1.60
INST. ID				SAL-SAM-63-01	SAL-SAM-65-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01	

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
0907	0.40	0.40	0.10	10.24	6.6	25.8	59.4	0.48	MAX	BROWN	NONE
0910	0.30	0.70			6.5	25.8	59.1	0.32	MAX		
0913	0.30	1.00			6.4	25.8	59.2	0.30	MAX		
0916	0.30	1.30			6.3	25.8	59.5	0.30	599		
0919	0.30	1.60			6.3	25.8	59.8	0.28	314		

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL			SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP (TL) TT		SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED	0925	SAMPLING ENDED	0926	FIELD CLEANED	Y (N)	CLEANING STEPS	
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)
SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)						
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED					
WEATHER CONDITIONS	Cloudy, 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	082812	SAL Project #	~~1209582~~ 1209601	Project Name	C-HS3 SE#1
Well Number	PZ-03O-21	Sample ID	04	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1.0	WELL CAPACITY (gal/ft)	0.04	Screen Interval (Feet)	UNK To UNK	Static Depth to Water (Feet)	9.48	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	21.00	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	0.46	1/4 WELL VOLUME		3 WELL VOLUMES	1.38	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	0926	PURGE TIME END	0941	TOTAL PURGED	3.00
INST. ID				SAL-SAM-63-01	SAL-SAM-65-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01	

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
0929	0.60	0.60	0.20	10.30	4.8	25.9	148.4	0.40	MAX	BROWN	NONE
0932	0.60	1.20			4.6	25.7	177.4	0.39	MAX		
0935	0.60	1.80			4.6	25.7	179.6	0.34	630		
0938	0.60	2.40			4.5	25.7	180.8	0.19	85.7	CLOUDY	
0941	0.60	3.00			4.5	25.7	180.9	0.18	54.9		

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	0942	SAMPLING ENDED	0943	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	Cloudy. 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	082812	SAL Project #	1209601	Project Name	C-HS3 SE#1
Well Number	PZ-040-15	Sample ID	05	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1.0	WELL CAPACITY (gal/ft)	0.04	Screen Interval (Feet)	UNK To UNK	Static Depth to Water (Feet)	8.98	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	14.78	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)		TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	

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

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

ONE WELL VOLUME	0.232	1/4 WELL VOLUME		3 WELL VOLUMES	0.696	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	1003	TOTAL PURGED	1.50
INST. ID				SAL-SAM-63-01	SAL-SAM-65-01	SAL-SAM-63-01	SAL-SAM-55-02	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)
0951	0.30	0.30	0.10	9.97	5.6	26.2	133.9	0.58	MAX	BROWN	NONE
0954	0.30	0.60			5.8	26.1	142.1	0.40	167	CLOUDY	
0957	0.30	0.90			5.9	26.1	145.8	0.34	131		
1000	0.30	1.20			6.0	26.1	148.4	0.30	58.3		
1003	0.30	1.50			6.0	26.1	149.4	0.30	48.9		

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	1004	SAMPLING ENDED	1005	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	Cloudy, 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	082812	SAL Project #	1209601	Project Name	C-HS3 SE#1
Well Number	PZ-040-17	Sample ID	06	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	0.75	WELL CAPACITY (gal/ft)	0.02	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	10.18	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	17.00	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	0.137	1/4 WELL VOLUME		3 WELL VOLUMES	0.411	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	1012	PURGE TIME END	1027	TOTAL PURGED	1.50
INST. ID	X	X	X	X	SAL-SAM-63-01	SAL-SAM-65-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
1015	0.30	0.30	0.10	10.86	6.2	25.8	92.8	2.85	MAX	BROWN	NONE
1018	0.30	0.60	|	|	6.3	25.8	96.3	2.60	MAX	|	|
1021	0.30	0.90	|	|	6.3	25.8	98.6	2.52	360	CLOUDY	|
1024	0.30	1.20	|	|	6.3	25.8	99.7	2.44	87.5	|	|
1027	0.30	1.50	|	|	6.3	25.8	100.1	2.40	47.2	|	|

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	1028	SAMPLING ENDED	1029	FIELD CLEANED	Y (N)	CLEANING STEPS	
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)
SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)						
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED					
WEATHER CONDITIONS	Clear, 84°						
COMMENTS							

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

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

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	082812	SAL Project #	1209601	Project Name	C-HS3 SE#1
Well Number	PZ-040-21	Sample ID	07	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)	10.08	PURGE PUMP CODE (PP) GP IBP
TOTAL WELL DEPTH (Feet)	21.00	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	0.218	1/4 WELL VOLUME		3 WELL VOLUMES	0.655	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	1032	PURGE TIME END	1047	TOTAL PURGED	1.50
INST. ID	X	X	X	X	SAL-SAM-63-01	SAL-SAM-65-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
1035	0.30	0.30	0.10	10.89	5.6	26.2	34.2	3.39	MAX	BROWN	NONE
1038	0.30	0.60	|	|	5.1	25.9	134.0	3.35	MAX	|	|
1041	0.30	0.90	|	|	5.0	25.9	146.9	3.32	262	CLOUDY	|
1044	0.30	1.20	|	|	5.0	25.9	149.7	3.30	62.9	|	|
1047	0.30	1.50	|	|	4.9	26.0	150.1	3.28	18.0	|	|

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	1048	SAMPLING ENDED	1049	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	Cloudy, 84°						
COMMENTS							

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

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

Reviewed By:		Date:	

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	082812	SAL Project #	1209601	Project Name	C-HS3 SE#1
Well Number	PZ-07O-15	Sample ID	08	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1.0	WELL CAPACITY (gal/ft)	0.04	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	8.80	PURGE PUMP CODE (PP) GP IBP
TOTAL WELL DEPTH (Feet)	14.78	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)
Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)									
WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =									
ONE WELL VOLUME	0.239	1/4 WELL VOLUME		3 WELL VOLUMES	0.717		5 WELL VOLUMES		
EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME									
PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME			EQUIPMENT VOLUME		
INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START	1103	PURGE TIME END	1112	TOTAL PURGED	0.90
INST. ID				SAL-SAM-63-01	SAL-SAM-65-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01	

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
1106	0.30	0.30	0.10	10.04	5.8	27.1	93.1	4.92	24.0	CLEAR	NONE
1109	0.30	0.60	/	/	5.9	27.1	93.2	4.82	22.5	/	/
1112	0.30	0.90	/	/	6.0	27.0	93.0	4.58	21.8	/	/

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	1113	SAMPLING ENDED	1114	FIELD CLEANED	Y (N)	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Clear, 84°								
COMMENTS									

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

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

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	082812	SAL Project #	1209601	Project Name	C-HS3 SE#1
Well Number	PZ-070-17	Sample ID	09	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)	8.65	PURGE PUMP CODE: PP GP IBP
TOTAL WELL DEPTH (Feet)	17.00	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	0.167	1/4 WELL VOLUME		3 WELL VOLUMES	0.501	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	1112	PURGE TIME END	1133	TOTAL PURGED	1.50
INST. ID	X	X	X	X	SAL-SAM-63-01	SAL-SAM-65-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
1121	0.30	0.30	0.10	10.09	6.3	27.3	66.1	2.99	MAX	BROWN	NONE
1124	0.30	0.60			6.3	26.9	69.9	2.69	MAX		
1127	0.30	0.90			6.3	27.1	80.1	2.43	MAX		
1130	0.30	1.20			6.4	27.1	81.5	2.45	MAX		
1133	0.30	1.50			6.4	27.1	84.3	2.43	MAX		

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL			SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT			SAMPLE TUBING LEGNTH IN WELL (FEET)		SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED	1134	SAMPLING ENDED	1135	FIELD CLEANED	Y N	CLEANING STEPS	
FIELD FILTERED?	Y N	FILTER SIZE (μm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A
SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A						
PRESERVATION CHECKED IN FIELD?	Y N N/A	LIST PRESERVATIVES ADDED					
WEATHER CONDITIONS	Clear, 85°						
COMMENTS							

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

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

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	082812	SAL Project #	12096001	Project Name	C-HS3 SE#1
Well Number	PZ-07O-20	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)	8.83	PURGE PUMP CODE (PP) GP IBP
TOTAL WELL DEPTH (Feet)	19.73	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	0.218	1/4 WELL VOLUME		3 WELL VOLUMES	0.654	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	1137	PURGE TIME END	1146	TOTAL PURGED	0.90
INST. ID	X	X	X	X	SAL-SAM-63-01	SAL-SAM-65-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
1140	0.30	0.30	0.10	9.98	5.5	26.2	127.0	2.18	8.24	CLEAR	NONE
1143	0.30	0.60	|	|	5.4	26.2	128.2	3.00	4.05	|	|
1146	0.30	0.90	|	|	5.3	26.2	128.8	3.18	1.46	|	|

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	1147	SAMPLING ENDED	1148	FIELD CLEANED	Y (N)	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (μm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Clear, 85°								
COMMENTS									

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

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

Reviewed By:		Date:	

Revision Date 09/25/09

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

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

September 25, 2012
Work Order: 1209615

Laboratory Report

Project Name **C-HS3 SE#1**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**PZ-01Q-13**						
Matrix		**Groundwater**						
SAL Sample Number		**1209615-01**						
Date/Time Collected		**08/30/12 08:04**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/30/12 15:50**						
Field Parameters								
pH	SU	6.8	DEP FT1100	0.1	0.1		08/30/12 08:04	SAS
Water Temperature	°C	26.1	DEP FT1400	0.1	0.1		08/30/12 08:04	SAS
Specific conductance	umhos/cm	81	DEP FT1200	0.1	0.1		08/30/12 08:04	SAS
Dissolved Oxygen	mg/L	5.4	DEP FT1500	0.1	0.1		08/30/12 08:04	SAS
Inorganics								
Ammonia as N	mg/L	0.052	EPA 350.1	0.040	0.009		09/24/12 11:55	MMF
Chemical Oxygen Demand	mg/L	24 I	EPA 410.4	25	10	09/20/12 13:15	09/20/12 15:30	CDB
Chloride	mg/L	1.9	EPA 300.0	0.20	0.050		08/31/12 17:29	JAG
Nitrate (as N)	mg/L	2.6	EPA 300.0	0.04	0.01		08/31/12 17:29	JAG
Nitrite (as N)	mg/L	0.07	EPA 300.0	0.04	0.01		08/31/12 17:29	JAG
Phosphorous - Total as P	mg/L	0.31	SM 4500P-E	0.040	0.010	09/18/12 11:34	09/21/12 09:55	MMF
Total Alkalinity	mg/L	11	SM 2320B	8.0	2.0	09/01/12 09:00	09/01/12 14:23	AES
Total Kjeldahl Nitrogen	mg/L	0.92	EPA 351.2	0.20	0.05	09/17/12 15:56	09/21/12 09:57	MMF
Nitrate+Nitrite (N)	mg/L	2.7	EPA 300.0	0.08	0.02		08/31/12 17:29	JAG

Sample Description		**PZ-01Q-15**						
Matrix		**Groundwater**						
SAL Sample Number		**1209615-02**						
Date/Time Collected		**08/30/12 08:24**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/30/12 15:50**						
Field Parameters								
pH	SU	6.1	DEP FT1100	0.1	0.1		08/30/12 08:24	SAS
Water Temperature	°C	25.8	DEP FT1400	0.1	0.1		08/30/12 08:24	SAS
Specific conductance	umhos/cm	43	DEP FT1200	0.1	0.1		08/30/12 08:24	SAS
Dissolved Oxygen	mg/L	4.2	DEP FT1500	0.1	0.1		08/30/12 08:24	SAS
Inorganics								
Ammonia as N	mg/L	0.27	EPA 350.1	0.040	0.009		09/24/12 11:58	MMF
Chemical Oxygen Demand	mg/L	42	EPA 410.4	25	10	09/20/12 13:15	09/20/12 15:30	CDB
Chloride	mg/L	0.77	EPA 300.0	0.20	0.050		08/31/12 17:29	JAG
Nitrate (as N)	mg/L	1.1	EPA 300.0	0.04	0.01		08/31/12 17:29	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		08/31/12 17:29	JAG
Phosphorous - Total as P	mg/L	1.7	SM 4500P-E	0.040	0.010	09/18/12 11:34	09/21/12 09:56	MMF
Total Alkalinity	mg/L	5.2 I	SM 2320B	8.0	2.0	09/01/12 09:00	09/01/12 14:23	AES
Total Kjeldahl Nitrogen	mg/L	1.8	EPA 351.2	0.20	0.05	09/17/12 15:56	09/21/12 09:59	MMF
Nitrate+Nitrite (N)	mg/L	1.1	EPA 300.0	0.08	0.02		08/31/12 17:29	JAG

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

September 25, 2012
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Laboratory Report

Project Name **C-HS3 SE#1**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**PZ-01Q-19**						
Matrix		**Groundwater**						
SAL Sample Number		**1209615-03**						
Date/Time Collected		**08/30/12 08:44**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/30/12 15:50**						
Field Parameters								
pH	SU	5.1	DEP FT1100	0.1	0.1		08/30/12 08:44	SAS
Water Temperature	°C	25.6	DEP FT1400	0.1	0.1		08/30/12 08:44	SAS
Specific conductance	umhos/cm	56	DEP FT1200	0.1	0.1		08/30/12 08:44	SAS
Dissolved Oxygen	mg/L	3.2	DEP FT1500	0.1	0.1		08/30/12 08:44	SAS
Inorganics								
Ammonia as N	mg/L	0.020 I	EPA 350.1	0.040	0.009		09/05/12 11:24	MMF
Chloride	mg/L	1.4	EPA 300.0	0.20	0.050		08/31/12 17:29	JAG
Nitrate (as N)	mg/L	2.1	EPA 300.0	0.04	0.01		08/31/12 17:29	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		08/31/12 17:29	JAG
Total Alkalinity	mg/L	3.2 I	SM 2320B	8.0	2.0	09/01/12 09:00	09/01/12 14:23	AES
Total Kjeldahl Nitrogen	mg/L	0.64	EPA 351.2	0.20	0.05	08/31/12 16:28	09/05/12 14:13	MMF
Nitrate+Nitrite (N)	mg/L	2.1	EPA 300.0	0.08	0.02		08/31/12 17:29	JAG

Sample Description		**PZ-04Q-13**						
Matrix		**Groundwater**						
SAL Sample Number		**1209615-04**						
Date/Time Collected		**08/30/12 09:12**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/30/12 15:50**						
Field Parameters								
pH	SU	6.0	DEP FT1100	0.1	0.1		08/30/12 09:12	SAS
Water Temperature	°C	26.5	DEP FT1400	0.1	0.1		08/30/12 09:12	SAS
Specific conductance	umhos/cm	184	DEP FT1200	0.1	0.1		08/30/12 09:12	SAS
Dissolved Oxygen	mg/L	5.8	DEP FT1500	0.1	0.1		08/30/12 09:12	SAS
Inorganics								
Ammonia as N	mg/L	0.18	EPA 350.1	0.040	0.009		09/21/12 11:25	MMF
Chemical Oxygen Demand	mg/L	56	EPA 410.4	25	10	09/20/12 13:15	09/20/12 15:30	CDB
Chloride	mg/L	11	EPA 300.0	0.20	0.050		08/31/12 17:29	JAG
Nitrate (as N)	mg/L	8.7	EPA 300.0	0.04	0.01		08/31/12 17:29	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		08/31/12 17:29	JAG
Phosphorous - Total as P	mg/L	1.1	SM 4500P-E	0.040	0.010	09/18/12 11:34	09/21/12 09:58	MMF
Total Alkalinity	mg/L	32	SM 2320B	8.0	2.0	09/01/12 09:00	09/01/12 14:23	AES
Total Kjeldahl Nitrogen	mg/L	2.4	EPA 351.2	0.20	0.05	09/17/12 15:56	09/21/12 10:00	MMF
Nitrate+Nitrite (N)	mg/L	8.7	EPA 300.0	0.08	0.02		08/31/12 17:29	JAG

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

September 25, 2012
Work Order: 1209615

Laboratory Report

Project Name **C-HS3 SE#1**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**PZ-04Q-15**						
Matrix		**Groundwater**						
SAL Sample Number		**1209615-05**						
Date/Time Collected		**08/30/12 09:31**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/30/12 15:50**						
Field Parameters								
pH	SU	6.4	DEP FT1100	0.1	0.1		08/30/12 09:31	SAS
Water Temperature	°C	26.1	DEP FT1400	0.1	0.1		08/30/12 09:31	SAS
Specific conductance	umhos/cm	94	DEP FT1200	0.1	0.1		08/30/12 09:31	SAS
Dissolved Oxygen	mg/L	2.9	DEP FT1500	0.1	0.1		08/30/12 09:31	SAS
Inorganics								
Ammonia as N	mg/L	0.061	EPA 350.1	0.040	0.009		09/21/12 11:27	MMF
Chemical Oxygen Demand	mg/L	13 I	EPA 410.4	25	10	09/20/12 13:15	09/20/12 15:30	CDB
Chloride	mg/L	1.7	EPA 300.0	0.20	0.050		08/31/12 17:29	JAG
Nitrate (as N)	mg/L	1.8	EPA 300.0	0.04	0.01		08/31/12 17:29	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		08/31/12 17:29	JAG
Phosphorous - Total as P	mg/L	2.0	SM 4500P-E	0.20	0.050	09/18/12 11:34	09/21/12 10:45	MMF
Total Alkalinity	mg/L	11	SM 2320B	8.0	2.0	09/01/12 09:00	09/01/12 14:23	AES
Total Kjeldahl Nitrogen	mg/L	0.93	EPA 351.2	0.20	0.05	09/17/12 15:56	09/21/12 10:02	MMF
Nitrate+Nitrite (N)	mg/L	1.8	EPA 300.0	0.08	0.02		08/31/12 17:29	JAG
Sample Description		**PZ-04Q-19**						
Matrix		**Groundwater**						
SAL Sample Number		**1209615-06**						
Date/Time Collected		**08/30/12 09:50**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/30/12 15:50**						
Field Parameters								
pH	SU	6.2	DEP FT1100	0.1	0.1		08/30/12 09:50	SAS
Water Temperature	°C	25.8	DEP FT1400	0.1	0.1		08/30/12 09:50	SAS
Specific conductance	umhos/cm	76	DEP FT1200	0.1	0.1		08/30/12 09:50	SAS
Dissolved Oxygen	mg/L	3.5	DEP FT1500	0.1	0.1		08/30/12 09:50	SAS
Inorganics								
Ammonia as N	mg/L	0.16	EPA 350.1	0.040	0.009		09/05/12 11:26	MMF
Chloride	mg/L	2.9	EPA 300.0	0.20	0.050		09/01/12 02:16	JAG
Nitrate (as N)	mg/L	1.6	EPA 300.0	0.04	0.01		09/01/12 02:16	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/01/12 02:16	JAG
Total Alkalinity	mg/L	65	SM 2320B	8.0	2.0	09/01/12 09:00	09/01/12 14:23	AES
Total Kjeldahl Nitrogen	mg/L	16	EPA 351.2	0.20	0.05	08/31/12 16:28	09/05/12 15:04	MMF
Nitrate+Nitrite (N)	mg/L	1.6	EPA 300.0	0.08	0.02		09/01/12 02:16	JAG

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Hazen and Sawyer
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September 25, 2012
Work Order: 1209615

Laboratory Report

Project Name **C-HS3 SE#1**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**PZ-06Q-13**						
Matrix		**Groundwater**						
SAL Sample Number		**1209615-07**						
Date/Time Collected		**08/30/12 10:10**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/30/12 15:50**						
Field Parameters								
pH	SU	6.4	DEP FT1100	0.1	0.1		08/30/12 10:10	SAS
Water Temperature	°C	26.7	DEP FT1400	0.1	0.1		08/30/12 10:10	SAS
Specific conductance	umhos/cm	83	DEP FT1200	0.1	0.1		08/30/12 10:10	SAS
Dissolved Oxygen	mg/L	4.7	DEP FT1500	0.1	0.1		08/30/12 10:10	SAS
Inorganics								
Ammonia as N	mg/L	0.13	EPA 350.1	0.040	0.009		09/06/12 11:23	MMF
Chemical Oxygen Demand	mg/L	47	EPA 410.4	25	10	09/04/12 12:30	09/04/12 14:45	CDB
Chloride	mg/L	1.8	EPA 300.0	0.20	0.050		09/01/12 02:16	JAG
Fluoride	mg/L	0.056	EPA 300.0	0.040	0.010		09/01/12 02:16	JAG
Nitrate (as N)	mg/L	1.4	EPA 300.0	0.04	0.01		09/01/12 02:16	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/01/12 02:16	JAG
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		09/01/12 02:16	JAG
Phosphorous - Total as P	mg/L	0.79	SM 4500P-E	0.040	0.010	09/04/12 12:01	09/06/12 14:00	MMF
Sulfate	mg/L	3.6	EPA 300.0	0.60	0.20		09/01/12 02:16	JAG
Total Alkalinity	mg/L	22	SM 2320B	8.0	2.0	09/01/12 09:00	09/01/12 14:23	AES
Total Kjeldahl Nitrogen	mg/L	0.92	EPA 351.2	0.20	0.05	08/31/12 16:28	09/05/12 14:16	MMF
Total Organic Carbon	mg/L	10	SM 5310B	1.0	0.50		08/31/12 16:25	MEJ
Nitrate+Nitrite (N)	mg/L	1.4	EPA 300.0	0.08	0.02		09/01/12 02:16	JAG
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	4.6	SM 5310B	1.0	0.50		09/01/12 10:10	MEJ
Metals								
Boron	mg/L	0.050 U	EPA 200.7	0.10	0.050	09/06/12 10:12	09/10/12 17:49	VWC
Calcium	mg/L	10	EPA 200.7	0.50	0.042	09/06/12 10:12	09/10/12 17:49	VWC
Iron	mg/L	0.069 I	EPA 200.7	0.10	0.020	09/06/12 10:12	09/10/12 17:49	VWC
Magnesium	mg/L	1.2	EPA 200.7	0.50	0.020	09/06/12 10:12	09/10/12 17:49	VWC
Manganese	mg/L	0.0013 I	EPA 200.7	0.010	0.0010	09/06/12 10:12	09/10/12 17:49	VWC
Potassium	mg/L	1.9	EPA 200.7	0.050	0.010	09/06/12 10:12	09/10/12 17:49	VWC
Sodium	mg/L	5.9	EPA 200.7	0.50	0.13	09/06/12 10:12	09/10/12 17:49	VWC
Sample Description		**PZ-06Q-15**						
Matrix		**Groundwater**						
SAL Sample Number		**1209615-08**						
Date/Time Collected		**08/30/12 10:22**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/30/12 15:50**						
Field Parameters								
pH	SU	6.3	DEP FT1100	0.1	0.1		08/30/12 10:22	SAS

