FLORIDA DEPARTMENT OF HEALTH

Florida Onsite Sewage Nitrogen Reduction Strategies Study

Task C.17

S&GW Test Facility Data Summary Report No. 3

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.17
PROGRESS REPORT

S&GW Test Facility
Data Summary Report No. 3

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

November 2012

Prepared by:

HAZEN AND SAWYER
Environmental Engineers & Scientists

In Association With:

AET
Applied Environmental Technology

SCHOOL OF MINES
1874
COLORADO

S&GW Test Facility Monitoring Data Summary Report No. 3

1.0 Background

Task C of the Florida Onsite Sewage Nitrogen Reduction Strategies Study includes monitoring at field sites in Florida to evaluate nitrogen reduction in soil and groundwater, to assess groundwater impacts from various onsite wastewater systems, and to provide data for parameter estimation, verification, and validation of models developed in Task D. The controlled pilot-scale testing at the Gulf Coast Research and Education Center (GCREC) soil and groundwater (S&GW) test facility is being monitored for a range of operating conditions and to determine mechanisms critical for nitrogen reduction. The Task C.5 QAPP documents the objectives, monitoring framework, sample frequency and duration, and analytical methods to be used at the GCREC S&GW test facility.

2.0 Purpose

This data summary report documents data collected from the third S&GW test facility monitoring and sampling event conducted October 11th through October 26, 2012. This monitoring event consisted of measurement of flowrates dosed to the system, groundwater elevation measured within the standpipe piezometers, measurement of field parameters, and collection of unsaturated zone and groundwater samples and their analyses by a NELAC certified laboratory.

3.0 Materials and Methods

3.1 Project Site

The S&GW test facility is located at the University of Florida Gulf Coast Research and Education Center (GCREC) in southeast Hillsborough County, Florida. The specially designed pilot-scale test areas are representative of typical mounded onsite sewage treatment and disposal systems and enables controlled testing and evaluation of nitrogen reduction in soil and groundwater. Each test area consists of the above ground mound system to which effluent is dosed. Four test areas were established, to which either septic tank effluent (STE) or aerobic treatment unit (ATU) effluent was delivered to the mound/soil system via a pressure dosed mound with a gravel trench or a mound with drip dispersal system (Table 1). In addition to the mound/soil systems, two in-situ

o:\44237-001R004\Wpdocs\Report\Final

passive nitrogen reduction stacked biofilter systems are being tested specifically for wastewater treatment performance (Table 1 TA5 and TA6). The source of the influent wastewater is the septic tank effluent from the existing onsite wastewater system serving the GCREC (Figure 1). As shown in Figure 1, two separate feed systems supply the test areas with water, each system supplies either STE or aerobic treatment unit (ATU) effluent to 3 test areas. The treatment unit preceding three of the test areas shown in Figure 1 is a 500 gpd aerobic treatment unit (ATU) with a continuous air supply. Details of the design and construction of the S&GW test facility were presented previously in Task C.6, C.7, C.8, C10, C.11, C.12, A.15 and A.17 documents.

Table 1
S&GW Test Facility Test Areas

Test Area ID	Effluent Quality	Design HLR (gpd/ft^2)	Soil Treatment Unit Design
TA1	STE	0.8	pressure dosed mound[1], gravel trench
TA2	ATU effluent	0.8	pressure dosed mound[1], gravel trench
TA3	STE	0.8	mound with drip dispersal
TA4	ATU effluent	0.8	mound with drip dispersal
TA5	STE effluent (Task A PNRS II)	0.8	mounded drip dispersal, vertically stacked biofilter; nitrification media over denitrification media
TA6	ATU effluent (Task A PNRS II)	0.8	mounded drip dispersal, vertically stacked biofilter; nitrification media over denitrification media

[1]pressure dosed via drip tubing in gravel trench to maintain uniform application along trench length.

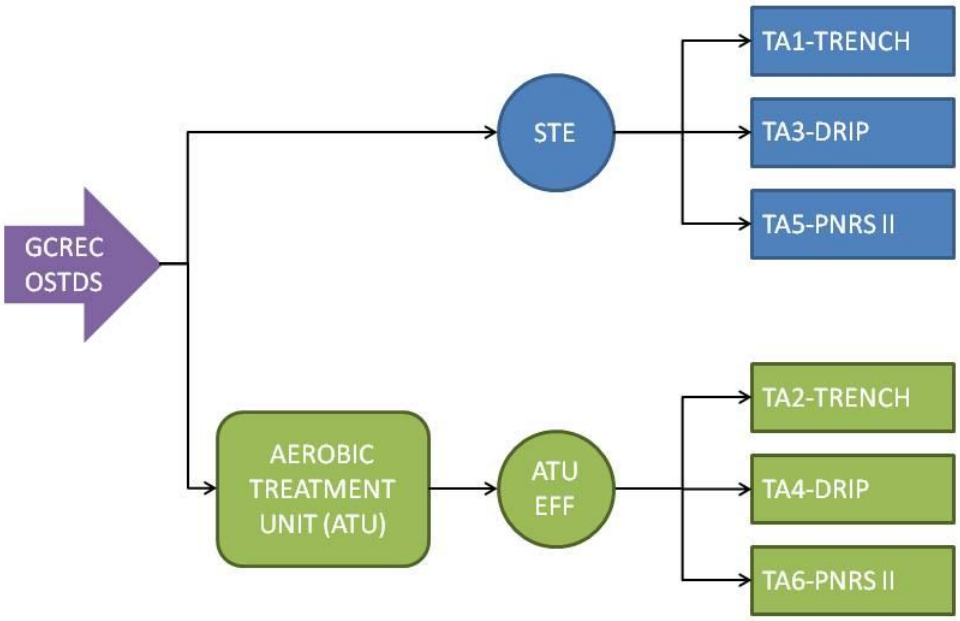


Figure 1
S&GW Test Facility System Schematic

3.2 Modifications to S&GW Test Facility

The results of previous sample events and careful observation of the S&GW test facility were used to formulate recommendations for modifications to the test systems. The modifications that were made following Sample Event No. 2 are presented in this section.

3.2.1 Adaptive Monitoring

Sample events No. 1 and 2 shallow piezometer NOX results indicate that the test area plumes appear to be confined in a southwesterly direction from the center of each of the test areas. However, to better capture the eastern boundary of the plumes, additional shallow piezometers (PZ41 through PZ53) were installed prior to this sample event as depicted in Appendix A, Figures A.1 and A.2.

3.3 Monitoring and Sampling Locations and Identification

Each test area is monitored for operational conditions, unsaturated and saturated nitrogen concentrations, soil properties, groundwater properties, and weather conditions. The

PNRS II systems are monitored primarily for wastewater treatment performance, especially related to nitrogen reduction, and are not monitored as intensely for soil and groundwater parameters.

3.3.1 Unsaturated Zone Monitoring

The test areas are equipped with varying levels of unsaturated and shallow saturated zone monitoring instrumentation. The instrumentation includes suction lysimeters, stainless steel pan lysimeters, soil moisture probes, and tensiometers located at various depths below the bottom of the gravel trenches or below the drip emitters. A complete list of all installed monitoring devices and associated sample identification is included in Appendix A.

3.3.2 Saturated Monitoring

Saturated zone monitoring includes groundwater quality, depth of groundwater table, and gradient (i.e. water level contours). A sampling network for groundwater screening was developed for each of the test areas. Transect lines A through U are parallel to the northern edge of the mound and increase (higher letter identification) moving southward from the mound. Transect lines 0 through 20 (numbered from east to west) are perpendicular to the northern edge of the mound. Groundwater monitoring points were installed in November 2011, March 2012, May 2012, and October 2012. Standpipe piezometers were installed using either hand or drilling methods. Standpipe piezometers consist of either ¾-in., 1-in., or 2-in. diameter PVC with 1-ft, 2.5-ft, 5-ft, or 10-ft long 0.010 slot PVC screens and PVC riser extending to the ground surface (refer to the Task C QAPP and Task C.10/C.11/C.12 Progress Report for additional detail).

3.3.3 Sample Locations and Identification

Each monitoring location has been assigned a unique identification indicating the type of monitoring point (LY = lysimeter, PZ = standpipe piezometer, T = tensiometer, SM = soil moisture, OBS = observation port, etc.), grid location (self explanatory), and depth below ground surface (bottom of the well screen in feet). For example TA1-PZ-11-J4 is a test area 1, standpipe piezometer sampler located 11 ft below natural ground surface on the grid at J4. Detailed schematics of the STE systems and ATU effluent systems are provided in Appendix A. Figure 2 depicts a typical schematic of the test area instrumentation. Figure 3 shows a photograph of the instrumented test area 3 with installed ¾-in. diameter PVC standpipe piezometers downgradient of the test area. A complete list of all installed monitoring devices is included in Appendix A.