Hazen and Sawyer
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Laboratory Report

Project Name **C-HS3 SE#1**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**PZ-06Q-15**						
Matrix		**Groundwater**						
SAL Sample Number		**1209615-08**						
Date/Time Collected		**08/30/12 10:22**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/30/12 15:50**						
Water Temperature	°C	26.3	DEP FT1400	0.1	0.1		08/30/12 10:22	SAS
Specific conductance	umhos/cm	411	DEP FT1200	0.1	0.1		08/30/12 10:22	SAS
Dissolved Oxygen	mg/L	2.8	DEP FT1500	0.1	0.1		08/30/12 10:22	SAS
Inorganics								
Ammonia as N	mg/L	0.018 I	EPA 350.1	0.040	0.009		09/21/12 11:29	MMF
Chemical Oxygen Demand	mg/L	11 I	EPA 410.4	25	10	09/20/12 13:15	09/20/12 15:30	CDB
Chloride	mg/L	15	EPA 300.0	0.20	0.050		09/01/12 02:16	JAG
Nitrate (as N)	mg/L	22	EPA 300.0	0.04	0.01		08/31/12 17:29	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/01/12 02:16	JAG
Phosphorous - Total as P	mg/L	3.0	SM 4500P-E	0.20	0.050	09/18/12 11:34	09/21/12 10:46	MMF
Total Alkalinity	mg/L	43	SM 2320B	8.0	2.0	09/01/12 09:00	09/01/12 14:23	AES
Total Kjeldahl Nitrogen	mg/L	2.5	EPA 351.2	0.20	0.05	09/17/12 15:56	09/21/12 10:04	MMF
Nitrate+Nitrite (N)	mg/L	22	EPA 300.0	0.08	0.02		09/01/12 02:16	JAG
Sample Description		**PZ-06Q-15 Dup**						
Matrix		**Groundwater**						
SAL Sample Number		**1209615-09**						
Date/Time Collected		**08/30/12 10:27**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/30/12 15:50**						
Field Parameters								
pH	SU	6.3	DEP FT1100	0.1	0.1		08/30/12 10:27	SAS
Water Temperature	°C	26.3	DEP FT1400	0.1	0.1		08/30/12 10:27	SAS
Specific conductance	umhos/cm	411	DEP FT1200	0.1	0.1		08/30/12 10:27	SAS
Dissolved Oxygen	mg/L	2.8	DEP FT1500	0.1	0.1		08/30/12 10:27	SAS
Inorganics								
Ammonia as N	mg/L	0.019 I	EPA 350.1	0.040	0.009		09/21/12 11:31	MMF
Chemical Oxygen Demand	mg/L	11 I	EPA 410.4	25	10	09/20/12 13:15	09/20/12 15:30	CDB
Chloride	mg/L	15	EPA 300.0	0.20	0.050		09/01/12 02:16	JAG
Nitrate (as N)	mg/L	22	EPA 300.0	0.04	0.01		08/31/12 17:29	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/01/12 02:16	JAG
Phosphorous - Total as P	mg/L	2.9	SM 4500P-E	0.20	0.050	09/18/12 11:34	09/21/12 10:46	MMF
Total Alkalinity	mg/L	43	SM 2320B	8.0	2.0	09/01/12 09:00	09/01/12 14:23	AES
Total Kjeldahl Nitrogen	mg/L	2.1	EPA 351.2	0.20	0.05	09/17/12 15:56	09/21/12 10:05	MMF
Nitrate+Nitrite (N)	mg/L	22	EPA 300.0	0.08	0.02		09/01/12 02:16	JAG

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

September 25, 2012
Work Order: 1209615

Laboratory Report

Project Name **C-HS3 SE#1**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**PZ-06Q-19**						
Matrix		**Groundwater**						
SAL Sample Number		**1209615-10**						
Date/Time Collected		**08/30/12 10:45**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/30/12 15:50**						
Field Parameters								
pH	SU	6.6	DEP FT1100	0.1	0.1		08/30/12 10:45	SAS
Water Temperature	°C	26.1	DEP FT1400	0.1	0.1		08/30/12 10:45	SAS
Specific conductance	umhos/cm	110	DEP FT1200	0.1	0.1		08/30/12 10:45	SAS
Dissolved Oxygen	mg/L	0.5	DEP FT1500	0.1	0.1		08/30/12 10:45	SAS
Inorganics								
Ammonia as N	mg/L	0.27	EPA 350.1	0.040	0.009		09/21/12 11:33	MMF
Chemical Oxygen Demand	mg/L	140	EPA 410.4	25	10	09/20/12 13:15	09/20/12 15:30	CDB
Chloride	mg/L	2.5	EPA 300.0	0.20	0.050		09/01/12 02:16	JAG
Nitrate (as N)	mg/L	3.8	EPA 300.0	0.04	0.01		09/01/12 02:16	JAG
Nitrite (as N)	mg/L	0.04	EPA 300.0	0.04	0.01		09/01/12 02:16	JAG
Phosphorous - Total as P	mg/L	10	SM 4500P-E	0.40	0.10	09/18/12 11:34	09/21/12 11:15	MMF
Total Alkalinity	mg/L	54	SM 2320B	8.0	2.0	09/01/12 09:00	09/01/12 14:23	AES
Total Kjeldahl Nitrogen	mg/L	26	EPA 351.2	0.20	0.05	09/17/12 15:56	09/21/12 11:06	MMF
Nitrate+Nitrite (N)	mg/L	3.9	EPA 300.0	0.08	0.02		09/01/12 02:16	JAG
Sample Description		**PZ-07Q-13**						
Matrix		**Groundwater**						
SAL Sample Number		**1209615-11**						
Date/Time Collected		**08/30/12 10:58**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/30/12 15:50**						
Field Parameters								
pH	SU	6.6	DEP FT1100	0.1	0.1		08/30/12 10:58	SAS
Water Temperature	°C	27.1	DEP FT1400	0.1	0.1		08/30/12 10:58	SAS
Specific conductance	umhos/cm	130	DEP FT1200	0.1	0.1		08/30/12 10:58	SAS
Dissolved Oxygen	mg/L	5.3	DEP FT1500	0.1	0.1		08/30/12 10:58	SAS
Inorganics								
Ammonia as N	mg/L	0.052	EPA 350.1	0.040	0.009		09/21/12 11:35	MMF
Chemical Oxygen Demand	mg/L	15 I	EPA 410.4	25	10	09/20/12 13:15	09/20/12 15:30	CDB
Chloride	mg/L	2.8	EPA 300.0	0.20	0.050		09/01/12 02:16	JAG
Nitrate (as N)	mg/L	3.1	EPA 300.0	0.04	0.01		09/01/12 02:16	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/01/12 02:16	JAG
Phosphorous - Total as P	mg/L	0.33	SM 4500P-E	0.040	0.010	09/18/12 11:34	09/21/12 10:04	MMF
Total Alkalinity	mg/L	11	SM 2320B	8.0	2.0	09/01/12 09:00	09/01/12 14:23	AES
Total Kjeldahl Nitrogen	mg/L	0.95	EPA 351.2	0.20	0.05	09/17/12 15:56	09/21/12 10:09	MMF
Nitrate+Nitrite (N)	mg/L	3.1	EPA 300.0	0.08	0.02		09/01/12 02:16	JAG

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

September 25, 2012
Work Order: 1209615

Laboratory Report

Project Name **C-HS3 SE#1**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**PZ-07Q-15**						
Matrix		**Groundwater**						
SAL Sample Number		**1209615-12**						
Date/Time Collected		**08/30/12 11:18**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/30/12 15:50**						
Field Parameters								
pH	SU	6.4	DEP FT1100	0.1	0.1		08/30/12 11:18	SAS
Water Temperature	°C	26.6	DEP FT1400	0.1	0.1		08/30/12 11:18	SAS
Specific conductance	umhos/cm	118	DEP FT1200	0.1	0.1		08/30/12 11:18	SAS
Dissolved Oxygen	mg/L	2.8	DEP FT1500	0.1	0.1		08/30/12 11:18	SAS
Inorganics								
Ammonia as N	mg/L	0.19	EPA 350.1	0.040	0.009		09/06/12 11:25	MMF
Chloride	mg/L	2.2	EPA 300.0	0.20	0.050		09/01/12 02:16	JAG
Nitrate (as N)	mg/L	6.6	EPA 300.0	0.04	0.01		09/01/12 02:16	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/01/12 02:16	JAG
Total Alkalinity	mg/L	25	SM 2320B	8.0	2.0	09/01/12 09:00	09/01/12 14:23	AES
Total Kjeldahl Nitrogen	mg/L	7.8	EPA 351.2	0.20	0.05	08/31/12 16:28	09/05/12 15:28	MMF
Nitrate+Nitrite (N)	mg/L	6.6	EPA 300.0	0.08	0.02		09/01/12 02:16	JAG
Sample Description		**PZ-07Q-19**						
Matrix		**Groundwater**						
SAL Sample Number		**1209615-13**						
Date/Time Collected		**08/30/12 11:37**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/30/12 15:50**						
Field Parameters								
pH	SU	6.3	DEP FT1100	0.1	0.1		08/30/12 11:37	SAS
Water Temperature	°C	26.5	DEP FT1400	0.1	0.1		08/30/12 11:37	SAS
Specific conductance	umhos/cm	101	DEP FT1200	0.1	0.1		08/30/12 11:37	SAS
Dissolved Oxygen	mg/L	2.5	DEP FT1500	0.1	0.1		08/30/12 11:37	SAS
Inorganics								
Ammonia as N	mg/L	0.17	EPA 350.1	0.040	0.009		09/06/12 11:27	MMF
Chloride	mg/L	5.3	EPA 300.0	0.20	0.050		09/01/12 02:16	JAG
Nitrate (as N)	mg/L	2.1	EPA 300.0	0.04	0.01		09/01/12 02:16	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/01/12 02:16	JAG
Total Alkalinity	mg/L	60	SM 2320B	8.0	2.0	09/01/12 09:00	09/01/12 14:23	AES
Total Kjeldahl Nitrogen	mg/L	25	EPA 351.2	0.20	0.05	08/31/12 16:28	09/05/12 15:06	MMF
Nitrate+Nitrite (N)	mg/L	2.1	EPA 300.0	0.08	0.02		09/01/12 02:16	JAG

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BH23106 - Ion Chromatography 300.0 Prep										
Blank (BH23106-BLK1)					Prepared & Analyzed: 08/31/12					
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
Chloride	0.050 U	0.20	0.050	mg/L						
LCS (BH23106-BS1)					Prepared & Analyzed: 08/31/12					
Nitrite (as N)	1.40	0.04	0.01	mg/L	1.4		100	85-115		
Nitrate (as N)	1.69	0.04	0.01	mg/L	1.7		99	85-115		
Chloride	2.97	0.20	0.050	mg/L	3.0		99	85-115		
LCS Dup (BH23106-BSD1)					Prepared & Analyzed: 08/31/12					
Nitrite (as N)	1.45	0.04	0.01	mg/L	1.4		104	85-115	4	200
Nitrate (as N)	1.70	0.04	0.01	mg/L	1.7		100	85-115	0.6	200
Chloride	2.97	0.20	0.050	mg/L	3.0		99	85-115	0	200
Matrix Spike (BH23106-MS1)		**Source: 1209598-08**			Prepared & Analyzed: 08/31/12					
Nitrate (as N)	2.62	0.04	0.01	mg/L	1.7	0.956	98	85-115		
Nitrite (as N)	1.47	0.04	0.01	mg/L	1.4	ND	105	85-115		
Chloride	5.50	0.20	0.050	mg/L	3.0	2.40	103	80-120		
Matrix Spike (BH23106-MS2)		**Source: 1209615-05**			Prepared & Analyzed: 08/31/12					
Chloride	4.60	0.20	0.050	mg/L	3.0	1.69	97	80-120		
Fluoride	1.41	0.040	0.010	mg/L	0.90	0.498	101	85-115		
Nitrate (as N)	3.55	0.04	0.01	mg/L	1.7	1.82	102	85-115		
Nitrite (as N)	1.38	0.04	0.01	mg/L	1.4	ND	99	85-115		
Orthophosphate as P	2.48	0.040	0.010	mg/L	0.90	1.57	101	85-115		
Sulfate	14.9	0.60	0.20	mg/L	9.0	6.16	97	85-115		

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BH23107 - Ion Chromatography 300.0 Prep										
Blank (BH23107-BLK1)					Prepared & Analyzed: 09/01/12					
Chloride	0.050 U	0.20	0.050	mg/L						
Sulfate	0.20 U	0.60	0.20	mg/L						
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						
Fluoride	0.010 U	0.040	0.010	mg/L						
Orthophosphate as P	0.010 U	0.040	0.010	mg/L						
LCS (BH23107-BS1)					Prepared & Analyzed: 09/01/12					
Nitrite (as N)	1.42	0.04	0.01	mg/L	1.4		101	85-115		
Fluoride	0.944	0.040	0.010	mg/L	0.90		105	85-115		
Sulfate	9.07	0.60	0.20	mg/L	9.0		101	85-115		
Nitrate (as N)	1.69	0.04	0.01	mg/L	1.7		99	85-115		
Orthophosphate as P	0.939	0.040	0.010	mg/L	0.90		104	85-115		
Chloride	2.97	0.20	0.050	mg/L	3.0		99	85-115		
LCS Dup (BH23107-BSD1)					Prepared & Analyzed: 09/01/12					
Sulfate	8.99	0.60	0.20	mg/L	9.0		100	85-115	0.9	200
Nitrate (as N)	1.70	0.04	0.01	mg/L	1.7		100	85-115	0.6	200
Chloride	2.94	0.20	0.050	mg/L	3.0		98	85-115	1	200
Fluoride	0.935	0.040	0.010	mg/L	0.90		104	85-115	1	200
Orthophosphate as P	0.975	0.040	0.010	mg/L	0.90		108	85-115	4	200
Nitrite (as N)	1.41	0.04	0.01	mg/L	1.4		101	85-115	0.7	200
Matrix Spike (BH23107-MS1)		**Source: 1209644-02**			Prepared & Analyzed: 09/01/12					
Sulfate	14.7	0.60	0.20	mg/L	9.0	5.34	104	85-115		
Orthophosphate as P	0.847	0.040	0.010	mg/L	0.90	ND	94	85-115		
Nitrate (as N)	2.83	0.04	0.01	mg/L	1.7	0.977	109	85-115		
Fluoride	1.21	0.040	0.010	mg/L	0.90	0.386	92	85-115		
Chloride	3.74	0.20	0.050	mg/L	3.0	0.768	99	80-120		
Nitrite (as N)	1.45	0.04	0.01	mg/L	1.4	ND	104	85-115		

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BH23107 - Ion Chromatography 300.0 Prep										
Matrix Spike (BH23107-MS2)		**Source: 1209645-05**			Prepared & Analyzed: 09/01/12					
Orthophosphate as P	0.926	0.040	0.010	mg/L	0.90	ND	103	85-115		
Chloride	4.35	0.20	0.050	mg/L	3.0	1.33	101	80-120		
Nitrite (as N)	1.40	0.04	0.01	mg/L	1.4	ND	100	85-115		
Fluoride	0.862	0.040	0.010	mg/L	0.90	ND	96	85-115		
Nitrate (as N)	1.67	0.04	0.01	mg/L	1.7	ND	98	85-115		
Sulfate	9.80	0.60	0.20	mg/L	9.0	0.966	98	85-115		
Batch BH23132 - Digestion for TKN by EPA 351.2										
Blank (BH23132-BLK1)					Prepared: 08/31/12 Analyzed: 09/05/12					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
LCS (BH23132-BS1)					Prepared: 08/31/12 Analyzed: 09/05/12					
Total Kjeldahl Nitrogen	2.44	0.20	0.05	mg/L	2.5		96	90-110		
Matrix Spike (BH23132-MS1)		**Source: 1209615-12**			Prepared: 08/31/12 Analyzed: 09/05/12					
Total Kjeldahl Nitrogen	28.9	0.20	0.05	mg/L	25	7.85	83	80-120		
Matrix Spike Dup (BH23132-MSD1)		**Source: 1209615-12**			Prepared: 08/31/12 Analyzed: 09/05/12					
Total Kjeldahl Nitrogen	28.4	0.20	0.05	mg/L	25	7.85	81	80-120	2	20
Batch BI20101 - TOC prep										
Blank (BI20101-BLK1)					Prepared & Analyzed: 08/31/12					
Total Organic Carbon	0.50 U	1.0	0.50	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 BI20101 - TOC prep										
Blank (BI20101-BLK2)					Prepared & Analyzed: 08/31/12					
Total Organic Carbon	0.50 U	1.0	0.50	mg/L						
LCS (BI20101-BS1)					Prepared & Analyzed: 08/31/12					
Total Organic Carbon	9.02	1.0	0.50	mg/L	10		90	90-110		
LCS (BI20101-BS2)					Prepared & Analyzed: 08/31/12					
Total Organic Carbon	10.8	1.0	0.50	mg/L	10		108	90-110		
Matrix Spike (BI20101-MS1)		**Source: 1209848-02**			Prepared & Analyzed: 08/31/12					
Total Organic Carbon	23.0	1.0	0.50	mg/L	10	14.0	90	85-115		
Matrix Spike (BI20101-MS2)		**Source: 1209848-10**			Prepared & Analyzed: 08/31/12					
Total Organic Carbon	21.7	1.0	0.50	mg/L	10	12.7	90	85-115		
Matrix Spike Dup (BI20101-MSD1)		**Source: 1209848-02**			Prepared & Analyzed: 08/31/12					
Total Organic Carbon	22.5	1.0	0.50	mg/L	10	14.0	85	85-115	2	10
Matrix Spike Dup (BI20101-MSD2)		**Source: 1209848-10**			Prepared & Analyzed: 08/31/12					
Total Organic Carbon	21.9	1.0	0.50	mg/L	10	12.7	92	85-115	0.9	10
Batch BI20102 - alkalinity										
Blank (BI20102-BLK1)					Prepared & Analyzed: 09/01/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
Blank (BI20102-BLK2)					Prepared & Analyzed: 09/01/12					
Total Alkalinity	2.0 U	8.0	2.0	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 BI20102 - alkalinity										
LCS (BI20102-BS1)					Prepared & Analyzed: 09/01/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		
LCS (BI20102-BS2)					Prepared & Analyzed: 09/01/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		
Matrix Spike (BI20102-MS1)		**Source: 1209615-12**			Prepared & Analyzed: 09/01/12					
Total Alkalinity	150	8.0	2.0	mg/L	120	25	101	80-120		
Matrix Spike (BI20102-MS2)		**Source: 1209615-13**			Prepared & Analyzed: 09/01/12					
Total Alkalinity	190	8.0	2.0	mg/L	120	60	107	80-120		
Matrix Spike Dup (BI20102-MSD1)		**Source: 1209615-12**			Prepared & Analyzed: 09/01/12					
Total Alkalinity	160	8.0	2.0	mg/L	120	25	109	80-120	7	26
Matrix Spike Dup (BI20102-MSD2)		**Source: 1209615-13**			Prepared & Analyzed: 09/01/12					
Total Alkalinity	180	8.0	2.0	mg/L	120	60	99	80-120	6	26
Batch BI20416 - COD prep										
Blank (BI20416-BLK1)					Prepared & Analyzed: 09/04/12					
Chemical Oxygen Demand	10 U	25	10	mg/L						
LCS (BI20416-BS1)					Prepared & Analyzed: 09/04/12					
Chemical Oxygen Demand	54	25	10	mg/L	50		108	90-110		
Matrix Spike (BI20416-MS1)		**Source: 1209647-02**			Prepared & Analyzed: 09/04/12					
Chemical Oxygen Demand	54	25	10	mg/L	50	ND	108	85-115		

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI20416 - COD prep										
Matrix Spike Dup (BI20416-MSD1)		**Source: 1209647-02**			Prepared & Analyzed: 09/04/12					
Chemical Oxygen Demand	54	25	10	mg/L	50	ND	108	85-115	0	32
Batch BI20422 - Ion Chromatography 300.0 Prep										
Blank (BI20422-BLK1)					Prepared & Analyzed: 09/04/12					
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
LCS (BI20422-BS1)					Prepared & Analyzed: 09/04/12					
Nitrate (as N)	1.82	0.04	0.01	mg/L	1.7		107	85-115		
LCS Dup (BI20422-BSD1)					Prepared & Analyzed: 09/04/12					
Nitrate (as N)	1.84	0.04	0.01	mg/L	1.7		108	85-115	1	200
Matrix Spike (BI20422-MS1)		**Source: 1209535-02**			Prepared & Analyzed: 09/04/12					
Nitrate (as N)	1,750	0.04	0.01	mg/L	1700	ND	103	85-115		
Matrix Spike (BI20422-MS2)		**Source: 1209573-10**			Prepared & Analyzed: 09/04/12					
Nitrate (as N)	1.84	0.04	0.01	mg/L	1.7	0.0657	104	85-115		
Batch BI20425 - Digestion for TP by EPA 365.2/SM4500PE										
Blank (BI20425-BLK1)					Prepared: 09/04/12 Analyzed: 09/06/12					
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						
Blank (BI20425-BLK2)					Prepared: 09/04/12 Analyzed: 09/06/12					
Phosphorous - Total as P	0.010 U	0.040	0.010	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 BI20425 - Digestion for TP by EPA 365.2/SM4500PE										
LCS (BI20425-BS1)					Prepared: 09/04/12 Analyzed: 09/06/12					
Phosphorous - Total as P	0.772	0.040	0.010	mg/L	0.80		97	90-110		
LCS (BI20425-BS2)					Prepared: 09/04/12 Analyzed: 09/06/12					
Phosphorous - Total as P	0.790	0.040	0.010	mg/L	0.80		99	90-110		
Matrix Spike (BI20425-MS1)		**Source: 1209819-02**			Prepared: 09/04/12 Analyzed: 09/06/12					
Phosphorous - Total as P	1.03	0.040	0.010	mg/L	1.0	0.0396	99	75-125		
Matrix Spike (BI20425-MS2)		**Source: 1209840-07**			Prepared: 09/04/12 Analyzed: 09/06/12					
Phosphorous - Total as P	1.17	0.040	0.010	mg/L	1.0	0.158	101	75-125		
Matrix Spike Dup (BI20425-MSD1)		**Source: 1209819-02**			Prepared: 09/04/12 Analyzed: 09/06/12					
Phosphorous - Total as P	0.992	0.040	0.010	mg/L	1.0	0.0396	95	75-125	4	25
Matrix Spike Dup (BI20425-MSD2)		**Source: 1209840-07**			Prepared: 09/04/12 Analyzed: 09/06/12					
Phosphorous - Total as P	1.16	0.040	0.010	mg/L	1.0	0.158	100	75-125	0.6	25
Batch BI20502 - Ammonia by SEAL										
Blank (BI20502-BLK1)					Prepared & Analyzed: 09/05/12					
Ammonia as N	0.009 U	0.040	0.009	mg/L						
LCS (BI20502-BS1)					Prepared & Analyzed: 09/05/12					
Ammonia as N	0.52	0.040	0.009	mg/L	0.50		105	90-110		
Matrix Spike (BI20502-MS1)		**Source: 1209598-03**			Prepared & Analyzed: 09/05/12					
Ammonia as N	0.48	0.040	0.009	mg/L	0.50	ND	96	90-110		

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI20502 - Ammonia by SEAL										
Matrix Spike Dup (BI20502-MSD1)		**Source: 1209598-03**			Prepared & Analyzed: 09/05/12					
Ammonia as N	0.52	0.040	0.009	mg/L	0.50	ND	103	90-110	7	10
Batch BI20603 - Ammonia by SEAL										
Blank (BI20603-BLK1)					Prepared & Analyzed: 09/06/12					
Ammonia as N	0.009 U	0.040	0.009	mg/L						
LCS (BI20603-BS1)					Prepared & Analyzed: 09/06/12					
Ammonia as N	0.48	0.040	0.009	mg/L	0.50		96	90-110		
Matrix Spike (BI20603-MS1)		**Source: 1209897-07**			Prepared & Analyzed: 09/06/12					
Ammonia as N	0.57	0.040	0.009	mg/L	0.50	0.086	98	90-110		
Matrix Spike Dup (BI20603-MSD1)		**Source: 1209897-07**			Prepared & Analyzed: 09/06/12					
Ammonia as N	0.58	0.040	0.009	mg/L	0.50	0.086	100	90-110	2	10
Batch BI21734 - Digestion for TKN by EPA 351.2										
Blank (BI21734-BLK1)					Prepared: 09/17/12 Analyzed: 09/21/12					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
LCS (BI21734-BS1)					Prepared: 09/17/12 Analyzed: 09/21/12					
Total Kjeldahl Nitrogen	2.32	0.20	0.05	mg/L	2.5		92	90-110		
LCS (BI21734-BS2)					Prepared: 09/17/12 Analyzed: 09/21/12					
Total Kjeldahl Nitrogen	2.60	0.20	0.05	mg/L	2.5		103	90-110		

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI21734 - Digestion for TKN by EPA 351.2										
Matrix Spike (BI21734-MS1)		**Source: 1210732-07**			Prepared: 09/17/12 Analyzed: 09/21/12					
Total Kjeldahl Nitrogen	3.08	0.20	0.05	mg/L	2.5	0.422	105	90-110		
Matrix Spike (BI21734-MS2)		**Source: 1210818-02**			Prepared: 09/17/12 Analyzed: 09/21/12					
Total Kjeldahl Nitrogen	3.75	0.20	0.05	mg/L	2.5	1.04	107	90-110		
Matrix Spike Dup (BI21734-MSD1)		**Source: 1210732-07**			Prepared: 09/17/12 Analyzed: 09/21/12					
Total Kjeldahl Nitrogen	2.97	0.20	0.05	mg/L	2.5	0.422	100	90-110	4	20
Matrix Spike Dup (BI21734-MSD2)		**Source: 1210818-02**			Prepared: 09/17/12 Analyzed: 09/21/12					
Total Kjeldahl Nitrogen	3.57	0.20	0.05	mg/L	2.5	1.04	100	90-110	5	20
Batch BI21824 - Digestion for TP by EPA 365.2/SM4500PE										
Blank (BI21824-BLK1)					Prepared: 09/18/12 Analyzed: 09/21/12					
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						
LCS (BI21824-BS1)					Prepared: 09/18/12 Analyzed: 09/21/12					
Phosphorous - Total as P	0.753	0.040	0.010	mg/L	0.80		94	90-110		
Matrix Spike (BI21824-MS1)		**Source: 1210595-11**			Prepared: 09/18/12 Analyzed: 09/21/12					
Phosphorous - Total as P	1.01	0.040	0.010	mg/L	1.0	0.0492	96	75-125		
Matrix Spike (BI21824-MS2)		**Source: 1210762-01**			Prepared: 09/18/12 Analyzed: 09/21/12					
Phosphorous - Total as P	2.65	0.080	0.020	mg/L	1.0	1.61	105	75-125		
Matrix Spike Dup (BI21824-MSD1)		**Source: 1210595-11**			Prepared: 09/18/12 Analyzed: 09/21/12					
Phosphorous - Total as P	1.01	0.040	0.010	mg/L	1.0	0.0492	96	75-125	0.08	25

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI21824 - Digestion for TP by EPA 365.2/SM4500PE										
Matrix Spike Dup (BI21824-MSD2)		**Source: 1210762-01**			Prepared: 09/18/12 Analyzed: 09/21/12					
Phosphorous - Total as P	2.62	0.080	0.020	mg/L	1.0	1.61	101	75-125	1	25
Batch BI22108 - Ammonia by SEAL										
Blank (BI22108-BLK1)					Prepared & Analyzed: 09/21/12					
Ammonia as N	0.009 U	0.040	0.009	mg/L						
LCS (BI22108-BS1)					Prepared & Analyzed: 09/21/12					
Ammonia as N	0.51	0.040	0.009	mg/L	0.50		102	90-110		
Matrix Spike (BI22108-MS1)		**Source: 1209615-04**			Prepared & Analyzed: 09/21/12					
Ammonia as N	0.65	0.040	0.009	mg/L	0.50	0.18	95	90-110		
Matrix Spike (BI22108-MS2)		**Source: 1210837-01**			Prepared & Analyzed: 09/21/12					
Ammonia as N	0.55	0.040	0.009	mg/L	0.50	0.041	101	90-110		
Matrix Spike Dup (BI22108-MSD1)		**Source: 1209615-04**			Prepared & Analyzed: 09/21/12					
Ammonia as N	0.66	0.040	0.009	mg/L	0.50	0.18	96	90-110	0.4	10
Matrix Spike Dup (BI22108-MSD2)		**Source: 1210837-01**			Prepared & Analyzed: 09/21/12					
Ammonia as N	0.54	0.040	0.009	mg/L	0.50	0.041	100	90-110	0.8	10
Batch BI22116 - COD prep										
Blank (BI22116-BLK1)					Prepared & Analyzed: 09/20/12					
Chemical Oxygen Demand	10 U	25	10	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 BI22116 - COD prep										
LCS (BI22116-BS1)					Prepared & Analyzed: 09/20/12					
Chemical Oxygen Demand	54	25	10	mg/L	50		108	90-110		
Matrix Spike (BI22116-MS1)		**Source: 1209615-08**			Prepared & Analyzed: 09/20/12					
Chemical Oxygen Demand	58	25	10	mg/L	50	11	94	85-115		
Matrix Spike Dup (BI22116-MSD1)		**Source: 1209615-08**			Prepared & Analyzed: 09/20/12					
Chemical Oxygen Demand	58	25	10	mg/L	50	11	94	85-115	0	32
Batch BI22404 - Ammonia by SEAL										
Blank (BI22404-BLK1)					Prepared & Analyzed: 09/24/12					
Ammonia as N	0.009 U	0.040	0.009	mg/L						
LCS (BI22404-BS1)					Prepared & Analyzed: 09/24/12					
Ammonia as N	0.48	0.040	0.009	mg/L	0.50		95	90-110		
Matrix Spike (BI22404-MS1)		**Source: 1210870-07**			Prepared & Analyzed: 09/24/12					
Ammonia as N	0.48	0.040	0.009	mg/L	0.50	0.021	91	90-110		
Matrix Spike (BI22404-MS2)		**Source: 1210941-01**			Prepared & Analyzed: 09/24/12					
Ammonia as N	0.46	0.040	0.009	mg/L	0.50	ND	92	90-110		
Matrix Spike Dup (BI22404-MSD1)		**Source: 1210870-07**			Prepared & Analyzed: 09/24/12					
Ammonia as N	0.50	0.040	0.009	mg/L	0.50	0.021	96	90-110	5	10
Matrix Spike Dup (BI22404-MSD2)		**Source: 1210941-01**			Prepared & Analyzed: 09/24/12					
Ammonia as N	0.46	0.040	0.009	mg/L	0.50	ND	93	90-110	1	10

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Inorganic, Dissolved - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI20431 - TOC prep										
Blank (BI20431-BLK1)					Prepared & Analyzed: 09/01/12					
Dissolved Organic Carbon	0.50 U	1.0	0.50	mg/L						
LCS (BI20431-BS1)					Prepared & Analyzed: 09/01/12					
Dissolved Organic Carbon	10.3	1.0	0.50	mg/L	10		103	90-110		
Matrix Spike (BI20431-MS1)		**Source: 1209647-01**			Prepared & Analyzed: 09/01/12					
Dissolved Organic Carbon	8.69	1.0	0.50	mg/L	10	ND	87	85-125		
Matrix Spike Dup (BI20431-MSD1)		**Source: 1209647-01**			Prepared & Analyzed: 09/01/12					
Dissolved Organic Carbon	9.79	1.0	0.50	mg/L	10	ND	98	85-125	12	25

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Metals - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI20610 - Metals Preparation for EPA Method 200.7										
Blank (BI20610-BLK1)					Prepared: 09/06/12 Analyzed: 09/12/12					
Potassium	0.010 U	0.050	0.010	mg/L						
Manganese	0.0010 U	0.010	0.0010	mg/L						
Sodium	0.13 U	0.50	0.13	mg/L						
Magnesium	0.020 U	0.50	0.020	mg/L						
Boron	0.050 U	0.10	0.050	mg/L						
Calcium	0.042 U	0.50	0.042	mg/L						
Iron	0.020 U	0.10	0.020	mg/L						
LCS (BI20610-BS1)					Prepared: 09/06/12 Analyzed: 09/10/12					
Calcium	20	0.50	0.042	mg/L	20		102	85-115		
Potassium	19	0.050	0.010	mg/L	20		96	85-115		
Manganese	0.41	0.010	0.0010	mg/L	0.40		103	85-115		
Magnesium	20	0.50	0.020	mg/L	20		101	85-115		
Sodium	20	0.50	0.13	mg/L	20		100	85-115		
Boron	0.39	0.10	0.050	mg/L	0.40		98	85-115		
Iron	8.3	0.10	0.020	mg/L	8.0		104	85-115		
Matrix Spike (BI20610-MS1)		**Source: 1209644-04**			Prepared: 09/06/12 Analyzed: 09/10/12					
Manganese	0.42	0.010	0.0010	mg/L	0.40	0.0035	103	70-130		
Calcium	35	0.50	0.042	mg/L	20	14	104	70-130		
Iron	8.4	0.10	0.020	mg/L	8.0	ND	105	70-130		
Potassium	22	0.050	0.010	mg/L	20	2.5	99	70-130		
Magnesium	23	0.50	0.020	mg/L	20	2.5	102	70-130		
Sodium	25	0.50	0.13	mg/L	20	5.3	101	70-130		
Boron	0.43	0.10	0.050	mg/L	0.40	ND	108	70-130		
Matrix Spike (BI20610-MS2)		**Source: 1209849-01**			Prepared: 09/06/12 Analyzed: 09/10/12					
Iron	8.3	0.10	0.020	mg/L	8.0	ND	104	70-130		
Magnesium	23	0.50	0.020	mg/L	20	3.0	101	70-130		
Sodium	210	5.0	1.3	mg/L	20	24	918	70-130		
Boron	0.44	0.10	0.050	mg/L	0.40	ND	109	70-130		
Potassium	22	0.050	0.010	mg/L	20	1.3	102	70-130		
Calcium	83	0.50	0.042	mg/L	20	62	106	70-130		
Manganese	0.41	0.010	0.0010	mg/L	0.40	ND	103	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 BI20610 - Metals Preparation for EPA Method 200.7										
Matrix Spike Dup (BI20610-MSD1)		**Source: 1209644-04**			Prepared: 09/06/12 Analyzed: 09/10/12					
Iron	8.5	0.10	0.020	mg/L	8.0	ND	106	70-130	0.7	30
Sodium	24	0.50	0.13	mg/L	20	5.3	96	70-130	4	30
Potassium	23	0.050	0.010	mg/L	20	2.5	103	70-130	4	30
Boron	0.44	0.10	0.050	mg/L	0.40	ND	111	70-130	2	30
Magnesium	25	0.50	0.020	mg/L	20	2.5	111	70-130	7	30
Calcium	36	0.50	0.042	mg/L	20	14	113	70-130	5	30
Manganese	0.42	0.010	0.0010	mg/L	0.40	0.0035	104	70-130	0.3	30
Matrix Spike Dup (BI20610-MSD2)		**Source: 1209849-01**			Prepared: 09/06/12 Analyzed: 09/10/12					
Magnesium	24	0.50	0.020	mg/L	20	3.0	104	70-130	3	30
Calcium	82	0.50	0.042	mg/L	20	62	104	70-130	0.7	30
Iron	8.3	0.10	0.020	mg/L	8.0	ND	103	70-130	1	30
Sodium	210	5.0	1.3	mg/L	20	24	910	70-130	0.7	30
Manganese	0.41	0.010	0.0010	mg/L	0.40	ND	102	70-130	1	30
Boron	0.43	0.10	0.050	mg/L	0.40	ND	108	70-130	1	30
Potassium	21	0.050	0.010	mg/L	20	1.3	99	70-130	3	30

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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.

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

SAL Project No. 1209615

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: C-HS3 SE#1

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 Use Only	Sample Description	Date	Time	Matrix	Composite	Grab	1LP, Cool Alkalinity, NOx, Cl	250mL P, H_2SO_4 COD, TKN, NH_3, TP	250mL P, H_2SO_4 TKN, NH_3	1LP, Cool Alkalinity, NOx, Cl, F, OP, SO_4	40mLaV, HCl TOC	250mLaG, Cool DOC	250mL P, HNO_3 B, Ca, Fe, Mg, Mn, K, Na				DO	pH	Conductivity	Temperature	No. of Containers (Total per each location)
01	PZ-01Q-13	083012	0804	GW		X	1	1									5.42	6.8	81.2	26.1	
02	PZ-01Q-15		0824	GW		X	1	1									8.25	6.1	43.2	25.8	
03	PZ-01Q-19		0844	GW		X	1		1								3.16	5.1	56.3	25.6	
04	PZ-04Q-13		0912	GW		X	1	1									5.55	6.0	184.5	26.5	
05	PZ-04Q-15		0931	GW		X	1	1									7.93	6.4	94.2	26.1	
06	PZ-04Q-19		0950	GW		X	1		1								3.48	6.2	75.8	25.8	
07	PZ-06Q-13		1010	GW		X		1		1	2	1	1				4.69	6.4	82.8	26.7	
08	PZ-06Q-15		1022	GW		X	1	1									2.85	6.3	411.2	26.3	
09	PZ-06Q-15 Dup		1027	GW		X	1	1									2.85	6.3	411.2	26.3	
10	PZ-06Q-19		1045	GW		X	1	1									0.53	6.6	109.8	26.1	
11	PZ-07Q-13		1058	GW		X	1	1									5.26	6.6	130.0	27.1	
12	PZ-07Q-15		1118	GW			1		1								2.76	6.4	118.3	26.6	

Relinquished:	Date/Time:	Received:	Date/Time:
Containers Prepared/ Relinquished: Bowling	1215 8/27/12		1215 082712
	1550 083012		1550 08-30-12

Seal intact? Y N N/A

Samples intact upon arrival? Y N N/A

Received on ice? Temp_____ Y N N/A

Proper preservatives indicated? Y N N/A

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

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

Proper containers used? Y N N/A

1209615

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

Chain of Custody

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

SAL Project No. 1209615

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: C-HS3 SE#1

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 Alkalinity, NOx, Cl	250mL P, H_2SO_4 TKN, NH_3									DO	pH	Conductivity	Temperature	No. of Containers (Total per each location)
13	PZ-07Q-19	083012	1137	GW		X	1	1									2.54	6.3	100.8	26.5	

Containers Prepared/ Relinquished: Bowling	Date/Time: 1215 8/27/12	Received:	Date/Time: 1215 082712
Relinquished:	Date/Time: 1550 083012	Received:	Date/Time: 1550 08-30-12
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

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

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

Chain of Custody

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	083012	SAL Project #	1209615	Project Name	C-HS3 SE#1
Well Number	PZ-01Q-13	Sample ID	01	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1.0	WELL CAPACITY (gal/ft)	0.04	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	9.13	PURGE PUMP CODE: (PP) GP IBP
TOTAL WELL DEPTH (Feet)	12.80	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)

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

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

ONE WELL VOLUME	0.146	1/4 WELL VOLUME		3 WELL VOLUMES	0.44	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	0748	PURGE TIME END	0803	TOTAL PURGED	1.50

INST. ID					SAL-SAM-63-01	SAL-SAM-65-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
0751	0.30	0.30	0.10	10.62	7.7	25.6	151.1	4.86	MAX	BROWN	NONE
0754	0.30	0.60			7.5	25.9	103.2	5.00	911		
0757	0.30	0.90			7.0	26.0	90.9	4.81	383		
0800	0.30	1.20			7.0	26.1	86.4	5.19	259	CLOUDY	
0803	0.30	1.50			6.8	26.1	81.2	5.42	123		

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	0804	SAMPLING ENDED	0805	FIELD CLEANED	Y (N)	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Clear, 77°								
COMMENTS									

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

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

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	083012	SAL Project #	1209615	Project Name	C-HS3 SE#1
Well Number	PZ-01Q-15	Sample ID	02	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)	9.13	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	15.00	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	0.117	1/4 WELL VOLUME		3 WELL VOLUMES	0.352	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	0808	PURGE TIME END	0823	TOTAL PURGED	1.50
INST. ID					SAL-SAM-63-01	SAL-SAM-65-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
0811	0.30	0.30	0.10	10.60	6.6	26.0	48.0	5.13	MAX	BROWN	NONE
0814	0.30	0.60			6.4	25.8	47.0	4.85	MAX		
0817	0.30	0.90			6.3	25.8	43.4	4.59	MAX		
0820	0.30	1.20			6.2	25.8	43.3	4.37	MAX		
0823	0.30	1.50			6.1	25.8	43.2	4.25	MAX		

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL			SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT		SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED	0824	SAMPLING ENDED	0825	FIELD CLEANED	Y N	CLEANING STEPS	
FIELD FILTERED?	Y N	FILTER SIZE (µm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A
SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A						
PRESERVATION CHECKED IN FIELD?	Y N N/A	LIST PRESERVATIVES ADDED					
WEATHER CONDITIONS	Clear, 77°						
COMMENTS							

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

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

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	083012	SAL Project #	1209615	Project Name	C-HS3 SE#1
Well Number	PZ-01Q-19	Sample ID	03	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)	9.15	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	19.00	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	0.197	1/4 WELL VOLUME		3 WELL VOLUMES	0.591	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	0828	PURGE TIME END	0843	TOTAL PURGED	1.50
INST. ID	X	X	X	X	SAL-SAM-63-01	SAL-SAM-65-01	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)
0831	0.30	0.30	0.10	10.65	5.1	25.7	59.8	3.78	MAX	BROWN	NONE
0834	0.30	0.60			5.2	25.7	57.4	3.62	MAX		
0837	0.30	0.90			5.2	25.7	56.0	3.35	505		
0840	0.30	1.20			5.2	25.6	56.2	3.25	133	CLOUDY	
0843	0.30	1.50			5.1	25.6	56.3	3.16	73.9		

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	0844	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, 78°						
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	083012	SAL Project #	1209615	Project Name	C-HS3 SE#1
Well Number	PZ-04Q-13	Sample ID	04	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1.0	WELL CAPACITY (gal/ft)	0.04	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	8.50	PURGE PUMP CODE (PP) GP IBP
TOTAL WELL DEPTH (Feet)	12.80	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)

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

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

ONE WELL VOLUME	0.172	1/4 WELL VOLUME		3 WELL VOLUMES	0.516	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	0856	PURGE TIME END	0911	TOTAL PURGED	1.50