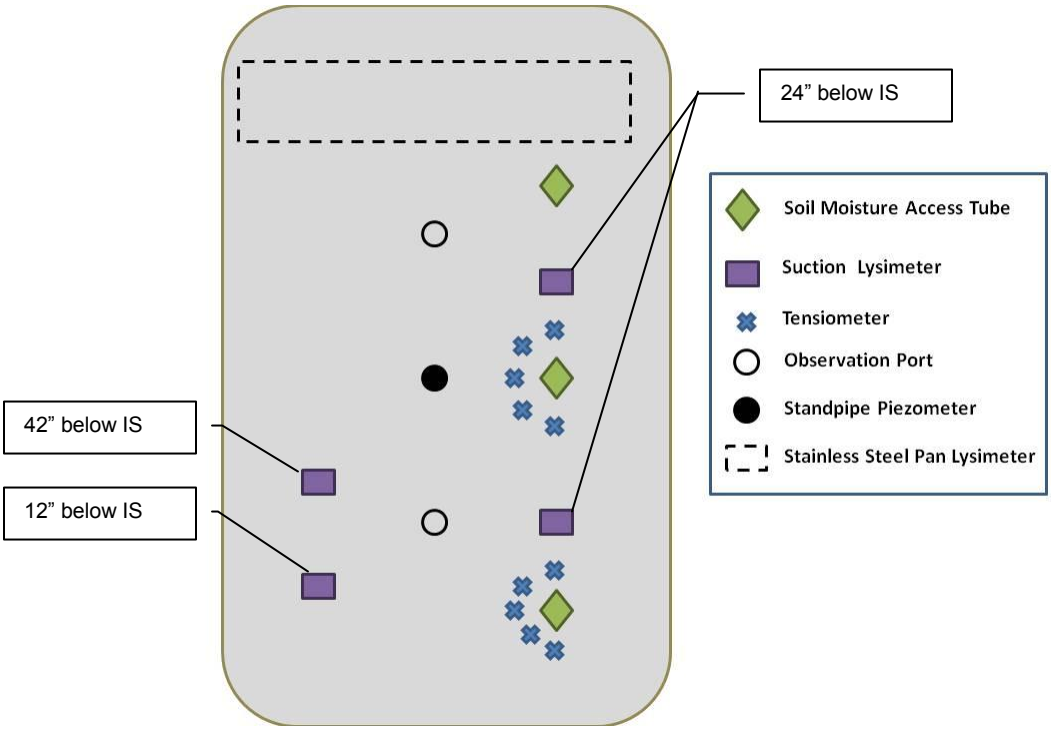


Figure 2
Typical Instrumentation of Test Area, Top View (example Test Area 3)

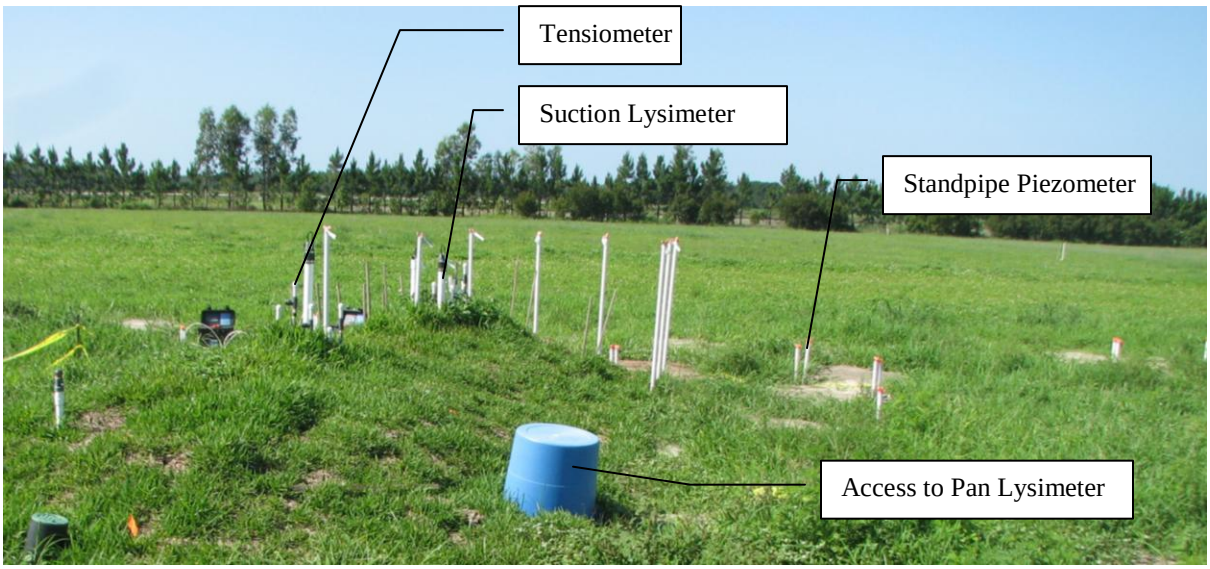


Figure 3
Photo of Instrumented Test Area 3

o:\44237-001R004\Wpdocs\Report\Final

3.4 Operational Monitoring

Operational monitoring conditions include effluent quality, calculation of the hydraulic loading rate to the soil, and ponding on the soil infiltrative surface or at the fill/natural soil interface.

3.4.1 Flow Monitoring

The feed and return flows were measured, recorded, and adjusted as necessary to maintain flow rates consistent with the experimental design following the sample event. Each of the two systems has wastewater flow measured via two flow meters; one (1) flow meter located on the feed line to the three test areas, and; one (1) flow meter located on the return line to the dose tank. The flow meters were installed in November 2011. Table 2 summarizes the recorded wastewater flow data since start-up occurred May 9, 2012. The drip lines are automatically scoured (field flushed) every 25 dosing cycles. The field flush volume bypasses the return flow meter but not the feed flow meter; therefore the field flush volume must be accounted for when determining the dosed volume (Table 2).

The target dose volume to each of the test areas is 32 gallons per day which equates to 96 gallons per day for each drip dispersal system. The systems are dosed six doses per day. The total recorded flow for the STE (8.1%) and ATU effluent (2.8%) systems were within the 15% operational target that is considered acceptable.

Table 2
S&GW Test Facility Measured Wastewater Flow Data

	Flow Meter Totalized Feed to Mounds (gallons)	Flow Meter Totalized Return from Mounds (gallons)	Number of Field Flush Occurrences for time period (#)	Average Recorded Flow (gpd)	RE% [Measured-Target]/ Target[4] (%)	Average Recorded Flow since start-up (gpd)
STE System						
5/9/12 2:35 PM	13,733.08	5,188.14				
6/18/12 3:10 PM	20,987.62	8,620.71	9[1]	93.36	-2.8%	
7/18/12 9:42 AM	25,535.66	10,270.72	7[1]	95.11	-0.9%	94.10
8/20/12 2:15 PM	30,410.69	11,466.12	8[1]	108.58	13.1%	98.77
10/12/12 12:17 PM	36,657.27	12,105.76	12[1]	103.80	8.1%	100.48
ATU System						
5/9/12 3:22 PM	38,415.90	33,861.96				
6/18/12 3:05 PM	63,382.59	53,711.43	9[2]	121.15	26.2%	
7/18/12 9:35 AM	78,364.51	65,072.22	7[2]	114.51	19.3%	118.32
8/3/12 10:45 AM	86,970.09	71,635.06	4[2]	119.73	24.7%	118.58
August 3, 2012 at 11:00 am: Revised dose cycle time to 11.66 minutes from 15 minutes						
8/20/12 2:33 PM	94,220.74	77,093.73	5[3]	95.61	-0.4%	
10/12/12 12:42 PM	115,503.15	92,789.06	12[3]	98.70	2.8%	109.30

[1]STE system additional field flush cycle volume is 9.5 gallons
[2]ATU system additional field flush cycle volume is 30.3 gallons
[3]ATU system additional field flush cycle volume following dose cycle time revision is 24.6 gallons

3.4.2 Meteorological Monitoring

A weather station is located at the GCREC facility with weather conditions recorded every minute and stored on a private website. Table 3 provides the recorded meteorological data daily averages leading up to and during the sample event. Appendix B provides a summary table of the average daily recorded meteorological data since the previous sample event.

o:\44237-001R004\Wpdocs\Report\Final

Table 3
Meteorological Data Daily Averages Measured October 8 through October 26, 2012

Date	Temp Avg 60 cm (°F)	Temp Avg 2m (°F)	Temp Avg 10 m (°F)	Temp Soil Avg -10 cm (°F)	Dewpoint Avg 2m (°F)	Relative Humidity Avg 2m (%)	Rain Total 2m (in)	Wind Speed Avg 10m (mph)	ET (in/day)
8-Oct-12	75.55	76.06	75.80	79.57	73.24	92	0	3.80	0.10
9-Oct-12	75.96	76.39	76.06	79.73	72.92	90	0	4.60	0.12
10-Oct-12	74.78	75.46	75.28	79.65	69.25	82	0	5.55	0.12
11-Oct-12	72.18	72.96	73.11	78.50	66.84	83	0	6.40	0.12
12-Oct-12	72.70	73.43	73.18	78.04	64.75	76	0	7.06	0.12
13-Oct-12	73.40	74.08	73.81	77.57	65.87	77	0	8.79	0.12
14-Oct-12	75.57	76.37	76.36	77.98	69.50	81	0	7.32	0.12
15-Oct-12	76.20	76.63	76.22	78.67	71.64	86	0	5.19	0.11
16-Oct-12	73.95	74.81	74.81	78.43	68.66	83	0	4.09	0.11
17-Oct-12	71.19	71.88	72.12	77.80	68.80	90	0	3.11	0.07
18-Oct-12	75.14	75.58	75.38	77.89	70.54	86	0	4.05	0.12
19-Oct-12	74.60	75.24	75.27	78.03	69.37	84	0	3.78	0.11
20-Oct-12	72.64	73.49	73.31	78.12	62.20	70	0	5.56	0.11
21-Oct-12	67.09	68.28	68.67	75.96	55.86	68	0	6.50	0.10
22-Oct-12	70.98	71.66	71.52	75.60	63.25	76	0	8.97	0.11
23-Oct-12	70.98	71.68	71.61	75.52	65.56	82	0	7.79	0.09
24-Oct-12	74.46	75.11	74.73	75.87	67.88	80	0	9.85	0.11
25-Oct-12	73.91	74.51	74.08	76.21	70.30	87	0	8.94	0.08
26-Oct-12	75.68	76.28	75.85	76.32	67.29	75	0	12.77	0.11

3.4.3 Soil Moisture Monitoring

In situ soil tension and soil moisture measurements are collected for model development in Task D. Soil moisture tension is monitored in two test areas (TA1 and TA3) in two locations (center and south side of the mound). Tensiometers are installed at 5 depths as specified in Appendix C. Tensiometers have a ceramic cup and tube assembly equipped with a pressure transducer. The pressure transducer allows for precise measurement of the soil water potential. The tensiometers are automated to enable recording of soil moisture tension at 15 minute intervals to evaluate short-term changes in soil

o:\44237-001R004\Wpdocs\Report\Final

moisture status associated with wastewater dosing events. The daily averages since the previous sample event are presented in Appendix C. Figures C.1 and C.2 display the 15 minute interval data for soil tension, rainfall, temperature and dose occurrence during this monitoring event for TA1 and TA3, respectively. The recorded tensiometer data provides a relative difference comparison between locations but has not been calibrated to a true soil moisture value.

Soil moisture is measured through Sentek™ sensor access tubes. Volumetric soil moisture content is measured by responses to changes in the dielectric constant of the soil by inserting the sensor probe into the access tube (Figure 4) which takes readings every 10 cm the entire length of the access tube (Appendix D). The 0 cm reading is at the infiltrative surface of each test area. No ponding was observed within the test area observation ports.

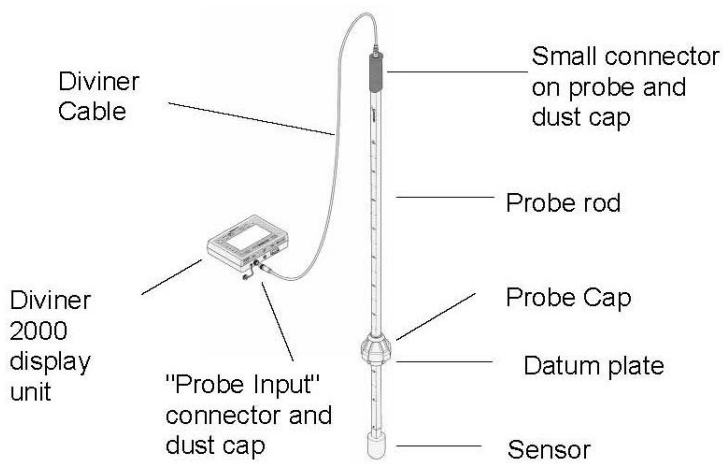


Figure 4
Sentek™ Diviner 2000
Source: Diviner 2000 User Guide V1.5

3.5 Soil Characteristics

During the instrumentation of the S&GW test facility, soil cores were collected at two locations; MM (located between TA2 and TA5) and TT (north of the tracer test area). At location MM a continuous soil core was collected to the confining Hawthorn clay layer. The shallow soil cores will provide information on vadose zone properties, and the deep

o:\44237-001R004\Wpdocs\Report\Final

soil core will provide a general idea of the soil properties within the saturated zone. The information will be used when determining appropriate parameters to be used in model development. In addition, a test pit was dug south of the S&GW test facility and east of the GCREC mound into the spodic layer approximately 6 feet below ground surface (Figure 5).

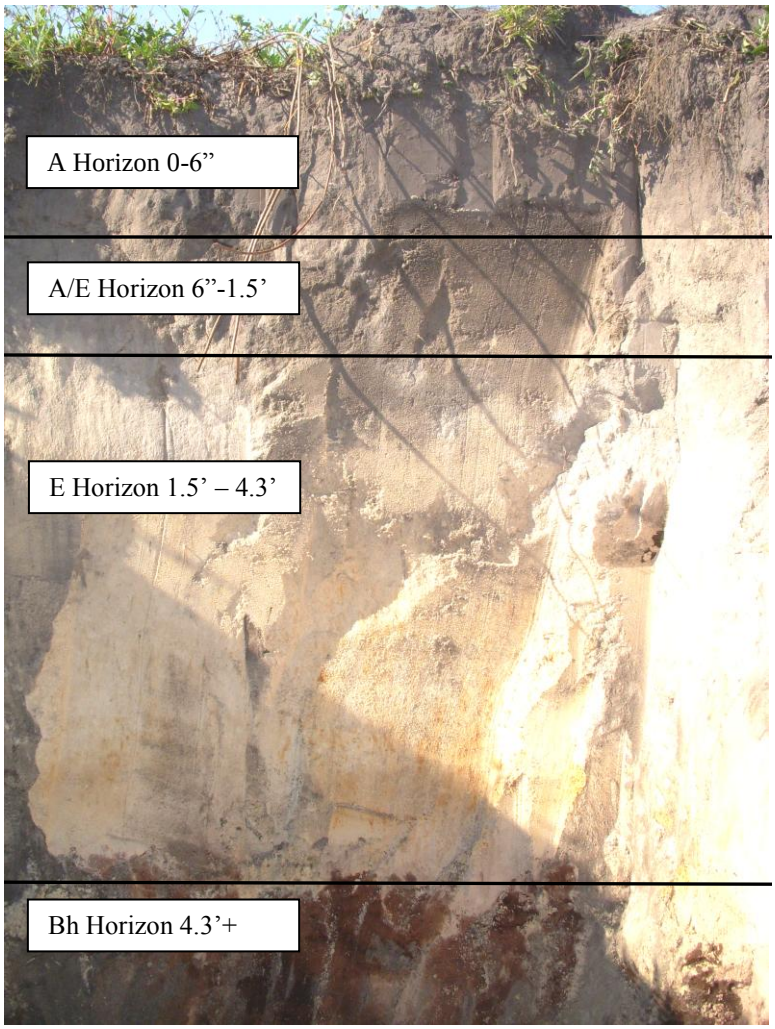


Figure 5
Photograph of Test Pit Soil Profile

3.6 Groundwater Elevation Measurements

Groundwater level measurements are used to determine hydraulic gradients and directions of groundwater flow. Groundwater levels are measured by inserting into monitoring wells a hand-cranked steel tape graduated in feet, to the nearest 0.01 ft. These

o:\44237-001R004\Wpdocs\Report\Final

measurements are then converted to groundwater surface elevations by using the surveyed elevation of the top of the monitor well casing.

3.7 Water Quality Sample Collection and Analyses

Septic tank effluent, ATU effluent, groundwater, and soil moisture samples were collected October 15, 2012 through October 26, 2012 for water quality analysis. A peristaltic pump was used to collect STE and ATU effluent by placing the suction inlet tubing in the mid-section of the clear liquid phase in the effluent holding tanks. Similarly, sample was collected from the PNRS II Tank 1, which supplies STE to the S&GW test facility nitrification unit and STE dose tank. The effluent was directed into the analysis-specific containers supplied by the analytical laboratory. Field parameters (temperature (Temp), pH, specific conductance (SC), oxidation-reduction potential (ORP) and dissolved oxygen (DO)) were measured using portable electronic probes with probe tips placed directly into the tanks.

Groundwater samples were obtained using a peristaltic pump and dedicated standpipe piezometer tubing. Prior to groundwater sample collection, the piezometer was micropurged using low-flow purging and sampling methods. Micropurging continued until water quality indicators (temp, pH, SC, DO and turbidity) were stabilized (three consecutive measurements within the limits). Groundwater sample was then collected into the analysis-specific containers.

Soil moisture samples from the suction lysimeters were also collected using a peristaltic pump and dedicated tubing. The tubing routed the samples directly into analysis-specific containers after sufficient flushing of the tubing had occurred. Field parameters (Temp, pH, SC, ORP, DO) were then recorded in an external reservoir.

The analysis-specific containers were supplied by the analytical laboratory and contained appropriate preservatives. The analysis-specific containers were labeled, placed in coolers and transported on ice to the analytical laboratory. Each sample container was secured in packing material as appropriate to prevent damage and spills, and was recorded on chain-of-custody forms, provided in Appendix E, supplied by the laboratory.

In addition, equipment blank, field blank, and field sample duplicates were taken. The equipment blank was collected by pumping deionized water (provided by the laboratory) through the cleaned pump tubing. These samples were then analyzed for the same parameters as the GW samples. One field blank was collected by filling sample

o:\44237-001R004\Wpdocs\Report\Final

containers with deionized water that had been transported from the laboratory into the field along with other sample containers. The field sample duplicates were collected immediately subsequent to the regular samples.