INST. ID					SAL-SAM-63-01	SAL-SAM-65-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
0859	0.30	0.30	0.10	10.02	6.0	26.5	180.7	6.06	MAX	BROWN	NONE
0902	0.30	0.60			6.0	26.5	182.3	6.05	518		
0905	0.30	0.90			6.0	26.5	182.8	5.92	468		
0908	0.30	1.20			6.0	26.5	183.8	5.90	388	CLOUDY	
0911	0.30	1.50			6.0	26.5	184.5	5.85	325		

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	0912	SAMPLING ENDED	0913	FIELD CLEANED	Y (N)	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Clear, 80°								
COMMENTS									

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

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

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	083012	SAL Project #	1209615	Project Name	C-HS3 SE#1
Well Number	PZ-04Q-15	Sample ID	05	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	0.75	WELL CAPACITY (gal/ft)	0.02	Screen Interval (Feet)	UNK	To	UNK	Static Depth to Water (Feet)	8.55	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	15.00	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	0.129	1/4 WELL VOLUME		3 WELL VOLUMES	0.387	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	0915	PURGE TIME END	0930	TOTAL PURGED	1.50
INST. ID					SAL-SAM-63-01	SAL-SAM-65-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
0918	0.30	0.30	0.10	10.05	6.4	26.1	104.2	3.08	MAX	BROWN	NONE
0921	0.30	0.60			6.4	26.1	101.8	3.06	MAX		
0924	0.30	0.90			6.4	26.1	97.6	2.99	598		
0927	0.30	1.20			6.4	26.1	95.9	2.97	242	CLOUDY	
0930	0.30	1.50			6.4	26.1	94.2	2.93	174		

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	0931	SAMPLING ENDED	0932	FIELD CLEANED	Y N	CLEANING STEPS			
FIELD FILTERED?	Y N	FILTER SIZE (µm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?	Y N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Clear, 80°								
COMMENTS									

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

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

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	083012	SAL Project #	1209615	Project Name	C-HS3 SE#1
Well Number	PZ-04Q-19	Sample ID	06	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	0.75	WELL CAPACITY (gal/ft)	0.02	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	8.59	PURGE PUMP CODE (PP) GP IBP
TOTAL WELL DEPTH (Feet)	19.00	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	0.208	1/4 WELL VOLUME		3 WELL VOLUMES	0.624	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	0934	PURGE TIME END	0949	TOTAL PURGED	1.50
INST. ID					SAL-SAM-63-01	SAL-SAM-65-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
0937	0.30	0.30	0.10	10.09	6.0	25.8	56.8	2.92	MAX	BROWN	NONE
0940	0.30	0.60			6.0	25.8	59.7	2.96	MAX		
0943	0.30	0.90			6.1	25.8	62.4	3.08	MAX		
0946	0.30	1.20			6.2	25.8	68.7	3.25	MAX		
0949	0.30	1.50			6.2	25.8	75.8	3.48	MAX		

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL					SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP (TL) TT			SAMPLE TUBING LEGNTH IN WELL (FEET)				SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED	0950	SAMPLING ENDED	0951	FIELD CLEANED	Y (N)	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Clear, 80°								
COMMENTS									

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

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

Reviewed By:		Date:	

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	083012	SAL Project #	1209615	Project Name	C-HS3 SE#1
Well Number	PZ-06Q-13	Sample ID	07	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1.0	WELL CAPACITY (gal/ft)	0.04	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	8.58	PURGE PUMP CODE (PP) GP IBP
TOTAL WELL DEPTH (Feet)	12.80	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)

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

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

ONE WELL VOLUME	0.168	1/4 WELL VOLUME		3 WELL VOLUMES	0.506	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	0954	PURGE TIME END	1009	TOTAL PURGED	1.50

INST. ID					SAL-SAM-63-01	SAL-SAM-65-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
0957	0.30	0.30	0.10	10.03	6.3	26.9	85.9	5.59	MAX	BROWN	NONE
1000	0.30	0.60			6.3	26.9	85.0	5.50	MAX		
1003	0.30	0.90			6.4	26.7	84.4	5.53	MAX		
1006	0.30	1.20			6.4	26.7	83.8	4.88	MAX		
1009	0.30	1.50			6.4	26.7	82.8	4.69	433		

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	1010	SAMPLING ENDED	1011	FIELD CLEANED	Y (N)	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Clear, 82°								
COMMENTS									

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

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

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	083012	SAL Project #	1209615	Project Name	C-HS3 SE#1
Well Number	PZ-06Q-15	Sample ID	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)	8.60	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	15.00	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	0.128	1/4 WELL VOLUME		3 WELL VOLUMES	0.384	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	1012	PURGE TIME END	1021	TOTAL PURGED	0.90
INST. ID	X	X	X	X	SAL-SAM-63-01	SAL-SAM-65-01	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)
1015	0.30	0.30	0.10	10.20	6.3	26.3	426.8	2.90	33.8	CLOUDY	NONE
1018	0.30	0.60	/	/	6.3	26.3	417.8	2.88	32.9	/	/
1021	0.30	0.90	/	/	6.3	26.3	411.2	2.85	32.5	/	/

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	1022	SAMPLING ENDED	1023	FIELD CLEANED	Y N	CLEANING STEPS			
FIELD FILTERED?	Y N	FILTER SIZE (µm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?	Y N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Clear, 82°								
COMMENTS									

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

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

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	083012	SAL Project #	1209615	Project Name	C-HS3 SE#1
Well Number	PZ-06Q-15 Dup	Sample ID	09	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)	8.60	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	15.00	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	0.128	1/4 WELL VOLUME		3 WELL VOLUMES	0.384	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	1012	PURGE TIME END	1021	TOTAL PURGED	0.90

INST. ID					SAL-SAM-63-01	SAL-SAM-65-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
1015	0.30	0.30	0.10	10.20	6.3	26.3	426.8	2.90	33.8	CLOUDY	NONE
1018	0.30	0.60	|	|	6.3	26.3	417.8	2.88	32.9	|	|
1021	0.30	0.90	|	|	6.3	26.3	411.2	2.85	32.5	|	|

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	1027	SAMPLING ENDED	1028	FIELD CLEANED	Y N	CLEANING STEPS			
FIELD FILTERED?	Y N	FILTER SIZE (µm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?	Y N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Clear, 82°								
COMMENTS									

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

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

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	083012	SAL Project #	1209615	Project Name	C-HS3 SE#1
Well Number	PZ-06Q-19	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)	8.60	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	19.00	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	1029	PURGE TIME END	1044	TOTAL PURGED	1.50	
INST. ID	X	X	X	X	SAL-SAM-63-01	SAL-SAM-65-01	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)
1032	0.30	0.30	0.10	10.10	6.4	26.0	117.8	0.84	MAX	BROWN	NONE
1035	0.30	0.60			6.6	26.1	114.3	0.72	MAX		
1038	0.30	0.90			6.6	26.2	110.4	0.61	MAX		
1041	0.30	~~0~~ 1.20			6.6	26.2	110.9	0.60	MAX		
1044	0.30	1.50			6.6	26.1	109.8	0.53	MAX		

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL					SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP (TL) TT			SAMPLE TUBING LEGNTH IN WELL (FEET)				SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED	1045	SAMPLING ENDED	1046	FIELD CLEANED	Y (N)	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Clear, 84°								
COMMENTS									

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

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

Reviewed By:		Date:	

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	083012	SAL Project #	1209615	Project Name	C-HS3 SE#1
Well Number	PZ-07Q-13	Sample ID	11	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1.0	WELL CAPACITY (gal/ft)	0.04	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	8.45	PURGE PUMP CODE (PP) GP IBP
TOTAL WELL DEPTH (Feet)	12.80	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)

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

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

ONE WELL VOLUME	0.174	1/4 WELL VOLUME		3 WELL VOLUMES	0.522	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	1048	PURGE TIME END	1057	TOTAL PURGED	0.90

INST. ID					SAL-SAM-63-01	SAL-SAM-65-01	SAL-SAM-63-02	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)
1051	0.30	0.30	0.10	10.13	6.6	27.2	217.5	5.21	55.8	CLOUDY	NONE
1054	0.30	0.60	/	/	6.6	27.2	178.8	5.24	55.0	/	/
1057	0.30	0.90	/	/	6.6	27.1	130.0	5.26	54.3	/	/

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	1058	SAMPLING ENDED	1059	FIELD CLEANED	Y (N)	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Clear, 84°								
COMMENTS									

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

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

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	083012	SAL Project #	1209615	Project Name	C-HS3 SE#1
Well Number	PZ-07Q-15	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)	8.51	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	15.00	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	0.129	1/4 WELL VOLUME		3 WELL VOLUMES	0.389	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	1102	PURGE TIME END	1117	TOTAL PURGED	1.50	
INST. ID	X	X	X	X	SAL-SAM-63-01	SAL-SAM-65-01	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)
1105	0.30	0.30	0.10	10.21	6.5	26.7	117.1	3.04	MAT	BROWN	NONE
1108	0.30	0.60			6.5	26.7	117.4	3.00			
1111	0.30	0.90			6.5	26.7	117.8	2.90			
1114	0.30	1.20			6.5	26.6	118.0	2.85			
1117	0.30	1.50			6.4	26.6	118.3	2.76			

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	1119	FIELD CLEANED	Y (N)	CLEANING STEPS	
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)
SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)						
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED					
WEATHER CONDITIONS	clear, 85°						
COMMENTS							

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

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

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	083012	SAL Project #	1709615	Project Name	C-HS3 SE#1
Well Number	PZ-07Q-19	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)	8.48	PURGE PUMP CODE (PP) GP IBP
TOTAL WELL DEPTH (Feet)	19.00	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	0.210	1/4 WELL VOLUME		3 WELL VOLUMES	0.631		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	SC ~~0~~1.50
INST. ID				SAL-SAM-63-01	SAL-SAM-65-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01	

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
~~0~~ 1124	0.30	0.30	0.10	10.18	6.3	26.5	95.1	2.90	MAX	BROWN	NONE
1127	0.30	0.60			6.3	26.5	95.9	2.65			
1130	0.30	0.90			6.3	26.5	97.2	2.60			
1133	0.30	1.20			6.3	26.5	99.0	2.57			
1136	0.30	1.50			6.3	26.5	100.8	2.54			

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	1137	SAMPLING ENDED	1138	FIELD CLEANED	Y (N)	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Clear, 85°								
COMMENTS									

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

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

Reviewed By:		Date:	

Revision Date 09/25/09

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

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

September 14, 2012
Work Order: 1209644

Laboratory Report

Project Name **C-HS3 SE#1**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**PZ-04U-12**						
Matrix		**Groundwater**						
SAL Sample Number		**1209644-01**						
Date/Time Collected		**08/30/12 12:07**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/30/12 15:50**						
Field Parameters								
pH	SU	6.4	DEP FT1100	0.1	0.1		08/30/12 12:07	SAS
Water Temperature	°C	27.7	DEP FT1400	0.1	0.1		08/30/12 12:07	SAS
Specific conductance	umhos/cm	79	DEP FT1200	0.1	0.1		08/30/12 12:07	SAS
Dissolved Oxygen	mg/L	4.2	DEP FT1500	0.1	0.1		08/30/12 12:07	SAS
Inorganics								
Ammonia as N	mg/L	0.079	EPA 350.1	0.040	0.009		09/06/12 11:29	MMF
Chemical Oxygen Demand	mg/L	38	EPA 410.4	25	10	09/04/12 12:30	09/04/12 14:45	CDB
Chloride	mg/L	1.7	EPA 300.0	0.20	0.050		09/01/12 02:16	JAG
Nitrate (as N)	mg/L	0.65	EPA 300.0	0.04	0.01		09/01/12 02:16	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/01/12 02:16	JAG
Phosphorous - Total as P	mg/L	0.37	SM 4500P-E	0.040	0.010	09/04/12 12:01	09/06/12 14:02	MMF
Total Alkalinity	mg/L	22	SM 2320B	8.0	2.0	09/04/12 09:00	09/04/12 16:29	AES
Total Kjeldahl Nitrogen	mg/L	0.77	EPA 351.2	0.20	0.05	08/31/12 16:28	09/05/12 14:25	MMF
Nitrate+Nitrite (N)	mg/L	0.65	EPA 300.0	0.08	0.02		09/01/12 02:16	JAG
Sample Description		**PZ-04U-14**						
Matrix		**Groundwater**						
SAL Sample Number		**1209644-02**						
Date/Time Collected		**08/30/12 12:26**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/30/12 15:50**						
Field Parameters								
pH	SU	6.5	DEP FT1100	0.1	0.1		08/30/12 12:26	SAS
Water Temperature	°C	26.9	DEP FT1400	0.1	0.1		08/30/12 12:26	SAS
Specific conductance	umhos/cm	63	DEP FT1200	0.1	0.1		08/30/12 12:26	SAS
Dissolved Oxygen	mg/L	4.6	DEP FT1500	0.1	0.1		08/30/12 12:26	SAS
Inorganics								
Ammonia as N	mg/L	0.36	EPA 350.1	0.040	0.009		09/06/12 11:31	MMF
Chloride	mg/L	0.77	EPA 300.0	0.20	0.050		09/01/12 02:16	JAG
Nitrate (as N)	mg/L	0.98	EPA 300.0	0.04	0.01		09/01/12 02:16	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/01/12 02:16	JAG
Total Alkalinity	mg/L	32	SM 2320B	8.0	2.0	09/04/12 09:00	09/04/12 16:29	AES
Total Kjeldahl Nitrogen	mg/L	10	EPA 351.2	0.20	0.05	08/31/12 16:28	09/05/12 15:30	MMF
Nitrate+Nitrite (N)	mg/L	0.98	EPA 300.0	0.08	0.02		09/01/12 02:16	JAG

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

September 14, 2012
Work Order: 1209644

Laboratory Report

Project Name **C-HS3 SE#1**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**PZ-04U-18**						
Matrix		**Groundwater**						
SAL Sample Number		**1209644-03**						
Date/Time Collected		**08/30/12 12:44**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/30/12 15:50**						
Field Parameters								
pH	SU	5.6	DEP FT1100	0.1	0.1		08/30/12 12:44	SAS
Water Temperature	°C	26.3	DEP FT1400	0.1	0.1		08/30/12 12:44	SAS
Specific conductance	umhos/cm	90	DEP FT1200	0.1	0.1		08/30/12 12:44	SAS
Dissolved Oxygen	mg/L	3.5	DEP FT1500	0.1	0.1		08/30/12 12:44	SAS
Inorganics								
Ammonia as N	mg/L	0.41	EPA 350.1	0.040	0.009		09/06/12 11:33	MMF
Chloride	mg/L	5.8	EPA 300.0	0.20	0.050		09/01/12 02:16	JAG
Nitrate (as N)	mg/L	3.4	EPA 300.0	0.04	0.01		09/01/12 02:16	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/01/12 02:16	JAG
Total Alkalinity	mg/L	14	SM 2320B	8.0	2.0	09/04/12 09:00	09/04/12 16:29	AES
Total Kjeldahl Nitrogen	mg/L	4.0	EPA 351.2	0.20	0.05	08/31/12 16:28	09/05/12 14:28	MMF
Nitrate+Nitrite (N)	mg/L	3.4	EPA 300.0	0.08	0.02		09/01/12 02:16	JAG
Sample Description		**PZ-06U-12**						
Matrix		**Groundwater**						
SAL Sample Number		**1209644-04**						
Date/Time Collected		**08/30/12 13:04**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/30/12 15:50**						
Field Parameters								
pH	SU	6.4	DEP FT1100	0.1	0.1		08/30/12 13:04	SAS
Water Temperature	°C	27.4	DEP FT1400	0.1	0.1		08/30/12 13:04	SAS
Specific conductance	umhos/cm	124	DEP FT1200	0.1	0.1		08/30/12 13:04	SAS
Dissolved Oxygen	mg/L	4.6	DEP FT1500	0.1	0.1		08/30/12 13:04	SAS
Inorganics								
Ammonia as N	mg/L	0.055	EPA 350.1	0.040	0.009		09/06/12 11:35	MMF
Chemical Oxygen Demand	mg/L	17 I	EPA 410.4	25	10	09/04/12 12:30	09/04/12 14:45	CDB
Chloride	mg/L	5.8	EPA 300.0	0.20	0.050		09/01/12 02:16	JAG
Fluoride	mg/L	0.036 I	EPA 300.0	0.040	0.010		09/01/12 02:16	JAG
Nitrate (as N)	mg/L	1.2	EPA 300.0	0.04	0.01		09/01/12 02:16	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/01/12 02:16	JAG
Orthophosphate as P	mg/L	0.13	EPA 300.0	0.040	0.010		09/01/12 02:16	JAG
Phosphorous - Total as P	mg/L	0.44	SM 4500P-E	0.040	0.010	09/04/12 12:01	09/06/12 14:03	MMF
Sulfate	mg/L	15	EPA 300.0	0.60	0.20		09/01/12 02:16	JAG
Total Alkalinity	mg/L	32	SM 2320B	8.0	2.0	09/04/12 09:00	09/04/12 16:29	AES
Total Kjeldahl Nitrogen	mg/L	0.41	EPA 351.2	0.20	0.05	08/31/12 16:28	09/05/12 14:29	MMF
Total Organic Carbon	mg/L	4.8	SM 5310B	1.0	0.50		08/31/12 16:25	MEJ

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Hazen and Sawyer
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Tampa, FL 33619

September 14, 2012
Work Order: 1209644

Laboratory Report

Project Name **C-HS3 SE#1**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**PZ-06U-12**						
Matrix		**Groundwater**						
SAL Sample Number		**1209644-04**						
Date/Time Collected		**08/30/12 13:04**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/30/12 15:50**						
Nitrate+Nitrite (N)	mg/L	1.2	EPA 300.0	0.08	0.02		09/01/12 02:16	JAG
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	3.3	SM 5310B	1.0	0.50		09/01/12 10:10	MEJ
Metals								
Boron	mg/L	0.050 U	EPA 200.7	0.10	0.050	09/06/12 10:12	09/10/12 17:52	VWC
Calcium	mg/L	14	EPA 200.7	0.50	0.042	09/06/12 10:12	09/10/12 17:52	VWC
Iron	mg/L	0.020 U	EPA 200.7	0.10	0.020	09/06/12 10:12	09/10/12 17:52	VWC
Magnesium	mg/L	2.5	EPA 200.7	0.50	0.020	09/06/12 10:12	09/10/12 17:52	VWC
Manganese	mg/L	0.0035 I	EPA 200.7	0.010	0.0010	09/06/12 10:12	09/10/12 17:52	VWC
Potassium	mg/L	2.5	EPA 200.7	0.050	0.010	09/06/12 10:12	09/10/12 17:52	VWC
Sodium	mg/L	5.3	EPA 200.7	0.50	0.13	09/06/12 10:12	09/10/12 17:52	VWC
Sample Description		**PZ-06U-12 Dup**						
Matrix		**Groundwater**						
SAL Sample Number		**1209644-05**						
Date/Time Collected		**08/30/12 13:09**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/30/12 15:50**						
Field Parameters								
pH	SU	6.4	DEP FT1100	0.1	0.1		08/30/12 13:09	SAS
Water Temperature	°C	27.4	DEP FT1400	0.1	0.1		08/30/12 13:09	SAS
Specific conductance	umhos/cm	124	DEP FT1200	0.1	0.1		08/30/12 13:09	SAS
Dissolved Oxygen	mg/L	4.6	DEP FT1500	0.1	0.1		08/30/12 13:09	SAS
Inorganics								
Ammonia as N	mg/L	0.049	EPA 350.1	0.040	0.009		09/06/12 11:37	MMF
Chemical Oxygen Demand	mg/L	20 I	EPA 410.4	25	10	09/04/12 12:30	09/04/12 14:45	CDB
Chloride	mg/L	6.0	EPA 300.0	0.20	0.050		09/01/12 02:16	JAG
Fluoride	mg/L	0.011 I	EPA 300.0	0.040	0.010		09/01/12 02:16	JAG
Nitrate (as N)	mg/L	1.3	EPA 300.0	0.04	0.01		09/01/12 02:16	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/01/12 02:16	JAG
Orthophosphate as P	mg/L	0.20	EPA 300.0	0.040	0.010		09/01/12 02:16	JAG
Phosphorous - Total as P	mg/L	0.43	SM 4500P-E	0.040	0.010	09/04/12 12:01	09/06/12 14:06	MMF
Sulfate	mg/L	16	EPA 300.0	0.60	0.20		09/01/12 02:16	JAG
Total Alkalinity	mg/L	32	SM 2320B	8.0	2.0	09/04/12 09:00	09/04/12 16:29	AES
Total Kjeldahl Nitrogen	mg/L	0.43	EPA 351.2	0.20	0.05	08/31/12 16:28	09/05/12 14:31	MMF
Total Organic Carbon	mg/L	4.1	SM 5310B	1.0	0.50		08/31/12 16:25	MEJ
Nitrate+Nitrite (N)	mg/L	1.3	EPA 300.0	0.08	0.02		09/01/12 02:16	JAG
Inorganic, Dissolved								

Hazen and Sawyer
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September 14, 2012
Work Order: 1209644