All samples were analyzed by the laboratory for chloride, total Kjeldahl nitrogen (TKN-N), ammonia nitrogen (NH_3-N), and nitrate/nitrite nitrogen (NO_X-N). Additionally, for the effluent samples and some of the water samples total alkalinity, carbonaceous biochemical oxygen demand ($CBOD_5$), total phosphorus (TP), total solids (TS), total suspended solids (TSS), fecal coliform (fecal), anions and cations were included. In addition, chemical oxygen demand (COD) and dissolved organic carbon (DOC) were included at some of the water sample locations. For the two in-situ passive nitrogen reduction mounded systems (TA5 and TA6) samples, sulfate and hydrogen sulfide were also included. All analyses were performed by an independent and fully NELAC certified analytical laboratory (Southern Analytical Laboratory). Table 4 lists the analytical parameters, analytical methods, and detection limits for these analyses.

o:\44237-001R004\Wpdocs\Report\Final

Table 4
Analytical Parameters, Method of Analysis, and Detection Limits

Analytical Parameter	Method of Analysis	Laboratory Detection Limit (mg/L)
Total Alkalinity as $CaCO_3$	SM 2320B	2 mg/L
Chemical Oxygen Demand (COD)	EPA 410.4	10 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
Carbonaceous Biological Oxygen Demand ($CBOD_5$)	SM 5210B	2 mg/L
Total Solids (TS)	EPA 160.3	0.01% by wt
Total Suspended Solids (TSS)	SM 2540D	1 mg/L
Total Organic Carbon (TOC)	SM 5310B	0.5 mg/L
Dissolved Organic Carbon (DOC)	SM 5310B	0.5 mg/L
Fecal Coliform (fecal)	SM 9222D	2 ct/100 mL
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
Hydrogen Sulfide (unionized)	SM 4550SF	0.01 mg/L
Sulfide	SM 4500SF	0.01 mg/L

4.0 Results

4.1 Soil Characteristics

During the instrumentation of the S&GW test facility, split spoon soil samples were collected at two-foot intervals at two locations MM; (located between TA2 and TA5) and TT (north of the tracer test area). At location MM a continuous soil core was collected to the confining Hawthorn clay layer. In addition, a test pit was dug, at a location south of

o:\44237-001R004\Wpdocs\Report\Final

the S&GW test facility and east of the GCREC mound, into the spodic layer approximately 6 feet below ground surface. The soil descriptions are presented in Table 5. The top few inches at the site are typically a darker, brown or grey fine sandy soil, followed by a light-colored, grey and/or pale yellow fine sand. Mottling is commonly visible between 4 to 5 feet below the ground surface. The spodic layer is approximately 2.5 and 6.75 feet thick at the TT and MM locations, respectively; and the soil below the spodic layer is a light or yellowish brown, fine to medium sand (Table 5). The Hawthorne clay is considered a confining layer at the site and lies approximately 27 to 30 feet below the ground surface.

Subsequently, hand methods were used to better determine the actual elevation of the spodic layer (Table 6) at several additional locations across the site. Figure 6 illustrates the top elevation of the spodic layer at the site as determined by the hand methods.

o:\44237-001R004\Wpdocs\Report\Final

Table 5
May 2012 Soil Core Descriptions

Grid Location	Identifier	Approximate Surface Elevation[1] (ft)	Depth bgs (ft)	Description
North of tracer test #2 area	TT	131.5	2-2.5'	10YR3/1 fine sand
			2.5-3.5'	10YR3/2 fine sand
			3.5-5.5'	10YR7/2 fine sand
			5.5-7'	Transition to Bh (spodic horizon)
			7-9.5'	10YR2/2 fine sand Bh (spodic horizon)
			9.5-14'	10YR5/3 fine sand
			14-15.5'	10YR4/3 fine sand
			15.5-16'+	10YR4/4 fine sand
Between TA2 and TA5	MM	130.5	0-2'	A Horizon top soil
			2.5-5.75'	10YR6/3 fine sand
			5.75-12.5'	10YR2/2 fine sand Bh (spodic horizon)
			12.5-17'	10YR4/4 fine sand
			17-27'	10YR5/4 fine sand
			27'+	Hawthorne clay
Test pit south of the S&GW test facility east of the GCREC mound	TP	127.0	0-6"	A horizon
			6"-1.5'	A/E horizon
			1.5-4.3'	E horizon
			4.3'+	Bh spodic horizon

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

o:\44237-001R004\Wpdocs\Report\Final

Table 6
The Top Elevation of the Spodic Horizon as Determined by Hand Methods

Location	Elevation[1] (ft)	Location	Elevation[1] (ft)
SB-1	122.47	SB-4	123.40
SB-2	122.97	SB-5	121.96
SB-3	124.20	SB-6	121.96

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

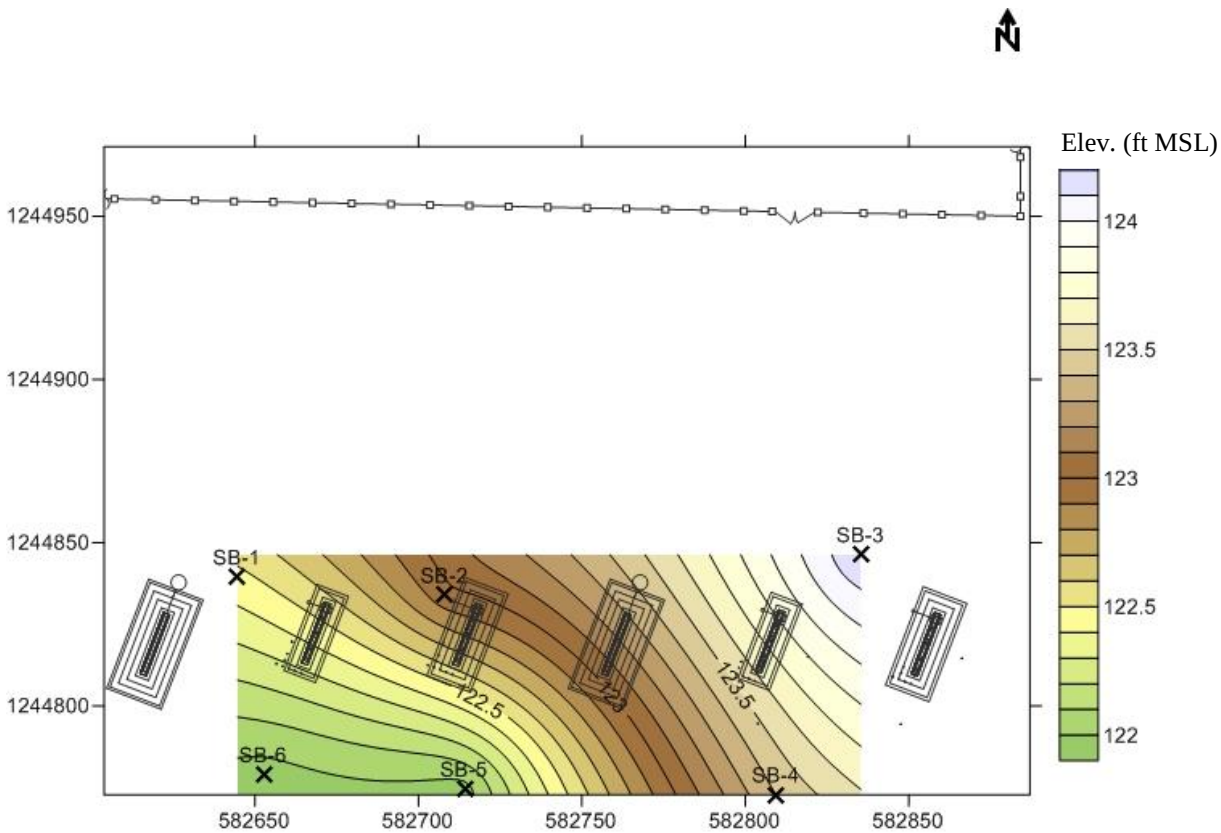


Figure 6
Elevations of spodic (Bh) horizon as determined by hand methods
(the locations of the soil borings are provided for reference)

The MM, TT and test pit soil samples were submitted to the University of Florida IFAS Analytical Services Laboratories and University of Florida SWS Mineralogy Core Laboratory for analysis. The soil samples were analyzed for pH, organic matter, cation exchange capacity (CEC), ammonia, nitrate, TKN, phosphorus, potassium, calcium, magnesium, and

o:\44237-001R004\Wpdocs\Report\Final

sodium concentrations as well as particle size distribution summarized in Table 7. The complete soil data set is included Appendix F.

Table 7
Soil Grain Size Distribution in Percent (%)

ID	Depth Bgs (ft)	Sand Fractions (%)					Total (%)			Texture Class
		Very Fine	Fine	Medium	Coarse	Very Coarse	Sand	Silt	Clay	
		0.05-0.1 mm	0.25-0.1 mm	0.25-0.5 mm	0.5-1.0 mm	1.0-2.0 mm	0.05-2 mm	0.002-0.05 mm	<0.002 mm	
TT	2-3'	8.4	45.9	31.7	6.1	0.8	95.6	1.2	3.2	Sand
	3.5-5.5'	7.9	44.3	35.6	7.7	1.1	96.4	1.2	2.4	Sand
	7.5-9.5'	5.4	55.0	26.7	5.0	1.3	93.0	2.9	4.1	Fine Sand
	10.5-12'	3.7	49.9	30.3	7.2	3.5	95.0	1.8	3.2	Sand
	12-14'	3.2	52.4	29.0	6.5	3.4	94.9	2.7	2.4	Fine Sand
	14-15.5'	1.1	62.9	28.6	4.2	1.1	98.1	0.3	1.6	Fine Sand
	14-15.5'	1.6	65.2	26.2	4.0	1.1	98.2	0.1	1.6	Fine Sand
	15.5-16'	4.8	51.1	33.3	4.7	1.2	95.6	2.8	1.6	Fine Sand
MM	2-2.5'	7.9	45.4	30.2	6.3	1.1	95.6	1.2	3.2	Sand
	2.5-4'	7.9	47.3	29.4	8.2	1.6	94.9	3.4	3.2	Sand
	4-5'	9.3	47.1	25.7	6.4	1.5	90.3	8.1	1.6	Sand
	6-7'	3.1	55.2	28.5	5.2	2.4	95.1	4.0	1.6	Fine Sand
	7-8'	3.7	50.9	34.6	4.6	0.3	95.6	2.7	1.7	Fine Sand
	8-9'	2.3	35.3	47.7	5.1	0.4	93.7	5.4	0.8	Sand
	9-10'	3.6	25.1	60.8	5.4	0.7	96.0	1.5	2.5	Sand
	12.5-14'	1.8	35.3	54.2	4.5	0.6	96.7	3.3	0.0	Sand
	14.5-16'	2.9	38.9	42.1	5.4	1.8	91.3	6.1	2.5	Sand
	17-18'	3.4	40.7	37.9	7.1	1.5	90.7	9.3	BDL	Sand
	19-20'	1.6	35.3	51.1	7.1	1.5	96.4	1.2	2.4	Sand
	23-24'	1.2	29.4	52.8	8.1	0.6	91.9	5.7	2.4	Sand
	25-26'	2.0	43.2	38.8	0.7	0.8	89.3	9.1	1.6	Sand
	26-27'	1.3	37.6	48.6	7.1	1.1	95.6	2.7	1.6	Sand
Test Pit	0-6"	10.1	49.4	29.2	5.3	1.0	94.9	1.0	4.1	Sand
	1'	6.8	47.4	34.0	7.1	1.2	94.6	2.2	3.2	Sand
	3'	9.9	47.7	27.4	7.1	1.7	93.9	3.6	2.5	Sand
	6'	4.7	44.7	39.1	6.4	1.3	96.3	1.2	2.5	Sand
	6'	4.8	45.8	35.1	5.5	1.6	92.8	5.5	1.7	Sand