Laboratory Report

Project Name **C-HS3 SE#1**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**PZ-06U-12 Dup**						
Matrix		**Groundwater**						
SAL Sample Number		**1209644-05**						
Date/Time Collected		**08/30/12 13:09**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/30/12 15:50**						
Dissolved Organic Carbon	mg/L	3.5	SM 5310B	1.0	0.50		09/01/12 10:10	MEJ
Metals								
Boron	mg/L	0.050 U	EPA 200.7	0.10	0.050	09/06/12 10:12	09/10/12 18:09	VWC
Calcium	mg/L	14	EPA 200.7	0.50	0.042	09/06/12 10:12	09/10/12 18:09	VWC
Iron	mg/L	0.020 U	EPA 200.7	0.10	0.020	09/06/12 10:12	09/11/12 17:52	VWC
Magnesium	mg/L	2.6	EPA 200.7	0.50	0.020	09/06/12 10:12	09/10/12 18:09	VWC
Manganese	mg/L	0.0044 I	EPA 200.7	0.010	0.0010	09/06/12 10:12	09/10/12 18:09	VWC
Potassium	mg/L	2.6	EPA 200.7	0.050	0.010	09/06/12 10:12	09/10/12 18:09	VWC
Sodium	mg/L	5.7	EPA 200.7	0.50	0.13	09/06/12 10:12	09/10/12 18:09	VWC
Sample Description		**PZ-06U-14**						
Matrix		**Groundwater**						
SAL Sample Number		**1209644-06**						
Date/Time Collected		**08/30/12 13:28**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/30/12 15:50**						
Field Parameters								
pH	SU	5.9	DEP FT1100	0.1	0.1		08/30/12 13:28	SAS
Water Temperature	°C	26.9	DEP FT1400	0.1	0.1		08/30/12 13:28	SAS
Specific conductance	umhos/cm	394	DEP FT1200	0.1	0.1		08/30/12 13:28	SAS
Dissolved Oxygen	mg/L	2.1	DEP FT1500	0.1	0.1		08/30/12 13:28	SAS
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		09/06/12 11:39	MMF
Chloride	mg/L	24	EPA 300.0	0.20	0.050		09/01/12 02:16	JAG
Nitrate (as N)	mg/L	27	EPA 300.0	0.04	0.01		08/31/12 17:29	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/01/12 02:16	JAG
Total Alkalinity	mg/L	22	SM 2320B	8.0	2.0	09/04/12 09:00	09/04/12 16:29	AES
Total Kjeldahl Nitrogen	mg/L	2.1	EPA 351.2	0.20	0.05	08/31/12 16:28	09/05/12 14:32	MMF
Nitrate+Nitrite (N)	mg/L	27	EPA 300.0	0.08	0.02		09/01/12 02:16	JAG
Sample Description		**PZ-06U-34**						
Matrix		**Groundwater**						
SAL Sample Number		**1209644-07**						
Date/Time Collected		**08/30/12 13:48**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/30/12 15:50**						
Field Parameters								

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Laboratory Report

Project Name		**C-HS3 SE#1**						
Parameters	**Units**	**Results ***	**Method**	**PQL**	**MDL**	**Prepared**	**Analyzed**	**By**
Sample Description		**PZ-06U-34**						
Matrix		**Groundwater**						
SAL Sample Number		**1209644-07**						
Date/Time Collected		**08/30/12 13:48**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/30/12 15:50**						
pH	SU	5.9	DEP FT1100	0.1	0.1		08/30/12 13:48	SAS
Water Temperature	°C	26.0	DEP FT1400	0.1	0.1		08/30/12 13:48	SAS
Specific conductance	umhos/cm	230	DEP FT1200	0.1	0.1		08/30/12 13:48	SAS
Dissolved Oxygen	mg/L	0.9	DEP FT1500	0.1	0.1		08/30/12 13:48	SAS
Inorganics								
Ammonia as N	mg/L	0.22	EPA 350.1	0.040	0.009		09/06/12 11:42	MMF
Chloride	mg/L	12	EPA 300.0	0.20	0.050		09/01/12 02:16	JAG
Nitrate (as N)	mg/L	9.1	EPA 300.0	0.04	0.01		09/01/12 02:16	JAG
Nitrite (as N)	mg/L	0.02 I	EPA 300.0	0.04	0.01		09/01/12 02:16	JAG
Total Alkalinity	mg/L	12	SM 2320B	8.0	2.0	09/04/12 09:00	09/04/12 16:29	AES
Total Kjeldahl Nitrogen	mg/L	3.6	EPA 351.2	0.20	0.05	08/31/12 16:28	09/05/12 14:33	MMF
Nitrate+Nitrite (N)	mg/L	9.1	EPA 300.0	0.08	0.02		09/01/12 02:16	JAG

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BH23107 - Ion Chromatography 300.0 Prep										
Blank (BH23107-BLK1)					Prepared & Analyzed: 09/01/12					
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						
Sulfate	0.20 U	0.60	0.20	mg/L						
Orthophosphate as P	0.010 U	0.040	0.010	mg/L						
Chloride	0.050 U	0.20	0.050	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 (BH23107-BS1)					Prepared & Analyzed: 09/01/12					
Sulfate	9.07	0.60	0.20	mg/L	9.0		101	85-115		
Orthophosphate as P	0.939	0.040	0.010	mg/L	0.90		104	85-115		
Nitrite (as N)	1.42	0.04	0.01	mg/L	1.4		101	85-115		
Nitrate (as N)	1.69	0.04	0.01	mg/L	1.7		99	85-115		
Fluoride	0.944	0.040	0.010	mg/L	0.90		105	85-115		
Chloride	2.97	0.20	0.050	mg/L	3.0		99	85-115		
LCS Dup (BH23107-BSD1)					Prepared & Analyzed: 09/01/12					
Orthophosphate as P	0.975	0.040	0.010	mg/L	0.90		108	85-115	4	200
Chloride	2.94	0.20	0.050	mg/L	3.0		98	85-115	1	200
Fluoride	0.935	0.040	0.010	mg/L	0.90		104	85-115	1	200
Sulfate	8.99	0.60	0.20	mg/L	9.0		100	85-115	0.9	200
Nitrate (as N)	1.70	0.04	0.01	mg/L	1.7		100	85-115	0.6	200
Nitrite (as N)	1.41	0.04	0.01	mg/L	1.4		101	85-115	0.7	200
Matrix Spike (BH23107-MS1)		**Source: 1209644-02**			Prepared & Analyzed: 09/01/12					
Chloride	3.74	0.20	0.050	mg/L	3.0	0.768	99	80-120		
Fluoride	1.21	0.040	0.010	mg/L	0.90	0.386	92	85-115		
Nitrate (as N)	2.83	0.04	0.01	mg/L	1.7	0.977	109	85-115		
Nitrite (as N)	1.45	0.04	0.01	mg/L	1.4	ND	104	85-115		
Orthophosphate as P	0.847	0.040	0.010	mg/L	0.90	ND	94	85-115		
Sulfate	14.7	0.60	0.20	mg/L	9.0	5.34	104	85-115		

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BH23107 - Ion Chromatography 300.0 Prep										
Matrix Spike (BH23107-MS2)		**Source: 1209645-05**			Prepared & Analyzed: 09/01/12					
Chloride	4.35	0.20	0.050	mg/L	3.0	1.33	101	80-120		
Nitrate (as N)	1.67	0.04	0.01	mg/L	1.7	ND	98	85-115		
Nitrite (as N)	1.40	0.04	0.01	mg/L	1.4	ND	100	85-115		
Sulfate	9.80	0.60	0.20	mg/L	9.0	0.966	98	85-115		
Orthophosphate as P	0.926	0.040	0.010	mg/L	0.90	ND	103	85-115		
Fluoride	0.862	0.040	0.010	mg/L	0.90	ND	96	85-115		
Batch BH23132 - Digestion for TKN by EPA 351.2										
Blank (BH23132-BLK1)					Prepared: 08/31/12 Analyzed: 09/05/12					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
LCS (BH23132-BS1)					Prepared: 08/31/12 Analyzed: 09/05/12					
Total Kjeldahl Nitrogen	2.44	0.20	0.05	mg/L	2.5		96	90-110		
Matrix Spike (BH23132-MS1)		**Source: 1209615-12**			Prepared: 08/31/12 Analyzed: 09/05/12					
Total Kjeldahl Nitrogen	28.9	0.20	0.05	mg/L	25	7.85	83	80-120		
Matrix Spike Dup (BH23132-MSD1)		**Source: 1209615-12**			Prepared: 08/31/12 Analyzed: 09/05/12					
Total Kjeldahl Nitrogen	28.4	0.20	0.05	mg/L	25	7.85	81	80-120	2	20
Batch BI20101 - TOC prep										
Blank (BI20101-BLK1)					Prepared & Analyzed: 08/31/12					
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 BI20101 - TOC prep										
Blank (BI20101-BLK2)					Prepared & Analyzed: 08/31/12					
Total Organic Carbon	0.50 U	1.0	0.50	mg/L						
LCS (BI20101-BS1)					Prepared & Analyzed: 08/31/12					
Total Organic Carbon	9.02	1.0	0.50	mg/L	10		90	90-110		
LCS (BI20101-BS2)					Prepared & Analyzed: 08/31/12					
Total Organic Carbon	10.8	1.0	0.50	mg/L	10		108	90-110		
Matrix Spike (BI20101-MS1)		**Source: 1209848-02**			Prepared & Analyzed: 08/31/12					
Total Organic Carbon	23.0	1.0	0.50	mg/L	10	14.0	90	85-115		
Matrix Spike (BI20101-MS2)		**Source: 1209848-10**			Prepared & Analyzed: 08/31/12					
Total Organic Carbon	21.7	1.0	0.50	mg/L	10	12.7	90	85-115		
Matrix Spike Dup (BI20101-MSD1)		**Source: 1209848-02**			Prepared & Analyzed: 08/31/12					
Total Organic Carbon	22.5	1.0	0.50	mg/L	10	14.0	85	85-115	2	10
Matrix Spike Dup (BI20101-MSD2)		**Source: 1209848-10**			Prepared & Analyzed: 08/31/12					
Total Organic Carbon	21.9	1.0	0.50	mg/L	10	12.7	92	85-115	0.9	10
Batch BI20404 - alkalinity										
Blank (BI20404-BLK1)					Prepared & Analyzed: 09/04/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
Blank (BI20404-BLK2)					Prepared & Analyzed: 09/04/12					
Total Alkalinity	2.0 U	8.0	2.0	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 BI20404 - alkalinity										
LCS (BI20404-BS1)					Prepared & Analyzed: 09/04/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		
LCS (BI20404-BS2)					Prepared & Analyzed: 09/04/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		
Matrix Spike (BI20404-MS1)		**Source: 1209644-01**			Prepared & Analyzed: 09/04/12					
Total Alkalinity	150	8.0	2.0	mg/L	120	22	103	80-120		
Matrix Spike (BI20404-MS2)		**Source: 1209932-05**			Prepared & Analyzed: 09/04/12					
Total Alkalinity	200	8.0	2.0	mg/L	120	86	95	80-120		
Matrix Spike Dup (BI20404-MSD1)		**Source: 1209644-01**			Prepared & Analyzed: 09/04/12					
Total Alkalinity	150	8.0	2.0	mg/L	120	22	103	80-120	0	26
Matrix Spike Dup (BI20404-MSD2)		**Source: 1209932-05**			Prepared & Analyzed: 09/04/12					
Total Alkalinity	200	8.0	2.0	mg/L	120	86	95	80-120	0	26
Batch BI20416 - COD prep										
Blank (BI20416-BLK1)					Prepared & Analyzed: 09/04/12					
Chemical Oxygen Demand	10 U	25	10	mg/L						
LCS (BI20416-BS1)					Prepared & Analyzed: 09/04/12					
Chemical Oxygen Demand	54	25	10	mg/L	50		108	90-110		
Matrix Spike (BI20416-MS1)		**Source: 1209647-02**			Prepared & Analyzed: 09/04/12					
Chemical Oxygen Demand	54	25	10	mg/L	50	ND	108	85-115		

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI20416 - COD prep										
Matrix Spike Dup (BI20416-MSD1)		**Source: 1209647-02**			Prepared & Analyzed: 09/04/12					
Chemical Oxygen Demand	54	25	10	mg/L	50	ND	108	85-115	0	32
Batch BI20422 - Ion Chromatography 300.0 Prep										
Blank (BI20422-BLK1)					Prepared & Analyzed: 09/04/12					
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
LCS (BI20422-BS1)					Prepared & Analyzed: 09/04/12					
Nitrate (as N)	1.82	0.04	0.01	mg/L	1.7		107	85-115		
LCS Dup (BI20422-BSD1)					Prepared & Analyzed: 09/04/12					
Nitrate (as N)	1.84	0.04	0.01	mg/L	1.7		108	85-115	1	200
Matrix Spike (BI20422-MS1)		**Source: 1209535-02**			Prepared & Analyzed: 09/04/12					
Nitrate (as N)	1,750	0.04	0.01	mg/L	1700	ND	103	85-115		
Matrix Spike (BI20422-MS2)		**Source: 1209573-10**			Prepared & Analyzed: 09/04/12					
Nitrate (as N)	1.84	0.04	0.01	mg/L	1.7	0.0657	104	85-115		
Batch BI20425 - Digestion for TP by EPA 365.2/SM4500PE										
Blank (BI20425-BLK1)					Prepared: 09/04/12 Analyzed: 09/06/12					
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						
Blank (BI20425-BLK2)					Prepared: 09/04/12 Analyzed: 09/06/12					
Phosphorous - Total as P	0.010 U	0.040	0.010	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 BI20425 - Digestion for TP by EPA 365.2/SM4500PE										
LCS (BI20425-BS1)					Prepared: 09/04/12 Analyzed: 09/06/12					
Phosphorous - Total as P	0.772	0.040	0.010	mg/L	0.80		97	90-110		
LCS (BI20425-BS2)					Prepared: 09/04/12 Analyzed: 09/06/12					
Phosphorous - Total as P	0.790	0.040	0.010	mg/L	0.80		99	90-110		
Matrix Spike (BI20425-MS1)		**Source: 1209819-02**			Prepared: 09/04/12 Analyzed: 09/06/12					
Phosphorous - Total as P	1.03	0.040	0.010	mg/L	1.0	0.0396	99	75-125		
Matrix Spike (BI20425-MS2)		**Source: 1209840-07**			Prepared: 09/04/12 Analyzed: 09/06/12					
Phosphorous - Total as P	1.17	0.040	0.010	mg/L	1.0	0.158	101	75-125		
Matrix Spike Dup (BI20425-MSD1)		**Source: 1209819-02**			Prepared: 09/04/12 Analyzed: 09/06/12					
Phosphorous - Total as P	0.992	0.040	0.010	mg/L	1.0	0.0396	95	75-125	4	25
Matrix Spike Dup (BI20425-MSD2)		**Source: 1209840-07**			Prepared: 09/04/12 Analyzed: 09/06/12					
Phosphorous - Total as P	1.16	0.040	0.010	mg/L	1.0	0.158	100	75-125	0.6	25
Batch BI20603 - Ammonia by SEAL										
Blank (BI20603-BLK1)					Prepared & Analyzed: 09/06/12					
Ammonia as N	0.009 U	0.040	0.009	mg/L						
LCS (BI20603-BS1)					Prepared & Analyzed: 09/06/12					
Ammonia as N	0.48	0.040	0.009	mg/L	0.50		96	90-110		
Matrix Spike (BI20603-MS1)		**Source: 1209897-07**			Prepared & Analyzed: 09/06/12					
Ammonia as N	0.57	0.040	0.009	mg/L	0.50	0.086	98	90-110		

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI20603 - Ammonia by SEAL										
Matrix Spike Dup (BI20603-MSD1)		**Source: 1209897-07**			Prepared & Analyzed: 09/06/12					
Ammonia as N	0.58	0.040	0.009	mg/L	0.50	0.086	100	90-110	2	10

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Inorganic, Dissolved - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI20431 - TOC prep										
Blank (BI20431-BLK1)					Prepared & Analyzed: 09/01/12					
Dissolved Organic Carbon	0.50 U	1.0	0.50	mg/L						
LCS (BI20431-BS1)					Prepared & Analyzed: 09/01/12					
Dissolved Organic Carbon	10.3	1.0	0.50	mg/L	10		103	90-110		
Matrix Spike (BI20431-MS1)		**Source: 1209647-01**			Prepared & Analyzed: 09/01/12					
Dissolved Organic Carbon	8.69	1.0	0.50	mg/L	10	ND	87	85-125		
Matrix Spike Dup (BI20431-MSD1)		**Source: 1209647-01**			Prepared & Analyzed: 09/01/12					
Dissolved Organic Carbon	9.79	1.0	0.50	mg/L	10	ND	98	85-125	12	25

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Metals - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI20610 - Metals Preparation for EPA Method 200.7										
Blank (BI20610-BLK1)					Prepared: 09/06/12 Analyzed: 09/10/12					
Manganese	0.0010 U	0.010	0.0010	mg/L						
Magnesium	0.020 U	0.50	0.020	mg/L						
Iron	0.020 U	0.10	0.020	mg/L						
Sodium	0.13 U	0.50	0.13	mg/L						
Potassium	0.010 U	0.050	0.010	mg/L						
Boron	0.050 U	0.10	0.050	mg/L						
Calcium	0.042 U	0.50	0.042	mg/L						
LCS (BI20610-BS1)					Prepared: 09/06/12 Analyzed: 09/10/12					
Calcium	20	0.50	0.042	mg/L	20		102	85-115		
Manganese	0.41	0.010	0.0010	mg/L	0.40		103	85-115		
Magnesium	20	0.50	0.020	mg/L	20		101	85-115		
Sodium	20	0.50	0.13	mg/L	20		100	85-115		
Potassium	19	0.050	0.010	mg/L	20		96	85-115		
Iron	8.3	0.10	0.020	mg/L	8.0		104	85-115		
Boron	0.39	0.10	0.050	mg/L	0.40		98	85-115		
Matrix Spike (BI20610-MS1)		**Source: 1209644-04**			Prepared: 09/06/12 Analyzed: 09/10/12					
Calcium	35	0.50	0.042	mg/L	20	14	104	70-130		
Sodium	25	0.50	0.13	mg/L	20	5.3	101	70-130		
Manganese	0.42	0.010	0.0010	mg/L	0.40	0.0035	103	70-130		
Magnesium	23	0.50	0.020	mg/L	20	2.5	102	70-130		
Iron	8.4	0.10	0.020	mg/L	8.0	ND	105	70-130		
Boron	0.43	0.10	0.050	mg/L	0.40	ND	108	70-130		
Potassium	22	0.050	0.010	mg/L	20	2.5	99	70-130		
Matrix Spike (BI20610-MS2)		**Source: 1209849-01**			Prepared: 09/06/12 Analyzed: 09/10/12					
Manganese	0.41	0.010	0.0010	mg/L	0.40	ND	103	70-130		
Boron	0.44	0.10	0.050	mg/L	0.40	ND	109	70-130		
Magnesium	23	0.50	0.020	mg/L	20	3.0	101	70-130		
Calcium	83	0.50	0.042	mg/L	20	62	106	70-130		
Iron	8.3	0.10	0.020	mg/L	8.0	ND	104	70-130		
Potassium	22	0.050	0.010	mg/L	20	1.3	102	70-130		
Sodium	210	5.0	1.3	mg/L	20	24	918	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 BI20610 - Metals Preparation for EPA Method 200.7										
Matrix Spike Dup (BI20610-MSD1)		**Source: 1209644-04**			Prepared: 09/06/12 Analyzed: 09/10/12					
Boron	0.44	0.10	0.050	mg/L	0.40	ND	111	70-130	2	30
Sodium	24	0.50	0.13	mg/L	20	5.3	96	70-130	4	30
Potassium	23	0.050	0.010	mg/L	20	2.5	103	70-130	4	30
Iron	8.5	0.10	0.020	mg/L	8.0	ND	106	70-130	0.7	30
Calcium	36	0.50	0.042	mg/L	20	14	113	70-130	5	30
Manganese	0.42	0.010	0.0010	mg/L	0.40	0.0035	104	70-130	0.3	30
Magnesium	25	0.50	0.020	mg/L	20	2.5	111	70-130	7	30
Matrix Spike Dup (BI20610-MSD2)		**Source: 1209849-01**			Prepared: 09/06/12 Analyzed: 09/10/12					
Potassium	21	0.050	0.010	mg/L	20	1.3	99	70-130	3	30
Boron	0.43	0.10	0.050	mg/L	0.40	ND	108	70-130	1	30
Iron	8.3	0.10	0.020	mg/L	8.0	ND	103	70-130	1	30
Sodium	210	5.0	1.3	mg/L	20	24	910	70-130	0.7	30
Calcium	82	0.50	0.042	mg/L	20	62	104	70-130	0.7	30
Magnesium	24	0.50	0.020	mg/L	20	3.0	104	70-130	3	30
Manganese	0.41	0.010	0.0010	mg/L	0.40	ND	102	70-130	1	30

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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.

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

SAL Project No. 1209644

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: C-HS3 SE#1

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 Sample No.	Sample Description	Date	Time	Matrix	Composite	Grab	1LP, Cool Alaklinity, NOx, Cl	250mL P, H_2SO_4 COD, TKN, NH_3, TP	250mL P, H_2SO_4 TKN, NH_3	1LP, Cool Alkalinity, NOx, Cl, F, OP, SO_4	40mLaV, HCl TOC	250mLaG, Cool DOC	250mL P, HNO_3 B, Ca, Fe, Mg, Mn, K, Na				DO	pH	Conductivity	Temperature	No. of Containers (Total per each location)
01	PZ-04U-12	083012	1207	GW		X	1	1									4.15	6.4	92.6	27.7	
02	PZ-04U-14		1226	GW		X	1		1								4.61	6.5	62.3	26.9	
03	PZ-04U-18		1247	GW		X	1		1								3.47	5.6	90.4	26.3	
04	PZ-06U-12		1304	GW		X		1		1	2	1	1				4.57	6.4	124.2	27.4	
05	PZ-06U-12 Dup		1309	GW		X		1		1	2	1	1				4.57	6.4	124.2	27.4	
06	PZ-06U-14		1328	GW		X	1		1								2.08	5.9	395.9	5.9	
07	PZ-06U-34		1348	GW		X	1		1								0.86	5.9	230.2	26.0	

Containers Prepared/ Relinquished:	Date/Time:	Received:	Date/Time:
J. Chambers	8-27-12 11:53		1153 082712
Relinquished:	Date/Time: 1550 083012	Received:	Date/Time: 1550 08-30-12
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

Seal intact? Y N N/A

Samples intact upon arrival? Y N N/A

Received on ice? Temp_____ Y N N/A

Proper preservatives indicated? Y N N/A

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

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

Proper containers used? Y N N/A

1209644

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

Chain of Custody

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	083012	SAL Project #	1209644	Project Name	C-HS3 SE#1
Well Number	PZ-04U-12	Sample ID	01	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1.0	WELL CAPACITY (gal/ft)	0.04	Screen Interval (Feet)	UNK	To	UNK	Static Depth to Water (Feet)	9.60	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	11.80	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)				TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	

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

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

ONE WELL VOLUME	0.168	1/4 WELL VOLUME		3 WELL VOLUMES	0.504	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	1151	PURGE TIME END	1206	TOTAL PURGED	1.50
INST. ID					SAL-SAM-63-01	SAL-SAM-65-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
1154	0.30	0.30	0.10	9.00	6.4	27.8	78.1	4.68	MAX	BROWN	NONE
1157	0.30	0.60			6.4	27.8	78.4	4.60	MAX		
1200	0.30	0.90			6.4	27.7	78.7	4.28	MAX		
1203	0.30	1.20			6.4	27.7	78.6	4.20	391		
1206	0.30	1.50			6.4	27.7	78.6	4.15	226	Cloudy	

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	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	083012	SAL Project #	1209614	Project Name	C-HS3 SE#1
Well Number	PZ-04U-14	Sample ID	02	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)	7.62	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	14.00	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	0.127	1/4 WELL VOLUME		3 WELL VOLUMES	0.382	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-65-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01		

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
1213	0.30	0.30	0.10	10.01	6.5	27.8	62.3	4.84	MAX	BROWN	NONE
1216	0.30	0.40			6.5	27.5	62.8	4.70	MAX		
1219	0.30	0.90			6.5	27.4	62.9	4.52	MAX		
1222	0.30	1.20			6.5	27.0	63.1	4.59	MAX		
1225	0.30	1.50			6.5	26.9	63.3	4.61	MAX		

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL			SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP (TL) TT		SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED	1226	SAMPLING ENDED	1227	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, 87°						
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	083012	SAL Project #	1209644	Project Name	C-HS3 SE#1
Well Number	PZ-04U-18	Sample ID	03	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)	7.64	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	18.00	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	0.207	1/4 WELL VOLUME		3 WELL VOLUMES	0.621	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	1228	PURGE TIME END	1243	TOTAL PURGED	1.50	
INST. ID				SAL-SAM-63-01	SAL-SAM-65-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01		

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
1231	0.30	0.30	0.10	9.89	6.0	26.8	82.5	3.68	MAX	BROWN	NONE
1234	0.30	0.60			5.9	26.6	86.4	3.64	MAX		
1237	0.30	0.90			5.8	26.4	88.7	3.62	MAX		
1240	0.30	~~0.~~ 1.20			5.7	26.2	89.7	3.58	MAX		
1243	0.30	1.50			5.6	26.3	90.4	3.47	MAX		

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL					SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP (TL) TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	1244	SAMPLING ENDED	1245	FIELD CLEANED	Y (N)	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Clear, 88°								
COMMENTS									

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

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

Reviewed By:		Date:	

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	083012	SAL Project #	1209644	Project Name	C-HS3 SE#1
Well Number	PZ-06U-12	Sample ID	04	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1.0	WELL CAPACITY (gal/ft)	0.04	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	7.13	PURGE PUMP CODE (PP) GP IBP
TOTAL WELL DEPTH (Feet)	11.75	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)
Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)									
WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =									
ONE WELL VOLUME	0.184	1/4 WELL VOLUME		3 WELL VOLUMES	0.554		5 WELL VOLUMES		
EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME									
PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME			EQUIPMENT VOLUME		
INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START	1248	PURGE TIME END	1303	TOTAL PURGED	1.50

INST. ID					SAL-SAM-63-01	SAL-SAM-65-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
1251	0.30	0.20	0.10	9.02	6.2	27.4	123.5	4.00	MAX	BROWN	NONE
1254	0.30	0.60			6.2	27.5	123.9	4.04	MAX		
1257	0.30	0.90			6.3	27.5	124.3	4.08	648		
1300	0.30	1.20			6.4	27.5	124.0	4.20	348		
1303	0.30	1.50			6.4	27.4	124.2	4.57	207	CLOUDY	

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

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

SAMPLING DATA

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

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

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

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	083012	SAL Project #	1209644	Project Name	C-HS3 SE#1
Well Number	PZ-06U-12 Dup	Sample ID	05	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1.0	WELL CAPACITY (gal/ft)	0.04	Screen Interval (Feet)	UNK	To	UNK	Static Depth to Water (Feet)	7.13	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	11.75	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)				TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	

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

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

ONE WELL VOLUME	0.184	1/4 WELL VOLUME		3 WELL VOLUMES	0.554	5 WELL VOLUMES	

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

PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME		EQUIPMENT VOLUME	

INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START	1248	PURGE TIME END	1303	TOTAL PURGED	1.50
INST. ID	X	X	X	X	SAL-SAM-63-01	SAL-SAM-65-01	SAL-SAM-63-01	SAL-SAM-55-03	SAL-SAM-01	X	X

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
1251	0.30	0.30	0.10	9.02	6.2	27.4	123.5	4.00	MAX	BROWN	NONE
1254	0.30	0.60			6.2	27.5	123.9	4.04	MAX		
1257	0.30	0.90			6.3	27.5	124.3	4.08	648		
1300	0.30	1.20			6.4	27.5	124.0	4.20	348		
1303	0.30	1.50			6.4	27.4	124.2	4.57	207	CLOUDY	

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

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

SAMPLING DATA

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

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

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

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	083012	SAL Project #	1209644	Project Name	C-HS3 SE#1
Well Number	PZ-06U-14	Sample ID	06	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	0.75	WELL CAPACITY (gal/ft)	0.02	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	7.18	PURGE PUMP CODE (PP) GP IBP
TOTAL WELL DEPTH (Feet)	14.00	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	0.136	1/4 WELL VOLUME		3 WELL VOLUMES	0.409	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	1312	PURGE TIME END	1327	TOTAL PURGED	1.50

INST. ID					SAL-SAM-63-01	SAL-SAM-65-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-04		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
1315	0.30	0.30	0.10	9.08	6.1	27.3	375.1	2.27	65.1	BROWN	NONE
1318	0.30	0.60			6.1	27.1	379.8	2.17	40.4		
1321	0.30	0.90			6.0	27.0	388.8	2.15	10.9	CLOUDY	
1324	0.30	1.20			6.0	27.0	390.8	2.10	58.7		
1327	0.30	1.50			5.9	26.9	393.9	2.08	16.3	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	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, 88°						
COMMENTS							

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

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

Reviewed By:		Date:	

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	083012	SAL Project #	1209644	Project Name	C-HS3 SE#1
Well Number	PZ-06U-34	Sample ID	07	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)	7.19	PURGE PUMP CODE (PP) GP IBP
TOTAL WELL DEPTH (Feet)	34.00	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	0.53 Ge	1/4 WELL VOLUME		3 WELL VOLUMES	1.Ge0		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	1333	PURGE TIME END	1347	TOTAL PURGED	3.00
INST. ID				SAL-SAM-63-01	SAL-SAM-65-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-01	

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
1336	0.60	0.60	0.20	8.75	6.2	26.7	180.9	1.09	MAX	BEFORE	NONE
1339	0.60	1.20			6.1	26.6	188.2	0.92			
1341	0.60	1.80			6.0	26.4	194.6	0.89			
1344	0.60	2.40			6.0	26.3	220.2	0.85			
1347	0.60	3.00			5.9	26.0	230.2	0.86			

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	1348	SAMPLING ENDED	1348	FIELD CLEANED	Y (N)	CLEANING STEPS	
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)
SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)						
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED					
WEATHER CONDITIONS	Clear, 88°						
COMMENTS							

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

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

Reviewed By: Date:

Revision Date 09/25/09

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

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

September 14, 2012
Work Order: 1209645

Laboratory Report

Project Name **C-HS3 SE#1**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**PZ-01BKG**						
Matrix		**Groundwater**						
SAL Sample Number		**1209645-01**						
Date/Time Collected		**08/30/12 13:10**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/30/12 15:50**						
Field Parameters								
pH	SU	6.0	DEP FT1100	0.1	0.1		08/30/12 13:10	SAS
Water Temperature	°C	27.3	DEP FT1400	0.1	0.1		08/30/12 13:10	SAS
Specific conductance	umhos/cm	38	DEP FT1200	0.1	0.1		08/30/12 13:10	SAS
Dissolved Oxygen	mg/L	4.9	DEP FT1500	0.1	0.1		08/30/12 13:10	SAS
Inorganics								
Ammonia as N	mg/L	0.024 I	EPA 350.1	0.040	0.009		09/06/12 11:48	MMF
Chemical Oxygen Demand	mg/L	24 I	EPA 410.4	25	10	09/04/12 12:30	09/04/12 14:45	CDB
Chloride	mg/L	1.6	EPA 300.0	0.20	0.050		09/01/12 02:16	JAG
Nitrate (as N)	mg/L	0.31	EPA 300.0	0.04	0.01		09/01/12 02:16	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/01/12 02:16	JAG
Phosphorous - Total as P	mg/L	0.34	SM 4500P-E	0.040	0.010	09/04/12 12:01	09/06/12 14:08	MMF
Total Alkalinity	mg/L	11	SM 2320B	8.0	2.0	09/04/12 09:00	09/04/12 16:29	AES
Total Kjeldahl Nitrogen	mg/L	0.28	EPA 351.2	0.20	0.05	08/31/12 16:28	09/05/12 14:34	MMF
Nitrate+Nitrite (N)	mg/L	0.31	EPA 300.0	0.08	0.02		09/01/12 02:16	JAG
Sample Description		**PZ-02BKG**						
Matrix		**Groundwater**						
SAL Sample Number		**1209645-02**						
Date/Time Collected		**08/30/12 12:30**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/30/12 15:50**						
Field Parameters								
pH	SU	5.3	DEP FT1100	0.1	0.1		08/30/12 12:30	SAS
Water Temperature	°C	28.1	DEP FT1400	0.1	0.1		08/30/12 12:30	SAS
Specific conductance	umhos/cm	45	DEP FT1200	0.1	0.1		08/30/12 12:30	SAS
Dissolved Oxygen	mg/L	3.2	DEP FT1500	0.1	0.1		08/30/12 12:30	SAS
Inorganics								
Ammonia as N	mg/L	0.012 I	EPA 350.1	0.040	0.009		09/06/12 11:50	MMF
Chemical Oxygen Demand	mg/L	24 I	EPA 410.4	25	10	09/04/12 12:30	09/04/12 14:45	CDB
Chloride	mg/L	3.6	EPA 300.0	0.20	0.050		09/01/12 02:16	JAG
Nitrate (as N)	mg/L	0.07	EPA 300.0	0.04	0.01		09/01/12 02:16	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/01/12 02:16	JAG
Phosphorous - Total as P	mg/L	0.092	SM 4500P-E	0.040	0.010	09/04/12 12:01	09/06/12 14:09	MMF
Total Alkalinity	mg/L	4.2 I	SM 2320B	8.0	2.0	09/04/12 09:00	09/04/12 16:29	AES
Total Kjeldahl Nitrogen	mg/L	0.39	EPA 351.2	0.20	0.05	08/31/12 16:28	09/05/12 14:36	MMF
Nitrate+Nitrite (N)	mg/L	0.07 I	EPA 300.0	0.08	0.02		09/01/12 02:16	JAG

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Hazen and Sawyer
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Tampa, FL 33619

September 14, 2012
Work Order: 1209645

Laboratory Report

Project Name **C-HS3 SE#1**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**PZ-03BKG**						
Matrix		**Groundwater**						
SAL Sample Number		**1209645-03**						
Date/Time Collected		**08/30/12 13:28**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/30/12 15:50**						
Field Parameters								
pH	SU	5.5	DEP FT1100	0.1	0.1		08/30/12 13:28	SAS
Water Temperature	°C	28.5	DEP FT1400	0.1	0.1		08/30/12 13:28	SAS
Specific conductance	umhos/cm	58	DEP FT1200	0.1	0.1		08/30/12 13:28	SAS
Dissolved Oxygen	mg/L	5.2	DEP FT1500	0.1	0.1		08/30/12 13:28	SAS
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		09/06/12 11:52	MMF
Chemical Oxygen Demand	mg/L	38	EPA 410.4	25	10	09/04/12 12:30	09/04/12 14:45	CDB
Chloride	mg/L	7.9	EPA 300.0	0.20	0.050		09/01/12 02:16	JAG
Nitrate (as N)	mg/L	0.24	EPA 300.0	0.04	0.01		09/01/12 02:16	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/01/12 02:16	JAG
Phosphorous - Total as P	mg/L	0.12	SM 4500P-E	0.040	0.010	09/04/12 12:01	09/06/12 14:10	MMF
Total Alkalinity	mg/L	4.2 I	SM 2320B	8.0	2.0	09/04/12 09:00	09/04/12 16:29	AES
Total Kjeldahl Nitrogen	mg/L	0.42	EPA 351.2	0.20	0.05	08/31/12 16:28	09/05/12 14:37	MMF
Nitrate+Nitrite (N)	mg/L	0.24	EPA 300.0	0.08	0.02		09/01/12 02:16	JAG
Sample Description		**PZ-04BKG**						
Matrix		**Groundwater**						
SAL Sample Number		**1209645-04**						
Date/Time Collected		**08/30/12 12:54**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/30/12 15:50**						
Field Parameters								
pH	SU	5.0	DEP FT1100	0.1	0.1		08/30/12 12:54	SAS
Water Temperature	°C	26.2	DEP FT1400	0.1	0.1		08/30/12 12:54	SAS
Specific conductance	umhos/cm	54	DEP FT1200	0.1	0.1		08/30/12 12:54	SAS
Dissolved Oxygen	mg/L	2.2	DEP FT1500	0.1	0.1		08/30/12 12:54	SAS
Inorganics								
Ammonia as N	mg/L	0.13	EPA 350.1	0.040	0.009		09/06/12 11:54	MMF
Chemical Oxygen Demand	mg/L	49	EPA 410.4	25	10	09/04/12 12:30	09/04/12 14:45	CDB
Chloride	mg/L	4.2	EPA 300.0	0.20	0.050		09/01/12 02:16	JAG
Nitrate (as N)	mg/L	0.84	EPA 300.0	0.04	0.01		09/01/12 02:16	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/01/12 02:16	JAG
Phosphorous - Total as P	mg/L	3.2	SM 4500P-E	0.40	0.10	09/04/12 12:01	09/06/12 14:49	MMF
Total Alkalinity	mg/L	4.2 I	SM 2320B	8.0	2.0	09/04/12 09:00	09/04/12 16:29	AES
Total Kjeldahl Nitrogen	mg/L	2.6	EPA 351.2	0.20	0.05	09/05/12 16:39	09/07/12 14:23	MMF
Nitrate+Nitrite (N)	mg/L	0.84	EPA 300.0	0.08	0.02		09/01/12 02:16	JAG

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September 14, 2012
Work Order: 1209645

Laboratory Report

Project Name **C-HS3 SE#1**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**PZ-05BKG**						
Matrix		**Groundwater**						
SAL Sample Number		**1209645-05**						
Date/Time Collected		**08/30/12 12:13**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/30/12 15:50**						
Field Parameters								
pH	SU	5.4	DEP FT1100	0.1	0.1		08/30/12 12:13	SAS
Water Temperature	°C	28.8	DEP FT1400	0.1	0.1		08/30/12 12:13	SAS
Specific conductance	umhos/cm	36	DEP FT1200	0.1	0.1		08/30/12 12:13	SAS
Dissolved Oxygen	mg/L	0.4	DEP FT1500	0.1	0.1		08/30/12 12:13	SAS
Inorganics								
Ammonia as N	mg/L	0.039 I	EPA 350.1	0.040	0.009		09/06/12 11:56	MMF
Chemical Oxygen Demand	mg/L	44	EPA 410.4	25	10	09/04/12 12:30	09/04/12 14:45	CDB
Chloride	mg/L	1.3	EPA 300.0	0.20	0.050		09/01/12 02:16	JAG
Nitrate (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/01/12 02:16	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/01/12 02:16	JAG
Phosphorous - Total as P	mg/L	0.33	SM 4500P-E	0.040	0.010	09/04/12 12:01	09/06/12 14:13	MMF
Total Alkalinity	mg/L	9.4	SM 2320B	8.0	2.0	09/04/12 09:00	09/04/12 16:29	AES
Total Kjeldahl Nitrogen	mg/L	1.1	EPA 351.2	0.20	0.05	09/05/12 16:39	09/07/12 14:25	MMF
Nitrate+Nitrite (N)	mg/L	0.02 U	EPA 300.0	0.08	0.02		09/01/12 02:16	JAG

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BH23107 - Ion Chromatography 300.0 Prep										
Blank (BH23107-BLK1)					Prepared & Analyzed: 09/01/12					
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						
Chloride	0.050 U	0.20	0.050	mg/L						
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
LCS (BH23107-BS1)					Prepared & Analyzed: 09/01/12					
Nitrite (as N)	1.42	0.04	0.01	mg/L	1.4		101	85-115		
Nitrate (as N)	1.69	0.04	0.01	mg/L	1.7		99	85-115		
Chloride	2.97	0.20	0.050	mg/L	3.0		99	85-115		
LCS Dup (BH23107-BSD1)					Prepared & Analyzed: 09/01/12					
Nitrite (as N)	1.41	0.04	0.01	mg/L	1.4		101	85-115	0.7	200
Nitrate (as N)	1.70	0.04	0.01	mg/L	1.7		100	85-115	0.6	200
Chloride	2.94	0.20	0.050	mg/L	3.0		98	85-115	1	200
Matrix Spike (BH23107-MS1)		**Source: 1209644-02**			Prepared & Analyzed: 09/01/12					
Nitrate (as N)	2.83	0.04	0.01	mg/L	1.7	0.977	109	85-115		
Nitrite (as N)	1.45	0.04	0.01	mg/L	1.4	ND	104	85-115		
Chloride	3.74	0.20	0.050	mg/L	3.0	0.768	99	80-120		
Matrix Spike (BH23107-MS2)		**Source: 1209645-05**			Prepared & Analyzed: 09/01/12					
Nitrate (as N)	1.67	0.04	0.01	mg/L	1.7	ND	98	85-115		
Chloride	4.35	0.20	0.050	mg/L	3.0	1.33	101	80-120		
Nitrite (as N)	1.40	0.04	0.01	mg/L	1.4	ND	100	85-115		
Batch BH23132 - Digestion for TKN by EPA 351.2										
Blank (BH23132-BLK1)					Prepared: 08/31/12 Analyzed: 09/05/12					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	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 BH23132 - Digestion for TKN by EPA 351.2										
LCS (BH23132-BS1)					Prepared: 08/31/12 Analyzed: 09/05/12					
Total Kjeldahl Nitrogen	2.44	0.20	0.05	mg/L	2.5		96	90-110		
Matrix Spike (BH23132-MS1)		**Source: 1209615-12**			Prepared: 08/31/12 Analyzed: 09/05/12					
Total Kjeldahl Nitrogen	28.9	0.20	0.05	mg/L	25	7.85	83	80-120		
Matrix Spike Dup (BH23132-MSD1)		**Source: 1209615-12**			Prepared: 08/31/12 Analyzed: 09/05/12					
Total Kjeldahl Nitrogen	28.4	0.20	0.05	mg/L	25	7.85	81	80-120	2	20
Batch BI20404 - alkalinity										
Blank (BI20404-BLK1)					Prepared & Analyzed: 09/04/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
Blank (BI20404-BLK2)					Prepared & Analyzed: 09/04/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
LCS (BI20404-BS1)					Prepared & Analyzed: 09/04/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		
LCS (BI20404-BS2)					Prepared & Analyzed: 09/04/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		
Matrix Spike (BI20404-MS1)		**Source: 1209644-01**			Prepared & Analyzed: 09/04/12					
Total Alkalinity	150	8.0	2.0	mg/L	120	22	103	80-120		
Matrix Spike (BI20404-MS2)		**Source: 1209932-05**			Prepared & Analyzed: 09/04/12					
Total Alkalinity	200	8.0	2.0	mg/L	120	86	95	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 BI20404 - alkalinity										
Matrix Spike Dup (BI20404-MSD1)		**Source: 1209644-01**			Prepared & Analyzed: 09/04/12					
Total Alkalinity	150	8.0	2.0	mg/L	120	22	103	80-120	0	26
Matrix Spike Dup (BI20404-MSD2)		**Source: 1209932-05**			Prepared & Analyzed: 09/04/12					
Total Alkalinity	200	8.0	2.0	mg/L	120	86	95	80-120	0	26
Batch BI20416 - COD prep										
Blank (BI20416-BLK1)					Prepared & Analyzed: 09/04/12					
Chemical Oxygen Demand	10 U	25	10	mg/L						
LCS (BI20416-BS1)					Prepared & Analyzed: 09/04/12					
Chemical Oxygen Demand	54	25	10	mg/L	50		108	90-110		
Matrix Spike (BI20416-MS1)		**Source: 1209647-02**			Prepared & Analyzed: 09/04/12					
Chemical Oxygen Demand	54	25	10	mg/L	50	ND	108	85-115		
Matrix Spike Dup (BI20416-MSD1)		**Source: 1209647-02**			Prepared & Analyzed: 09/04/12					
Chemical Oxygen Demand	54	25	10	mg/L	50	ND	108	85-115	0	32
Batch BI20425 - Digestion for TP by EPA 365.2/SM4500PE										
Blank (BI20425-BLK1)					Prepared: 09/04/12 Analyzed: 09/06/12					
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						
Blank (BI20425-BLK2)					Prepared: 09/04/12 Analyzed: 09/06/12					
Phosphorous - Total as P	0.010 U	0.040	0.010	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 BI20425 - Digestion for TP by EPA 365.2/SM4500PE										
LCS (BI20425-BS1)					Prepared: 09/04/12 Analyzed: 09/06/12					
Phosphorous - Total as P	0.772	0.040	0.010	mg/L	0.80		97	90-110		
LCS (BI20425-BS2)					Prepared: 09/04/12 Analyzed: 09/06/12					
Phosphorous - Total as P	0.790	0.040	0.010	mg/L	0.80		99	90-110		
Matrix Spike (BI20425-MS1)		**Source: 1209819-02**			Prepared: 09/04/12 Analyzed: 09/06/12					
Phosphorous - Total as P	1.03	0.040	0.010	mg/L	1.0	0.0396	99	75-125		
Matrix Spike (BI20425-MS2)		**Source: 1209840-07**			Prepared: 09/04/12 Analyzed: 09/06/12					
Phosphorous - Total as P	1.17	0.040	0.010	mg/L	1.0	0.158	101	75-125		
Matrix Spike Dup (BI20425-MSD1)		**Source: 1209819-02**			Prepared: 09/04/12 Analyzed: 09/06/12					
Phosphorous - Total as P	0.992	0.040	0.010	mg/L	1.0	0.0396	95	75-125	4	25
Matrix Spike Dup (BI20425-MSD2)		**Source: 1209840-07**			Prepared: 09/04/12 Analyzed: 09/06/12					
Phosphorous - Total as P	1.16	0.040	0.010	mg/L	1.0	0.158	100	75-125	0.6	25
Batch BI20542 - Digestion for TKN by EPA 351.2										
Blank (BI20542-BLK1)					Prepared: 09/05/12 Analyzed: 09/07/12					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
LCS (BI20542-BS1)					Prepared: 09/05/12 Analyzed: 09/07/12					
Total Kjeldahl Nitrogen	2.59	0.20	0.05	mg/L	2.5		102	90-110		
Matrix Spike (BI20542-MS1)		**Source: 1209932-01**			Prepared: 09/05/12 Analyzed: 09/07/12					
Total Kjeldahl Nitrogen	4.10	0.20	0.05	mg/L	2.5	1.39	107	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 BI20542 - Digestion for TKN by EPA 351.2										
Matrix Spike Dup (BI20542-MSD1)		**Source: 1209932-01**			Prepared: 09/05/12 Analyzed: 09/07/12					
Total Kjeldahl Nitrogen	4.31	0.20	0.05	mg/L	2.5	1.39	115	80-120	5	20
Batch BI20603 - Ammonia by SEAL										
Blank (BI20603-BLK1)					Prepared & Analyzed: 09/06/12					
Ammonia as N	0.009 U	0.040	0.009	mg/L						
LCS (BI20603-BS1)					Prepared & Analyzed: 09/06/12					
Ammonia as N	0.48	0.040	0.009	mg/L	0.50		96	90-110		
Matrix Spike (BI20603-MS1)		**Source: 1209897-07**			Prepared & Analyzed: 09/06/12					
Ammonia as N	0.57	0.040	0.009	mg/L	0.50	0.086	98	90-110		
Matrix Spike Dup (BI20603-MSD1)		**Source: 1209897-07**			Prepared & Analyzed: 09/06/12					
Ammonia as N	0.58	0.040	0.009	mg/L	0.50	0.086	100	90-110	2	10