4.2 Groundwater Levels

Figures 7 through 9 illustrate the surficial groundwater contours as derived from measurements within the standpipe piezometers representative of the three sample events. Figure 9 illustrates the surficial groundwater contours as derived from measurements within the standpipe piezometers on October 11, 2012 representative of the this sample event, and Table 8 shows the actual measured water levels. Monitoring well locations are shown on Figures A.1 and A.2 within Appendix A. By continued monitoring of the groundwater elevations, a clearer picture of the gradient at the site will be gained.

o:\44237-001R004\Wpdocs\Report\Final

Table 8
Standpipe Piezometer Groundwater Level Measured

Identification/ Location	Water Table Elevation[1,2] (ft)	Identification/ Location	Water Table Elevation[1,2] (ft)
	October 11, 2012		October 11, 2012
TA1-PZ-11-EF2	125.96	TA2-PZ-16-N7	125.23
TA1-PZ-11-J4	125.88	TA2-PZ-09-I7	125.39
TA1-PZ-11-K4	125.90	TA2-PZ-16-I7	125.34
TA1-PZ-11-L2	125.86	TA2-PZ-09-L8	125.31
TA1-PZ-11-L3	125.86	TA2-PZ-16-L8	125.26
TA1-PZ-11-L4	125.86	TA2-PZ-09-TU19	125.02
TA1-PZ-11-L5	125.87	TA2-PZ-16-TU19	125.01
TA1-PZ-09-N3	125.84	TA2-PZ-09-TU21	125.01
TA1-PZ-16-N3	125.81	TA2-PZ-16-TU21	125.00
TA1-PZ-09-O7	125.82	TA3-PZ-11-EF2	125.78
TA1-PZ-16-O7	125.81	TA3-PZ-11-I2	125.72
TA1-PZ-09-M9	125.86	TA3-PZ-10-J5	125.69
TA1-PZ-16-M9	125.82	TA3-PZ-10-K5	125.65
TA1-PZ-09-I7	125.93	TA3-PZ-11-L2	125.65
TA1-PZ-16-I7	126.01	TA3-PZ-11-L3	125.65
TA1-PZ-09-RS16	125.67	TA3-PZ-11-L4	125.65
TA1-PZ-16-RS16	125.68	TA3-PZ-10-L5	125.63
TA1-PZ-09-RS18	125.64	TA3-PZ-09-N3	125.66
TA1-PZ-16-RS18	125.64	TA3-PZ-16-N3	125.65
TA2-PZ-10-EF2	125.41	TA3-PZ-09-O7	125.80
TA2-PZ-10-H5	125.35	TA3-PZ-16-O7	125.77
TA2-PZ-10-J5	125.30	TA3-PZ-09-I7	125.72
TA2-PZ-10-K5	125.27	TA3-PZ-16-I7	125.74
TA2-PZ-10-L2	125.29	TA3-PZ-09-M9	125.66
TA2-PZ-10-L3	125.28	TA3-PZ-16-M9	125.65
TA2-PZ-10-L4	125.27	TA4-PZ-11-EF2	125.22
TA2-PZ-10-L5	125.27	TA4-PZ-10-H5	125.13
TA2-PZ-10-L6	125.27	TA4-PZ-10-J5	125.08
TA2-PZ-09-M4	125.28	TA4-PZ-10-K5	125.05
TA2-PZ-16-M4	125.29	TA4-PZ-11-L2	125.06
TA2-PZ-09-N7	125.25	TA4-PZ-11-L3	125.05

o:\44237-001R004\Wpdocs\Report\Final

Table 8 (continued)
Standpipe Piezometer Groundwater Level Measured

Identification/ Location	Water Table Elevation[1,2] (ft)	Identification/ Location	Water Table Elevation[1,2] (ft)
	October 11, 2012		October 11, 2012
TA4-PZ-11-L4	125.06	PZ01-BKG-09	126.83
TA4-PZ-11-L5	125.05	PZ04-BKG-09	125.07
TA4-PZ-11-L6	125.05	PZ24-BKG-26	125.08
TA4-PZ-09-M4	125.07	PZ29-BKG-09	125.76
TA4-PZ-16-M4	125.03	PZ30-BKG-16	125.73
TA4-PZ-16-N7	125.03	PZ31-BKG-26	125.74
TA4-PZ-09-I7	125.12	PZ32-BKG-09	126.12
TA4-PZ-16-I7	125.07	PZ33-BKG-16	126.13
TA4-PZ-09-L8	125.07	PZ34-BKG-26	126.13
TA4-PZ-16-L8	125.05	PZ35-BKG-09	125.19
TA4-PZ-09-TU14	124.91	PZ36-BKG-16	125.16
TA4-PZ-16-TU14	124.87	PZ37-BKG-26	125.12
TA4-PZ-09-TU16	124.85	PZ38-BKG-09	123.57
TA4-PZ-16-TU16	124.84	PZ39-BKG-16	123.49
TA5-PZ-I	125.53	PZ40-BKG-26	123.51
TA6-PZ-I	124.53		

[1]Elevation above mean sea level based on NGVD 1929
[2]Monitoring well locations are illustrated on Figures A.1 and A.2 within Appendix.

o:\44237-001R004\Wpdocs\Report\Final

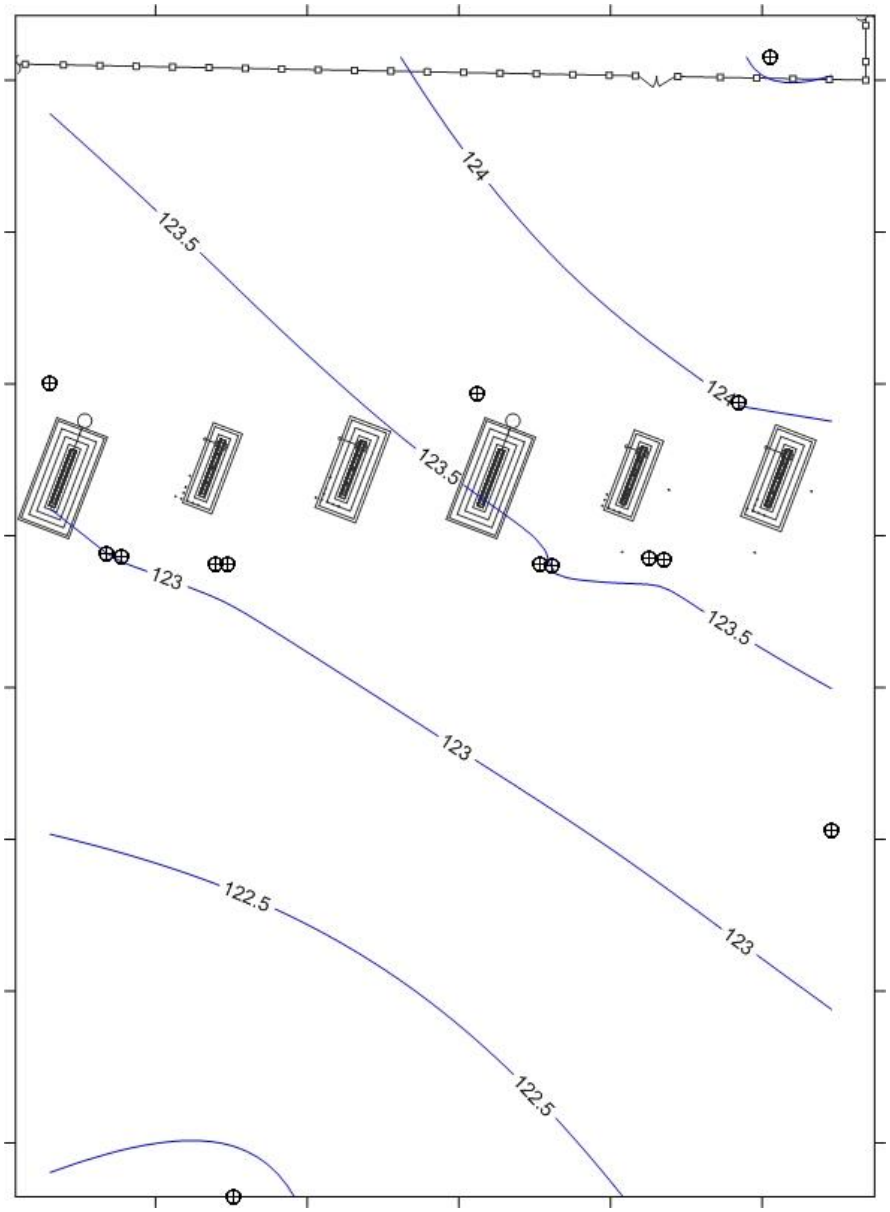


Figure 7
Surficial Groundwater Contours (Elev. ft above MSL)
June 18 through 21, 2012, representative of SE No. 1
⊕ denotes piezometers

o:\44237-001R004\Wpdocs\Report\Final

Note: Significant rain occurred over the sampling period

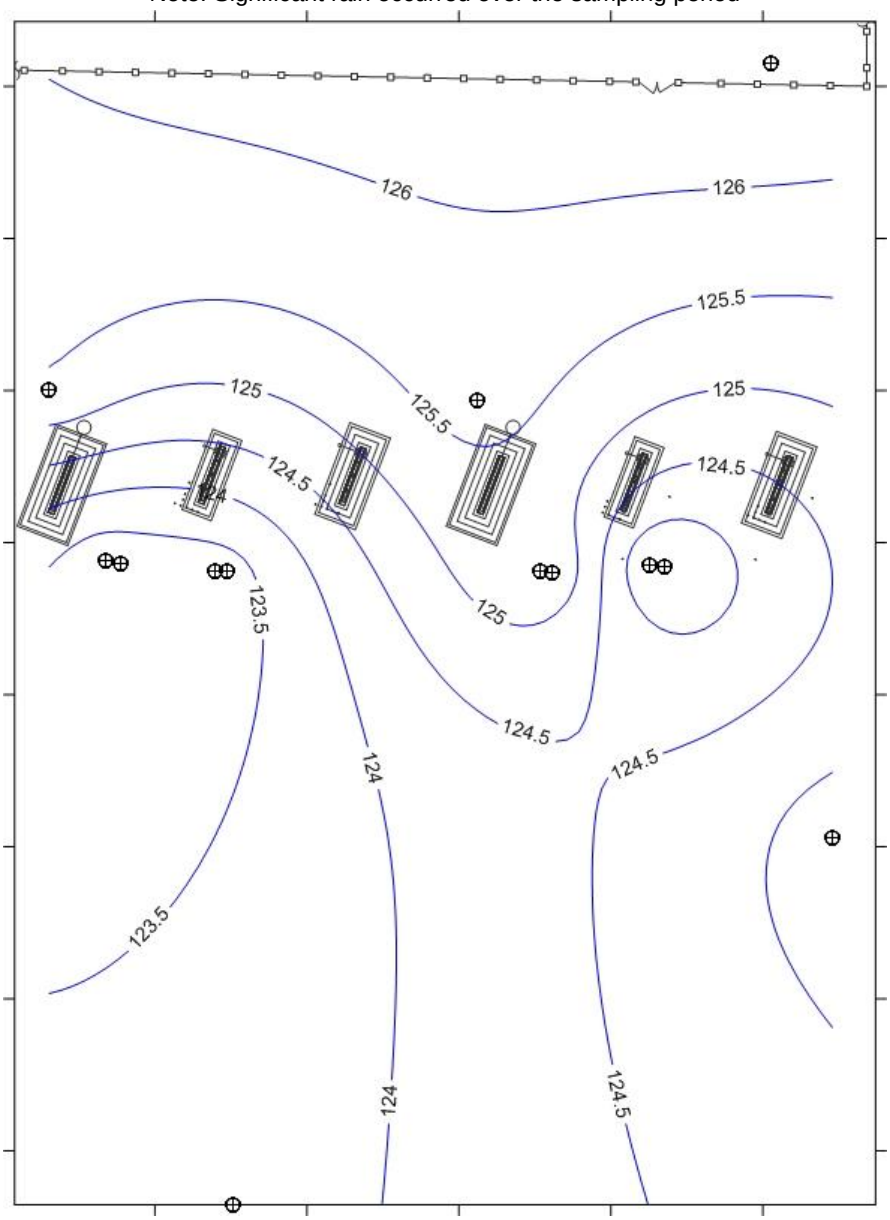


Figure 8
Surficial Groundwater Contours (Elev. ft above MSL)
August 20 through 23, 2012, representative of SE No. 2[1]
⊕ denotes piezometers

[1]Significant rainfall (>6 inches) was measured at the site prior to and during this sample event, and no doubt influenced the contours above.

o:\44237-001R004\Wpdocs\Report\Final

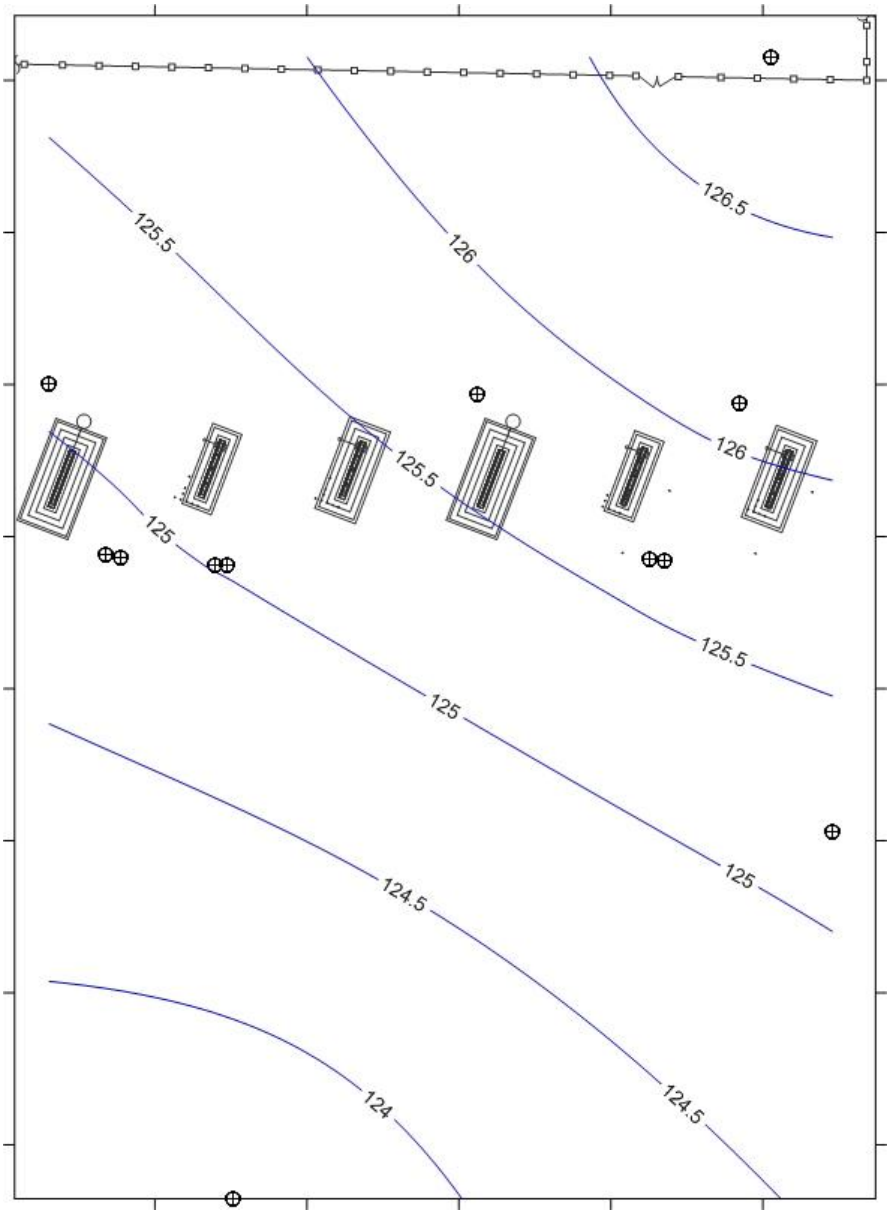


Figure 9
Surficial Groundwater Contours (Elev. ft above MSL)
October 11, 2012, representative of SE No. 3
⊕ denotes piezometers

o:\44237-001R004\Wpdocs\Report\Final

4.2 Water Quality Analyses

4.2.1 Field Parameters

Field parameters (temperature, pH, dissolved oxygen (DO), and specific conductivity) were measured at all the sampling locations during the October 2012 sampling event. The complete field parameter data set is included in Appendix G.

4.2.2 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 10 and 11 show scatters plots of nitrogen vs conductivity and chloride, respectively, for groundwater samples. The graph shows that increasing groundwater conductivity around the test systems is generally associated with increased groundwater nitrogen concentrations. A stronger linear correlation is observed for chloride (Figure 11).