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

September 14, 2012
Work Order: 1209645

* 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.

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

SAL Project No. 1209645

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: C-HS3 SE#1

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 Alkalinity, NOx, Cl	250mL P, H_2SO_4 COD, TKN, NH_3, TP								DO	pH	Conductivity	Temperature	No. of Containers (Total per each location)
01	PZ-01BKG	083012	1310	GW		X	1	1								4.91	6.0	38.1	27.3	
02	PZ-02BKG		1230	GW		X	1	1								3.17	5.34	44.0	28.1	
03	PZ-03BKG		1328	GW		X	1	1								5.24	5.5	58.1	28.5	
04	PZ-04BKG		1254	GW		X	1	1								2.20	5.0	54.1	26.2	
05	PZ-05BKG		1213	GW		X	1	1								0.34	5.4	35.5	28.8	

Containers Prepared/ Relinquished: Bowling	Date/Time: 835 8/24/12	Received:	Date/Time: 0835 082712
Relinquished:	Date/Time: 1550 083012	Received:	Date/Time: 1550 08-30-12
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

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

1209645

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

Chain of Custody

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	0830r	SAL Project #	1209645	Project Name	C-HS3 SE#1
Well Number	PZ-01BKG	Sample ID	01	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	0.75	WELL CAPACITY (gal/ft)	0.02	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	12.78	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	15.80	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	
Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)										
WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =										
ONE WELL VOLUME	0.06	1/4 WELL VOLUME		3 WELL VOLUMES	0.181		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	1300	PURGE TIME END	1309	TOTAL PURGED	0.90	
INST. ID				SAL-SAM-63-03	SAL-SAM-65-02	SAL-SAM-63-03	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)
1303	0.30	0.30	0.10	13.08	6.0	27.5	39.6	5.33	66.8	CLOUDY	NONE
1306	0.30	0.60	|	|	6.1	27.4	38.8	5.12	64.3	|	|
1309	0.30	0.90	|	|	6.0	27.3	38.1	4.91	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	1310	SAMPLING ENDED	1311	FIELD CLEANED	Y (N)	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Clear, 90°								
COMMENTS									

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

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

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	083012	SAL Project #	1209645	Project Name	C-HS3 SE#1
Well Number	PZ-02BKG	Sample ID	02	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)	6.28	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)

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

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

ONE WELL VOLUME	0.056	1/4 WELL VOLUME		3 WELL VOLUMES	0.17	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	1220	PURGE TIME END	1229	TOTAL PURGED	0.90

INST. ID					SAL-SAM-63-03	SAL-SAM-65-03	SAL-SAM-63-03	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)
1223	0.30	0.30	0.10	3.68	5.4	28.2	44.4	3.45	19.8	CLEAR	NONE
1226	0.30	0.60	|	|	5.3	28.2	44.5	3.19	18.2	|	|
1229	0.30	0.90	|	|	5.3	28.1	44.6	3.17	17.7	|	|

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	1230	SAMPLING ENDED	1231	FIELD CLEANED	Y (N)	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Clear, 90°								
COMMENTS									

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

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

Reviewed By:		Date:	

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	083012	SAL Project #	1209645	Project Name	C-HS3 SE#1
Well Number	PZ-03BKG	Sample ID	03	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	0.75	WELL CAPACITY (gal/ft)		Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	9.60	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	10.80	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	

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

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

ONE WELL VOLUME	0.064	1/4 WELL VOLUME		3 WELL VOLUMES	0.192	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	1318	PURGE TIME END	1327	TOTAL PURGED	0.90
INST. ID				SAL-SAM-63-03	SAL-SAM-65-03	SAL-SAM-63-03	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)
1321	0.30	0.30	0.10	9.80	5.6	28.7	58.3	5.65	19.0	CLEAR	NONE
1324	0.30	0.60	|	|	5.5	28.6	58.1	5.39	17.5	|	|
1327	0.30	0.90	|	|	5.5	28.5	58.1	5.24	14.9	|	|

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	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, 90°								
COMMENTS									

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

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

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	083012	SAL Project #	1209645	Project Name	C-HS3 SE#1
Well Number	PZ-04BKG	Sample ID	04	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)	8.10	PURGE PUMP CODE (PP) GP IBP
TOTAL WELL DEPTH (Feet)	11.90	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)

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

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

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

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

PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME		EQUIPMENT VOLUME	

INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START	1238	PURGE TIME END	1253	TOTAL PURGED	1.50 ~~0.90~~
INST. ID	X	X	X	X	SAL-SAM-63-03	SAL-SAM-65-03	SAL-SAM-63-03	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)
1241	0.30	0.30	0.10	10.01	5.1	27.5	53.2	2.71	MAX	BEIGE	NONE
1244	0.30	0.60			5.0	27.0	53.3	2.48	MAX		
1247	0.30	0.90			5.0	26.4	53.5	2.27	MAX		
1250	0.30	1.20			5.0	26.3	53.8	2.24	MAX		
1253	0.30	1.50			5.0	26.2	54.1	2.20	MAX		

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL			SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP (TL) TT			SAMPLE TUBING LEGNTH IN WELL (FEET)		SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED	1254	SAMPLING ENDED	1255	FIELD CLEANED	Y (N)	CLEANING STEPS	
FIELD FILTERED?	SC (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~~ SS	LIST PRESERVATIVES ADDED					
WEATHER CONDITIONS	Clear, 90°						
COMMENTS							

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

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

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	083012	SAL Project #	1209645	Project Name	C-HS3 SE#1
Well Number	PZ-05BKG	Sample ID	05	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	0.75	WELL CAPACITY (gal/ft)	0.02	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	4.10	PURGE PUMP CODE (PP) GP IBP
TOTAL WELL DEPTH (Feet)	7.60	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	1203	PURGE TIME END	1212	TOTAL PURGED	0.90
INST. ID					SAL-SAM-63-03	SAL-SAM-65-03	SAL-SAM-63-03	SAL-SAM-55-02	SAL-SAM-03		
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)
1206	0.30	0.30	0.10	5.65	5.5	28.9	35.5	0.83	62.6	CLOUDY	NONE
1209	0.30	0.60			5.4	28.9	35.5	0.38	59.9		
1212	0.30	0.90			5.4	28.8	35.5	0.38	59.5		

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	1213	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, 90°								
COMMENTS									

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

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

Reviewed By:		Date:	

Revision Date 09/25/09

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

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

October 4, 2012
Work Order: 1209647

Laboratory Report

Project Name **C-HS3 SE#1**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**FB-DI**						
Matrix		**Reagent Water**						
SAL Sample Number		**1209647-01**						
Date/Time Collected		**08/30/12 13:50**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/30/12 15:50**						
Field Parameters								
pH	SU	6.6	DEP FT1100	0.1	0.1		08/30/12 13:50	SAS
Water Temperature	°C	24.5	DEP FT1400	0.1	0.1		08/30/12 13:50	SAS
Specific conductance	umhos/cm	1	DEP FT1200	0.1	0.1		08/30/12 13:50	SAS
Dissolved Oxygen	mg/L	3.1	DEP FT1500	0.1	0.1		08/30/12 13:50	SAS
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		09/06/12 11:58	MMF
Carbonaceous BOD	mg/L	2 U	SM 5210B	2	2	08/31/12 12:58	09/05/12 14:37	MEJ
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	09/04/12 12:30	09/04/12 14:45	CDB
Chloride	mg/L	0.050 U	EPA 300.0	0.20	0.050		09/01/12 10:29	JAG
Fluoride	mg/L	0.010 U	EPA 300.0	0.040	0.010		09/01/12 10:29	JAG
Nitrate (as N)	mg/L	0.01 I	EPA 300.0	0.04	0.01		09/01/12 10:29	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/01/12 10:29	JAG
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		09/01/12 10:29	JAG
Phosphorous - Total as P	mg/L	0.010 U	SM 4500P-E	0.040	0.010	09/04/12 12:01	09/06/12 14:50	MMF
Sulfate	mg/L	0.20 U	EPA 300.0	0.60	0.20		09/01/12 10:29	JAG
Total Alkalinity	mg/L	2.0 U	SM 2320B	8.0	2.0	09/04/12 09:00	09/04/12 16:29	AES
Total Kjeldahl Nitrogen	mg/L	0.05 U	EPA 351.2	0.20	0.05	09/05/12 16:39	09/07/12 16:15	MMF
Total Organic Carbon	mg/L	0.50 U	SM 5310B	1.0	0.50		08/31/12 16:25	MEJ
Total Solids	mg/L	10 U,Q	SM 2540B	10	10	09/07/12 14:28	09/07/12 14:29	CMS
Total Suspended Solids	mg/L	1 U	SM 2540D	1	1	08/31/12 15:19	09/01/12 09:37	CMS
Nitrate+Nitrite (N)	mg/L	0.02 U	EPA 300.0	0.08	0.02		09/01/12 10:29	JAG
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	0.50 U	SM 5310B	1.0	0.50		09/01/12 10:10	MEJ
Metals								
Boron	mg/L	0.050 U	EPA 200.7	0.10	0.050	09/06/12 12:56	09/10/12 15:07	VWC
Calcium	mg/L	0.042 U	EPA 200.7	0.50	0.042	09/06/12 12:56	09/10/12 15:07	VWC
Iron	mg/L	0.020 U	EPA 200.7	0.10	0.020	09/06/12 12:56	09/10/12 15:07	VWC
Magnesium	mg/L	0.020 U	EPA 200.7	0.50	0.020	09/06/12 12:56	09/10/12 15:07	VWC
Manganese	mg/L	0.0010 U	EPA 200.7	0.010	0.0010	09/06/12 12:56	09/10/12 15:07	VWC
Potassium	mg/L	0.010 U	EPA 200.7	0.050	0.010	09/06/12 12:56	09/10/12 15:07	VWC
Sodium	mg/L	0.13 U	EPA 200.7	0.50	0.13	09/06/12 12:56	09/10/12 15:07	VWC
Microbiology								
Fecal Coliforms	CFU/100 ml	4	SM 9222D	1	1	08/30/12 16:08	08/31/12 14:25	HKG

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

October 4, 2012
Work Order: 1209647

Laboratory Report

Project Name **C-HS3 SE#1**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**EB**						
Matrix		**Reagent Water**						
SAL Sample Number		**1209647-02**						
Date/Time Collected		**08/30/12 13:55**						
Collected by		**Sean Schmidt**						
Date/Time Received		**08/30/12 15:50**						
Field Parameters								
pH	SU	6.6	DEP FT1100	0.1	0.1		08/30/12 13:55	SAS
Water Temperature	°C	24.5	DEP FT1400	0.1	0.1		08/30/12 13:55	SAS
Specific conductance	umhos/cm	1	DEP FT1200	0.1	0.1		08/30/12 13:55	SAS
Dissolved Oxygen	mg/L	3.1	DEP FT1500	0.1	0.1		08/30/12 13:55	SAS
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		09/04/12 14:50	MMF
Carbonaceous BOD	mg/L	2 U	SM 5210B	2	2	08/31/12 12:58	09/05/12 14:37	MEJ
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	09/04/12 12:30	09/04/12 14:45	CDB
Chloride	mg/L	0.050 U	EPA 300.0	0.20	0.050		09/01/12 10:29	JAG
Fluoride	mg/L	0.010 U	EPA 300.0	0.040	0.010		09/01/12 10:29	JAG
Nitrate (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/01/12 10:29	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		09/01/12 10:29	JAG
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		09/01/12 10:29	JAG
Phosphorous - Total as P	mg/L	0.010 U	SM 4500P-E	0.040	0.010	09/04/12 12:01	09/06/12 14:51	MMF
Sulfate	mg/L	0.20 U	EPA 300.0	0.60	0.20		09/01/12 10:29	JAG
Total Alkalinity	mg/L	2.0 U	SM 2320B	8.0	2.0	09/04/12 09:00	09/04/12 16:29	AES
Total Kjeldahl Nitrogen	mg/L	0.05 U	EPA 351.2	0.20	0.05	09/05/12 16:39	09/07/12 16:16	MMF
Total Organic Carbon	mg/L	0.50 U	SM 5310B	1.0	0.50		08/31/12 16:25	MEJ
Total Solids	mg/L	10 Q	SM 2540B	10	10	09/07/12 14:28	09/07/12 14:29	CMS
Total Suspended Solids	mg/L	1 U	SM 2540D	1	1	08/31/12 15:19	09/01/12 09:37	CMS
Nitrate+Nitrite (N)	mg/L	0.02 U	EPA 300.0	0.08	0.02		09/01/12 10:29	JAG
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	0.50 U	SM 5310B	1.0	0.50		09/01/12 10:10	MEJ
Metals								
Boron	mg/L	0.050 U	EPA 200.7	0.10	0.050	09/06/12 12:56	09/10/12 15:11	VWC
Calcium	mg/L	0.042 U	EPA 200.7	0.50	0.042	09/06/12 12:56	09/10/12 15:11	VWC
Iron	mg/L	0.020 U	EPA 200.7	0.10	0.020	09/06/12 12:56	09/10/12 15:11	VWC
Magnesium	mg/L	0.020 U	EPA 200.7	0.50	0.020	09/06/12 12:56	09/10/12 15:11	VWC
Manganese	mg/L	0.0010 U	EPA 200.7	0.010	0.0010	09/06/12 12:56	09/10/12 15:11	VWC
Potassium	mg/L	0.010 U	EPA 200.7	0.050	0.010	09/06/12 12:56	09/10/12 15:11	VWC
Sodium	mg/L	0.13 U	EPA 200.7	0.50	0.13	09/06/12 12:56	09/10/12 15:11	VWC
Microbiology								
Fecal Coliforms	CFU/100 ml	1	SM 9222D	1	1	08/30/12 16:08	08/31/12 14:25	HKG

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BH23108 - Ion Chromatography 300.0 Prep										
Blank (BH23108-BLK1)					Prepared & Analyzed: 09/01/12					
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						
Chloride	0.050 U	0.20	0.050	mg/L						
Sulfate	0.20 U	0.60	0.20	mg/L						
Orthophosphate as P	0.010 U	0.040	0.010	mg/L						
Fluoride	0.010 U	0.040	0.010	mg/L						
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
LCS (BH23108-BS1)					Prepared & Analyzed: 09/01/12					
Sulfate	8.92	0.60	0.20	mg/L	9.0		99	85-115		
Orthophosphate as P	0.950	0.040	0.010	mg/L	0.90		106	85-115		
Nitrite (as N)	1.42	0.04	0.01	mg/L	1.4		101	85-115		
Nitrate (as N)	1.69	0.04	0.01	mg/L	1.7		99	85-115		
Chloride	2.96	0.20	0.050	mg/L	3.0		99	85-115		
Fluoride	0.925	0.040	0.010	mg/L	0.90		103	85-115		
LCS Dup (BH23108-BSD1)					Prepared & Analyzed: 09/01/12					
Orthophosphate as P	0.986	0.040	0.010	mg/L	0.90		110	85-115	4	200
Fluoride	0.928	0.040	0.010	mg/L	0.90		103	85-115	0.3	200
Nitrate (as N)	1.66	0.04	0.01	mg/L	1.7		98	85-115	2	200
Sulfate	8.91	0.60	0.20	mg/L	9.0		99	85-115	0.1	200
Chloride	2.92	0.20	0.050	mg/L	3.0		97	85-115	1	200
Nitrite (as N)	1.39	0.04	0.01	mg/L	1.4		99	85-115	2	200
Matrix Spike (BH23108-MS1)		**Source: 1209852-02**			Prepared & Analyzed: 09/01/12					
Sulfate	33.4	0.60	0.20	mg/L	9.0	23.7	108	85-115		
Orthophosphate as P	5.28	0.040	0.010	mg/L	0.90	4.37	101	85-115		
Chloride	42.2 +O	0.20	0.050	mg/L	3.0	42.1	3	80-120		
Nitrite (as N)	1.34	0.04	0.01	mg/L	1.4	ND	96	85-115		
Nitrate (as N)	5.16	0.04	0.01	mg/L	1.7	3.36	106	85-115		
Fluoride	0.981	0.040	0.010	mg/L	0.90	0.103	98	85-115		

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BH23108 - Ion Chromatography 300.0 Prep										
Matrix Spike (BH23108-MS2)		**Source: 1209018-01**			Prepared & Analyzed: 09/01/12					
Fluoride	1.04	0.040	0.010	mg/L	0.90	0.131	101	85-115		
Nitrite (as N)	1.45	0.04	0.01	mg/L	1.4	ND	104	85-115		
Orthophosphate as P	0.956	0.040	0.010	mg/L	0.90	ND	106	85-115		
Nitrate (as N)	19.5 +O	0.04	0.01	mg/L	1.7	18.5	59	85-115		
Sulfate	70.2	0.60	0.20	mg/L	9.0	62.1	90	85-115		
Chloride	22.4	0.20	0.050	mg/L	3.0	19.7	90	80-120		
Batch BH23116 - BOD										
Blank (BH23116-BLK1)					Prepared: 08/31/12 Analyzed: 09/05/12					
Carbonaceous BOD	2 U	2	2	mg/L						
Blank (BH23116-BLK2)					Prepared: 08/31/12 Analyzed: 09/05/12					
Carbonaceous BOD	2 U	2	2	mg/L						
LCS (BH23116-BS1)					Prepared: 08/31/12 Analyzed: 09/05/12					
Carbonaceous BOD	183	2	2	mg/L	200		91	85-115		
LCS (BH23116-BS2)					Prepared: 08/31/12 Analyzed: 09/05/12					
Carbonaceous BOD	185	2	2	mg/L	200		93	85-115		
LCS Dup (BH23116-BSD1)					Prepared: 08/31/12 Analyzed: 09/05/12					
Carbonaceous BOD	181	2	2	mg/L	200		90	85-115	1	200
LCS Dup (BH23116-BSD2)					Prepared: 08/31/12 Analyzed: 09/05/12					
Carbonaceous BOD	184	2	2	mg/L	200		92	85-115	0.5	200