o:\44237-001R004\Wpdocs\Report\Final

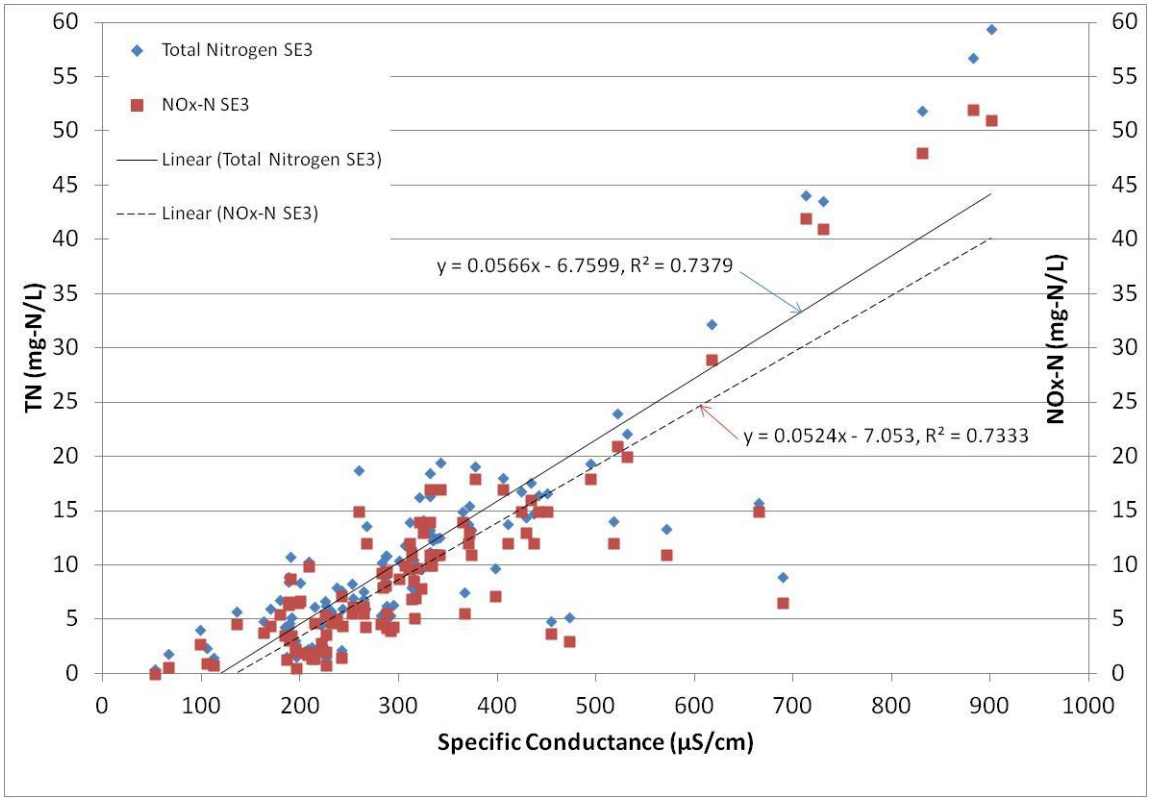


Figure 10
Correlation Between the Specific Conductance (uS/cm) and Concentrations of NOX and TN (mg-N/L) for groundwater samples

o:\44237-001R004\Wpdocs\Report\Final

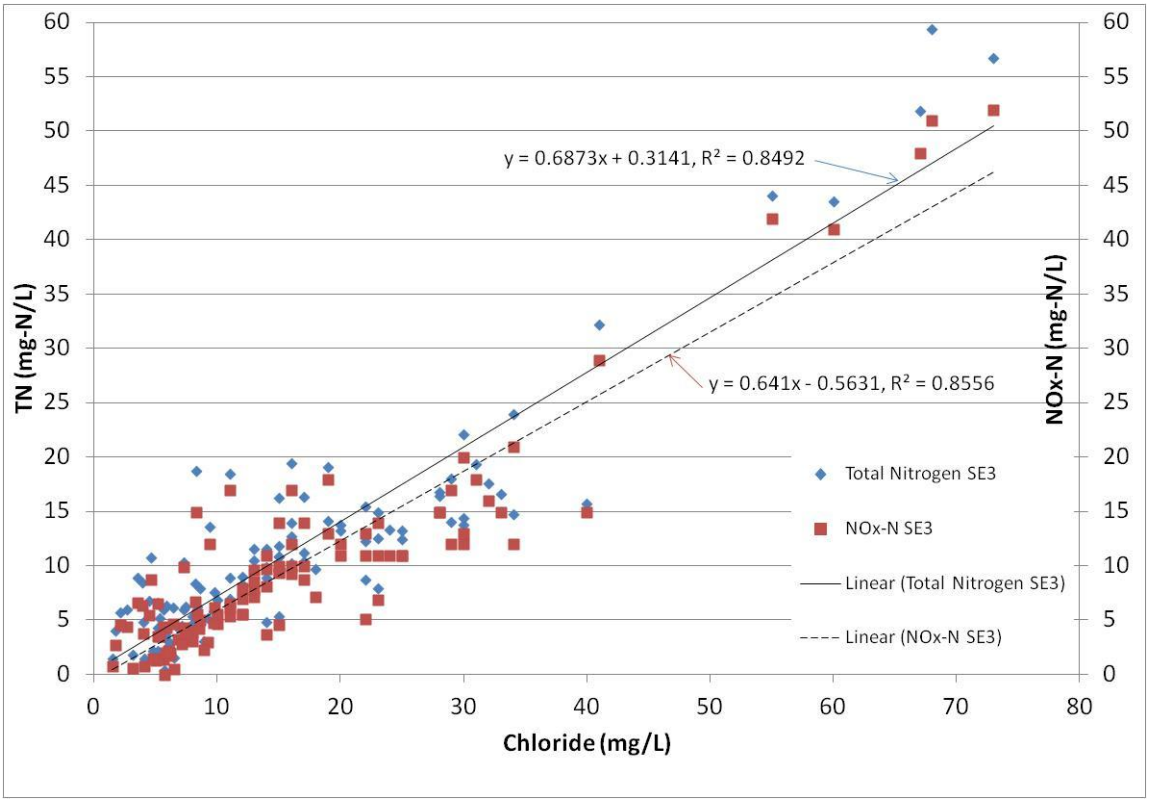


Figure 11
Correlation Between the Chloride (mg/L) and Concentrations of NOX and TN (mg-N/L) for groundwater samples

4.3.3 Analytical Parameters

In addition to measuring field parameters, all samples were analyzed for chloride. Some of the samples were additionally analyzed for: total alkalinity (as $CaCO_3$), total Kjeldahl nitrogen (TKN-N), ammonia nitrogen (NH3-N), and nitrate/nitrite nitrogen (NOX-N), total organic carbon (TOC), dissolved organic carbon (DOC), chemical oxygen demand (COD), and cations and anions. The October sampling event provides continued insight into the development of nitrogen plumes from the test areas. The complete water quality analytical results for Sample Event No. 3 are listed in Table 1, Appendix G, and the statistical summary of the water quality is presented in Table 1, Appendix H. The laboratory report containing the raw analytical data is included in Appendix E.

4.3.3.1 Influent Water Quality

STE is pumped from the first GCREC septic tank to a holding tank near the test areas (PNRS II STE-Tank 1). A portion of the STE from this holding tank is directed to an aer-

o:\44237-001R004\Wpdocs\Report\Final

obic treatment unit for nitrification, with the treated effluent held in a separate tank as the source of the ATU effluent (ATU Effluent Pump Tank). A separate portion of the STE from the holding tank is directed to a separate tank as the source of the STE effluent (STE Pump Tank). The water quality characteristics of STE collected in Sample Event 3 were within the range that has been typically reported for Florida single family residence STE. The measured STE total nitrogen (TN) concentration was 73 mg-N/L. The STE pump tank and ATU effluent pump tank total nitrogen concentrations were 64 and 11.2 mg-N/L, respectively; and the NOX-N concentrations were 0.04 and 3.5 mg-N/L, respectively. The ATU is not converting all ammonium to oxidized nitrogen (ATU clarifier NH3 concentration of 6.3 mg-N/L; NOx concentration of 3.7 mg-N/L). It appears that the unit is also providing denitrification (nitrogen reduction). The performance of the aerobic treatment unit will continue to be evaluated and monitored.

4.3.3.2 Unsaturated Zone Results

The test areas are equipped with varying levels of unsaturated and shallow saturated zone monitoring instrumentation. TA1, TA2, TA3 and TA4 instrumentation includes 2-inch diameter soil suction lysimeters (see Appendix A, Figures A.1 and A.2 for placement). The nitrogen results are summarized in Tables 9 through 12 for each of the test areas. All four test areas exhibit high total nitrogen concentrations at a depth 42-inches below the infiltrative surface and complete ammonia nitrification 12-inches below the infiltrative surface. The ATU effluent test areas show substantially lower nitrogen concentrations than the STE test areas, as would be expected based on the effluent quality being fed to the test areas. The groundwater level was at approximately 43 inches below the infiltrative surface during this sample event.

Table 9
Test Area 1 (STE fed Trench System) Unsaturated Zone Monitoring

	TA1-LY-12-S	TA1-LY-24-C	TA1-LY-24-S	TA1-LY-42-S
	12” Below IS	24” Below IS	24” Below IS	42” Below IS
TKN, mg N/L	1.4	0.65	0.73	0.74
NH3, mg N/L	0.010	0.013	0.009	0.009
NOx, mg N/L	48	44	45	53
TN, mg N/L	49.4	44.65	45.73	53.74

o:\44237-001R004\Wpdocs\Report\Final

Table 10
Test Area 3 (STE fed Drip System) Unsaturated Zone Monitoring

	TA3-LY-12-S	TA3-LY-24-C	TA3-LY-24-S	TA3-LY-42-S
	12” Below IS	24” Below IS	24” Below IS	42” Below IS
TKN, mg N/L	1.9	3.4	3	3.9
NH3, mg N/L	0.009	0.011	0.013	0.009
NOx, mg N/L	6.2	35	21	39
TN, mg N/L	8.1	38.4	24	42.9

Table 11
Test Area 2 (ATU Eff fed Trench System) Unsaturated Zone Monitoring

	TA2-LY-12-S	TA2-LY-24-C	TA2-LY-24-S	TA2-LY-42-S
	12” Below IS	24” Below IS	24” Below IS	42” Below IS
TKN, mg N/L	2.3	1.7	2.1	2.5
NH3, mg N/L	0.013	0.029	0.032	0.009
NOx, mg N/L	17	15	17	10
TN, mg N/L	19.3	16.7	19.1	12.5

Table 12
Test Area 4 (ATU Eff. fed Drip System) Unsaturated Zone Monitoring

	TA4-LY-12-S	TA4-LY-24-C	TA4-LY-24-S	TA4-LY-42-S
	12” Below IS	24” Below IS	24” Below IS	42” Below IS
TKN, mg N/L	2.4	2.6	2.8	2.8
NH3, mg N/L	0.037	0.012	0.009	0.009
NOx, mg N/L	14	26	15	18
TN, mg N/L	16.4	28.6	17.8	20.8

4.3.3.2 Nitrate/Nitrite Concentrations with Groundwater Depth

Surfer™ is a useful tool for contour mapping; however, it cannot project a 3-dimensional view of concentrations with depth. Therefore the concentrations of parameters were “lumped” from the different sampling locations into “slices” of similar depth, allowing the different “slices” to be compared.