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BH23116 - BOD										
Duplicate (BH23116-DUP1)		**Source: 1209840-01**			Prepared: 08/31/12	Analyzed: 09/05/12				
Carbonaceous BOD	200	2	2	mg/L		200			1	25
Duplicate (BH23116-DUP2)		**Source: 1209897-01**			Prepared: 08/31/12	Analyzed: 09/05/12				
Carbonaceous BOD	210	2	2	mg/L		180			20	25
Batch BH23122 - TSS prep										
Blank (BH23122-BLK1)					Prepared: 08/31/12	Analyzed: 09/01/12				
Total Suspended Solids	1 U	1	1	mg/L						
LCS (BH23122-BS1)					Prepared: 08/31/12	Analyzed: 09/01/12				
Total Suspended Solids	49.0	1	1	mg/L	50		98	85-115		
Duplicate (BH23122-DUP1)		**Source: 1209717-01**			Prepared: 08/31/12	Analyzed: 09/01/12				
Total Suspended Solids	139	1	1	mg/L		133			4	30
Duplicate (BH23122-DUP2)		**Source: 1209759-01**			Prepared: 08/31/12	Analyzed: 09/01/12				
Total Suspended Solids	131	1	1	mg/L		138			5	30
Batch BI20101 - TOC prep										
Blank (BI20101-BLK1)					Prepared & Analyzed: 08/31/12					
Total Organic Carbon	0.50 U	1.0	0.50	mg/L						
Blank (BI20101-BLK2)					Prepared & Analyzed: 08/31/12					
Total Organic Carbon	0.50 U	1.0	0.50	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 BI20101 - TOC prep										
LCS (BI20101-BS1)					Prepared & Analyzed: 08/31/12					
Total Organic Carbon	9.02	1.0	0.50	mg/L	10		90	90-110		
LCS (BI20101-BS2)					Prepared & Analyzed: 08/31/12					
Total Organic Carbon	10.8	1.0	0.50	mg/L	10		108	90-110		
Matrix Spike (BI20101-MS1)		**Source: 1209848-02**			Prepared & Analyzed: 08/31/12					
Total Organic Carbon	23.0	1.0	0.50	mg/L	10	14.0	90	85-115		
Matrix Spike (BI20101-MS2)		**Source: 1209848-10**			Prepared & Analyzed: 08/31/12					
Total Organic Carbon	21.7	1.0	0.50	mg/L	10	12.7	90	85-115		
Matrix Spike Dup (BI20101-MSD1)		**Source: 1209848-02**			Prepared & Analyzed: 08/31/12					
Total Organic Carbon	22.5	1.0	0.50	mg/L	10	14.0	85	85-115	2	10
Matrix Spike Dup (BI20101-MSD2)		**Source: 1209848-10**			Prepared & Analyzed: 08/31/12					
Total Organic Carbon	21.9	1.0	0.50	mg/L	10	12.7	92	85-115	0.9	10
Batch BI20404 - alkalinity										
Blank (BI20404-BLK1)					Prepared & Analyzed: 09/04/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
Blank (BI20404-BLK2)					Prepared & Analyzed: 09/04/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
LCS (BI20404-BS1)					Prepared & Analyzed: 09/04/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI20404 - alkalinity										
LCS (BI20404-BS2)					Prepared & Analyzed: 09/04/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		
Matrix Spike (BI20404-MS1)		**Source: 1209644-01**			Prepared & Analyzed: 09/04/12					
Total Alkalinity	150	8.0	2.0	mg/L	120	22	103	80-120		
Matrix Spike (BI20404-MS2)		**Source: 1209932-05**			Prepared & Analyzed: 09/04/12					
Total Alkalinity	200	8.0	2.0	mg/L	120	86	95	80-120		
Matrix Spike Dup (BI20404-MSD1)		**Source: 1209644-01**			Prepared & Analyzed: 09/04/12					
Total Alkalinity	150	8.0	2.0	mg/L	120	22	103	80-120	0	26
Matrix Spike Dup (BI20404-MSD2)		**Source: 1209932-05**			Prepared & Analyzed: 09/04/12					
Total Alkalinity	200	8.0	2.0	mg/L	120	86	95	80-120	0	26
Batch BI20416 - COD prep										
Blank (BI20416-BLK1)					Prepared & Analyzed: 09/04/12					
Chemical Oxygen Demand	10 U	25	10	mg/L						
LCS (BI20416-BS1)					Prepared & Analyzed: 09/04/12					
Chemical Oxygen Demand	54	25	10	mg/L	50		108	90-110		
Matrix Spike (BI20416-MS1)		**Source: 1209647-02**			Prepared & Analyzed: 09/04/12					
Chemical Oxygen Demand	54	25	10	mg/L	50	ND	108	85-115		
Matrix Spike Dup (BI20416-MSD1)		**Source: 1209647-02**			Prepared & Analyzed: 09/04/12					
Chemical Oxygen Demand	54	25	10	mg/L	50	ND	108	85-115	0	32

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Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI20425 - Digestion for TP by EPA 365.2/SM4500PE										
Blank (BI20425-BLK1)					Prepared: 09/04/12 Analyzed: 09/06/12					
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						
Blank (BI20425-BLK2)					Prepared: 09/04/12 Analyzed: 09/06/12					
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						
LCS (BI20425-BS1)					Prepared: 09/04/12 Analyzed: 09/06/12					
Phosphorous - Total as P	0.772	0.040	0.010	mg/L	0.80		97	90-110		
LCS (BI20425-BS2)					Prepared: 09/04/12 Analyzed: 09/06/12					
Phosphorous - Total as P	0.790	0.040	0.010	mg/L	0.80		99	90-110		
Matrix Spike (BI20425-MS1)		**Source: 1209819-02**			Prepared: 09/04/12 Analyzed: 09/06/12					
Phosphorous - Total as P	1.03	0.040	0.010	mg/L	1.0	0.0396	99	75-125		
Matrix Spike (BI20425-MS2)		**Source: 1209840-07**			Prepared: 09/04/12 Analyzed: 09/06/12					
Phosphorous - Total as P	1.17	0.040	0.010	mg/L	1.0	0.158	101	75-125		
Matrix Spike Dup (BI20425-MSD1)		**Source: 1209819-02**			Prepared: 09/04/12 Analyzed: 09/06/12					
Phosphorous - Total as P	0.992	0.040	0.010	mg/L	1.0	0.0396	95	75-125	4	25
Matrix Spike Dup (BI20425-MSD2)		**Source: 1209840-07**			Prepared: 09/04/12 Analyzed: 09/06/12					
Phosphorous - Total as P	1.16	0.040	0.010	mg/L	1.0	0.158	100	75-125	0.6	25
Batch BI20435 - Ammonia by SEAL										
Blank (BI20435-BLK1)					Prepared & Analyzed: 09/04/12					
Ammonia as N	0.009 U	0.040	0.009	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 BI20435 - Ammonia by SEAL										
LCS (BI20435-BS1)					Prepared & Analyzed: 09/04/12					
Ammonia as N	0.50	0.040	0.009	mg/L	0.50		99	90-110		
Matrix Spike (BI20435-MS1)		**Source: 1209714-07**			Prepared & Analyzed: 09/04/12					
Ammonia as N	0.50	0.040	0.009	mg/L	0.50	0.024	95	90-110		
Matrix Spike Dup (BI20435-MSD1)		**Source: 1209714-07**			Prepared & Analyzed: 09/04/12					
Ammonia as N	0.51	0.040	0.009	mg/L	0.50	0.024	98	90-110	2	10
Batch BI20542 - Digestion for TKN by EPA 351.2										
Blank (BI20542-BLK1)					Prepared: 09/05/12 Analyzed: 09/07/12					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
LCS (BI20542-BS1)					Prepared: 09/05/12 Analyzed: 09/07/12					
Total Kjeldahl Nitrogen	2.59	0.20	0.05	mg/L	2.5		102	90-110		
Matrix Spike (BI20542-MS1)		**Source: 1209932-01**			Prepared: 09/05/12 Analyzed: 09/07/12					
Total Kjeldahl Nitrogen	4.10	0.20	0.05	mg/L	2.5	1.39	107	80-120		
Matrix Spike Dup (BI20542-MSD1)		**Source: 1209932-01**			Prepared: 09/05/12 Analyzed: 09/07/12					
Total Kjeldahl Nitrogen	4.31	0.20	0.05	mg/L	2.5	1.39	115	80-120	5	20
Batch BI20603 - Ammonia by SEAL										
Blank (BI20603-BLK1)					Prepared & Analyzed: 09/06/12					
Ammonia as N	0.009 U	0.040	0.009	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 BI20603 - Ammonia by SEAL										
LCS (BI20603-BS1)					Prepared & Analyzed: 09/06/12					
Ammonia as N	0.48	0.040	0.009	mg/L	0.50		96	90-110		
Matrix Spike (BI20603-MS1)		**Source: 1209897-07**			Prepared & Analyzed: 09/06/12					
Ammonia as N	0.57	0.040	0.009	mg/L	0.50	0.086	98	90-110		
Matrix Spike Dup (BI20603-MSD1)		**Source: 1209897-07**			Prepared & Analyzed: 09/06/12					
Ammonia as N	0.58	0.040	0.009	mg/L	0.50	0.086	100	90-110	2	10
Batch BI20725 - TS prep										
Blank (BI20725-BLK1)					Prepared: 09/05/12 Analyzed: 09/07/12					
Total Solids	10 U	10	10	mg/L						
Duplicate (BI20725-DUP1)		**Source: 1209916-02**			Prepared: 09/05/12 Analyzed: 09/07/12					
Total Solids	14,500	10	10	mg/L		14800			2	20

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Inorganic, Dissolved - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI20431 - TOC prep										
Blank (BI20431-BLK1)					Prepared & Analyzed: 09/01/12					
Dissolved Organic Carbon	0.50 U	1.0	0.50	mg/L						
LCS (BI20431-BS1)					Prepared & Analyzed: 09/01/12					
Dissolved Organic Carbon	10.3	1.0	0.50	mg/L	10		103	90-110		
Matrix Spike (BI20431-MS1)		**Source: 1209647-01**			Prepared & Analyzed: 09/01/12					
Dissolved Organic Carbon	8.69	1.0	0.50	mg/L	10	ND	87	85-125		
Matrix Spike Dup (BI20431-MSD1)		**Source: 1209647-01**			Prepared & Analyzed: 09/01/12					
Dissolved Organic Carbon	9.79	1.0	0.50	mg/L	10	ND	98	85-125	12	25

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Metals - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BI20631 - Metals Preparation for EPA Method 200.7										
Blank (BI20631-BLK1)					Prepared: 09/06/12 Analyzed: 09/10/12					
Calcium	0.042 U	0.50	0.042	mg/L						
Magnesium	0.020 U	0.50	0.020	mg/L						
Manganese	0.0010 U	0.010	0.0010	mg/L						
Iron	0.020 U	0.10	0.020	mg/L						
Sodium	0.13 U	0.50	0.13	mg/L						
Boron	0.050 U	0.10	0.050	mg/L						
Potassium	0.010 U	0.050	0.010	mg/L						
LCS (BI20631-BS1)					Prepared: 09/06/12 Analyzed: 09/11/12					
Potassium	19	0.050	0.010	mg/L	20		95	85-115		
Sodium	19	0.50	0.13	mg/L	20		96	85-115		
Iron	8.1	0.10	0.020	mg/L	8.0		102	85-115		
Boron	0.37	0.10	0.050	mg/L	0.40		92	85-115		
Magnesium	20	0.50	0.020	mg/L	20		99	85-115		
Manganese	0.38	0.010	0.0010	mg/L	0.40		94	85-115		
Calcium	20	0.50	0.042	mg/L	20		100	85-115		
Matrix Spike (BI20631-MS1)		**Source: 1209766-01**			Prepared: 09/06/12 Analyzed: 09/10/12					
Magnesium	30	0.50	0.020	mg/L	20	8.4	108	70-130		
Calcium	62	0.50	0.042	mg/L	20	44	90	70-130		
Iron	9.0	0.10	0.020	mg/L	8.0	ND	112	70-130		
Manganese	0.43	0.010	0.0010	mg/L	0.40	ND	107	70-130		
Sodium	26	0.50	0.13	mg/L	20	3.8	113	70-130		
Potassium	22	0.050	0.010	mg/L	20	0.32	109	70-130		
Boron	0.42	0.10	0.050	mg/L	0.40	ND	104	70-130		
Matrix Spike (BI20631-MS2)		**Source: 1209770-01**			Prepared: 09/06/12 Analyzed: 09/11/12					
Sodium	340	5.0	1.3	mg/L	20	150	961	70-130		
Manganese	0.39	0.010	0.0010	mg/L	0.40	ND	98	70-130		
Boron	0.44	0.10	0.050	mg/L	0.40	0.056	95	70-130		
Iron	8.1	0.10	0.020	mg/L	8.0	ND	101	70-130		
Potassium	22	0.050	0.010	mg/L	20	3.0	94	70-130		
Calcium	45	0.50	0.042	mg/L	20	27	87	70-130		
Magnesium	35	0.50	0.020	mg/L	20	17	91	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 BI20631 - Metals Preparation for EPA Method 200.7										
Matrix Spike Dup (BI20631-MSD1)		**Source: 1209766-01**			Prepared: 09/06/12 Analyzed: 09/10/12					
Sodium	26	0.50	0.13	mg/L	20	3.8	111	70-130	2	30
Boron	0.39	0.10	0.050	mg/L	0.40	ND	97	70-130	7	30
Potassium	21	0.050	0.010	mg/L	20	0.32	102	70-130	6	30
Manganese	0.40	0.010	0.0010	mg/L	0.40	ND	100	70-130	7	30
Magnesium	28	0.50	0.020	mg/L	20	8.4	98	70-130	7	30
Calcium	60	0.50	0.042	mg/L	20	44	81	70-130	3	30
Iron	8.4	0.10	0.020	mg/L	8.0	ND	104	70-130	7	30
Matrix Spike Dup (BI20631-MSD2)		**Source: 1209770-01**			Prepared: 09/06/12 Analyzed: 09/10/12					
Iron	8.1	0.10	0.020	mg/L	8.0	ND	101	70-130	0.5	30
Magnesium	35	0.50	0.020	mg/L	20	17	91	70-130	0.2	30
Calcium	44	0.50	0.042	mg/L	20	27	86	70-130	0.5	30
Manganese	0.39	0.010	0.0010	mg/L	0.40	ND	96	70-130	2	30
Boron	0.43	0.10	0.050	mg/L	0.40	0.056	93	70-130	2	30
Potassium	23	0.050	0.010	mg/L	20	3.0	100	70-130	5	30
Sodium	320	5.0	1.3	mg/L	20	150	871	70-130	5	30

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Microbiology - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BH23047 - FC-MF										
Blank (BH23047-BLK1)					Prepared: 08/30/12	Analyzed: 08/31/12				
Fecal Coliforms	1 U	1	1	CFU/100 ml						
Duplicate (BH23047-DUP1)		**Source: 1209849-01**			Prepared: 08/30/12	Analyzed: 08/31/12				
Fecal Coliforms	1 U	1	1	CFU/100 ml		ND				200
Duplicate (BH23047-DUP2)		**Source: 1209855-02**			Prepared: 08/30/12	Analyzed: 08/31/12				
Fecal Coliforms	1 U	1	1	CFU/100 ml		ND				200

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

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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.
+O	Matrix spike source sample was over the reccommended range for the method.

SOUTHERN ANALYTICAL LABORATORIES, INC.

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SAL Project No. 1209647

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: C-HS3 SE#1

Samplers: (Signature)

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

PARAMETER / CONTAINER DESCRIPTION

SAL Use Only Sample No.	Sample Description	Date	Time	Matrix	Composite	Grab	1LP, Cool Alkalinity, TSS, TS, CBOD, NOx, Cl, F, OP, SO_4	250mL P, H_2SO_4 COD, TKN, NH_3, TP	40mLaV, HCl TOC	250mLaG, Cool DOC	250mL P, HNO_3 B, Ca, Fe, Mg, Mn, K, Na	125mL P, $Na_2S_2O_3$ FC-MF					DO	pH	Conductivity	Temperature	No. of Containers (Total per each location)
01	FB-DI	083012	1350	R		X	1	1	2	1	1	2					7.08	6.6	1.3	24.5	
02	EB		1355	R		X	1	1	2	1	1	2					7.08	6.6	1.5	24.5	

Containers Prepared/ Relinquished:	Date/Time: 8-27-12 11:53	Received:	Date/Time: 1153 08 27 12
Relinquished:	Date/Time: 1550 083012	Received:	Date/Time: 1550 08-30-12
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

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

1209647

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

Chain of Custody

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DOH-2012-08-29-01

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Abbreviations and data remark codes

CERT # - NELAP (National Environmental Laboratory Accreditation Program) Certification Number of the laboratory that performed the analysis.
LCS – Laboratory Control Sample; in the QC Failures column, this notation indicates a batch recovery failure.
MS – Matrix Spike; in the QC Failures column, this notation indicates a batch recovery failure.
RPD – Relative Percent Difference; in the QC Failures column, this notation indicates a batch failure for precision.
CCV – Continuing Calibration Verification; in the QC Failures column, this notation indicates a failure of the calibration verification check sample.
SUR – Surrogate; in the QC Failures column, this notation indicates a recovery failure for the associated surrogate.
RSD – Relative Standard Deviation expressed as a percentage.
SMP – Sample.
** - The laboratory is not NELAP certified for this analyte/method, or certification is not applicable.

A - Value reported is the mean of two or more determinations
B - Results based on colony counts outside the acceptable range.
I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
J - Estimated value
K - Actual value is known to be less than value given
L - Actual value is known to be greater than value given
N - Presumptive evidence of presence of material.
O - Sampled, but analysis lost or not performed.
Q - Sample held beyond normal holding time.
T - Value reported is less than the criterion of detection.
U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
V - Analyte was detected in both sample and method blank.
X - Too few individuals to calculate SCI value.
Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate
Z - Colonies were too numerous to count (TNTC).

Scientific notation may be used in reporting very large or small values. Values reported using scientific notation will take the form of the following example: 1.3E+03, which is equivalent to 1.3×10^3 or 1300.

Precision is reported as relative percent difference unless otherwise noted.

Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published test performance acceptance criteria.

Unless otherwise noted, analytical values for soil and sediment samples are reported on a dry weight basis, and analytical values for waste and tissue samples are reported on a wet weight basis.

All sample collection performed by Bureau of Laboratories staff followed the field Standard Operating Procedures adopted by reference in Rule 62-160 FAC unless otherwise noted.

Quality control information from overflow laboratories may not be included in this report. Please refer to the associated report from the overflow laboratory for additional information.

Results for NELAP accredited tests contained in this report meet the requirements specified by the National Environmental Laboratory Accreditation Conference (NELAC). All samples received were in acceptable condition and met NELAC requirements unless otherwise noted. Results generated in this report pertain to the samples collected and submitted for analysis.

Sample Location: LAKE WALES, FL **Collection Date/Time: 08/28/2012 09:45 AM**

Field ID: CHS3-PZ-03A-15 Matri O N

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Failures
1 02	O 001 2 based on A 21	ucralose	0 010		ug	2 1	

Sample Location: LAKE WALES, FL **Collection Date/Time: 08/28/2012 10:30 AM**

Field ID: CHS3-PZ-03A-17 Matri O N

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Failures
1 02 0	O 001 2 based on A 21	ucralose	0 010		ug	2 1	

Sample Location: LAKE WALES, FL **Collection Date/Time: 08/28/2012 11:05 AM**

Field ID: CHS3-PZ-03A-21 Matri O N

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Failures
1 02 1	O 001 2 based on A 21	ucralose	0 010		ug	2 1	

Sample Location: LAKE WALES, FL **Collection Date/Time: 08/28/2012 12:00 PM**

Field ID: CHS3-STE Matri O

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Failures
1 02 2	O 001 2 based on A 21	ucralose	0 0		ug	2 1	

ef Method and omment
O 001 2 based on A 21 ualit control failure s obser ed esults confirmed in re e traction

Quality Assurance Report
Method Blank Results

Reference Method: DEP SOP: LC-001-2 (based on EPA 8321B)
Batch ID: P243741

Component	Result	Code	Units
ucralose	0 010		ug

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: DEP SOP: LC-001-2 (based on EPA 8321B)
Batch ID: P243741

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
ucralose	1 2	0		0 1 0

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: DEP SOP: LC-001-2 (based on EPA 8321B)
Batch ID: P243741

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1 02	ucralose		0 0		0 1 0

Quality Assurance Report
Precision

Reference Method: DEP SOP: LC-001-2 (based on EPA 8321B)
Batch ID: P243741

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1 02	ucralose		pi e		0 0
	ucralose	12			0 0

ample spi e and or laborator control sample precision is reported
eplicate spi e precision ma be reported when sample results are below uantifiable le els

Quality Assurance Report
Surrogates

Lab Sample ID: 1450289
Field Sample ID: CHS3-PZ-03A-15

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
O 001 2 based on A 21	ucralose d			0 1 0

Lab Sample ID: 1450290
Field Sample ID: CHS3-PZ-03A-17

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
O 001 2 based on A 21	ucralose d			0 1 0

Lab Sample ID: 1450291
Field Sample ID: CHS3-PZ-03A-21

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
O 001 2 based on A 21	ucralose d			0 1 0

Lab Sample ID: 1450292
Field Sample ID: CHS3-STE

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
O 001 2 based on A 21	ucralose d	2		0 1 0

Quality Assurance Report
Calibration Verification

Reference Method: DEP SOP: LC-001-2 (based on EPA 8321B)
Run ID: A46777
Included Lab Sample IDs: 1450289, 1450290, 1450291, 1450292

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
ucralose	10	12		0 1 0
ucralose	110	10		0 1 0

ass ail determinations are made for each brac eting calibration erification chec
ontrol limits for initial calibration chec s ma be different from those for continuing chec s depending on method re uirements
here the are different both control limits are pro ided

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	Precision		
				LCS	SMP	MS
O 001 2 based on A 21	ucralose	1 2 0	0 0	12		

Reference Method Descriptions

Method / NELAC Cert. #	Description	Associated Samples
O 001 2 based on A 21 1 0	Anal sis of sucralose in water matrices b M M	1 02 1 02 0 1 02 1 1 02 2

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
O 001 2 based on A 21	0 2 2012	0 2 2012	oor hai	0 0 2012	M edd	1 02 1 02 0 1 02 1 1 02 2