Based on the distribution of points with depth, two “slices” were chosen for the ground-water data for test areas 1 through 4. The two slices were separated by elevation above sea level (NGVD29 datum). A **Surfer** schematic illustrating the “slices” of NOX concentration with depth from October 2012 for each test area are presented in Figures 12 through 15. 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

o:\44237-001R004\Wpdocs\Report\Final

extend results past data points, as was noted on previous project results. The shallow piezometer NOX results (Figures 12 and 14) show that the test area plumes appear to be confined in a southwesterly direction from the center of each of the test areas. The deeper piezometers (Figures 13 and 15) indicate relatively low NOX concentrations at this point in time, similar to background levels (Figures 16, 17, and 18).

As discussed in Section 3.2.1, additional shallow piezometers (PZ41 through PZ53) were installed prior to this third sample event to better capture the eastern boundary of the plumes. Additional piezometers east of PZ44 (in TA3 monitoring network), PZ52 (TA4), and PZ49 (TA2) are recommended (see Figures 12 and 14).

o:\44237-001R004\Wpdocs\Report\Final

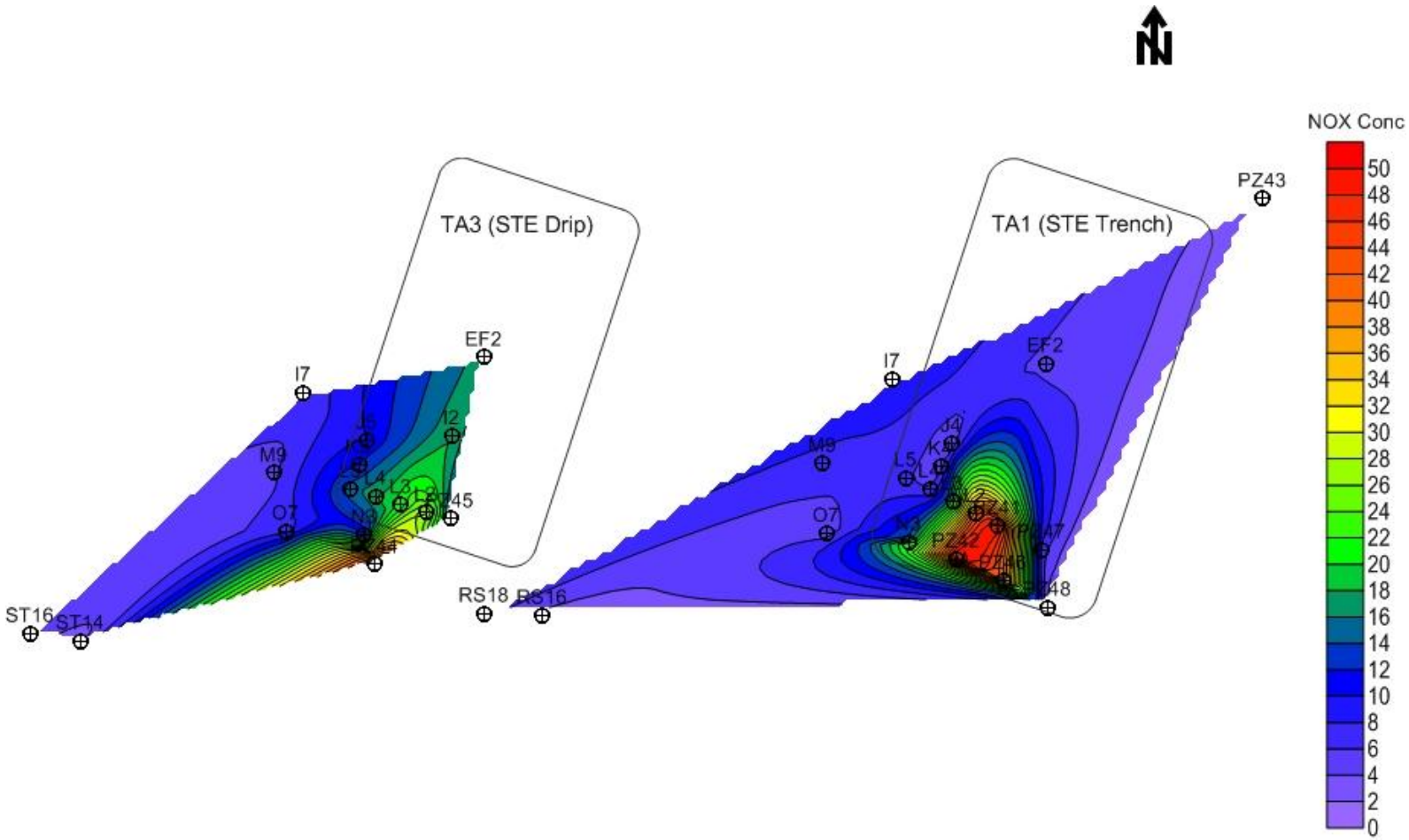


Figure 12
TA1 and TA3 Shallow Elev 118.5-126.01 ft above MSL (October 2012 Sample Event)
Schematic (using Surfer) illustrating NOX concentrations in the subsurface

docs\Report\Final

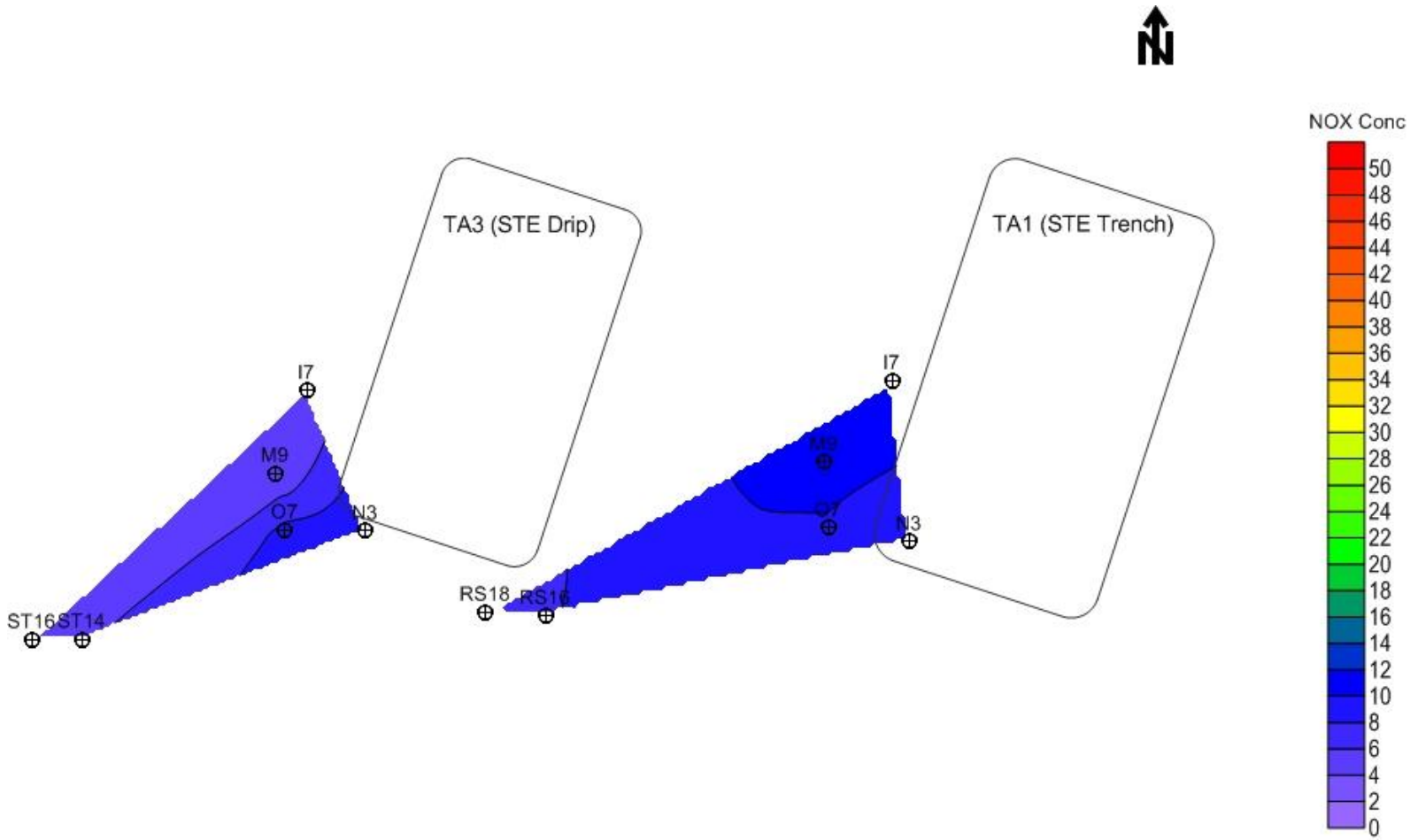


Figure 13
TA1 and TA3 Deep Elev 112-118.5 ft above MSL (October 2012 Sample Event)
Schematic (using Surfer) illustrating NOX concentrations in the subsurface

01R004\Wpdocs\Report\Final

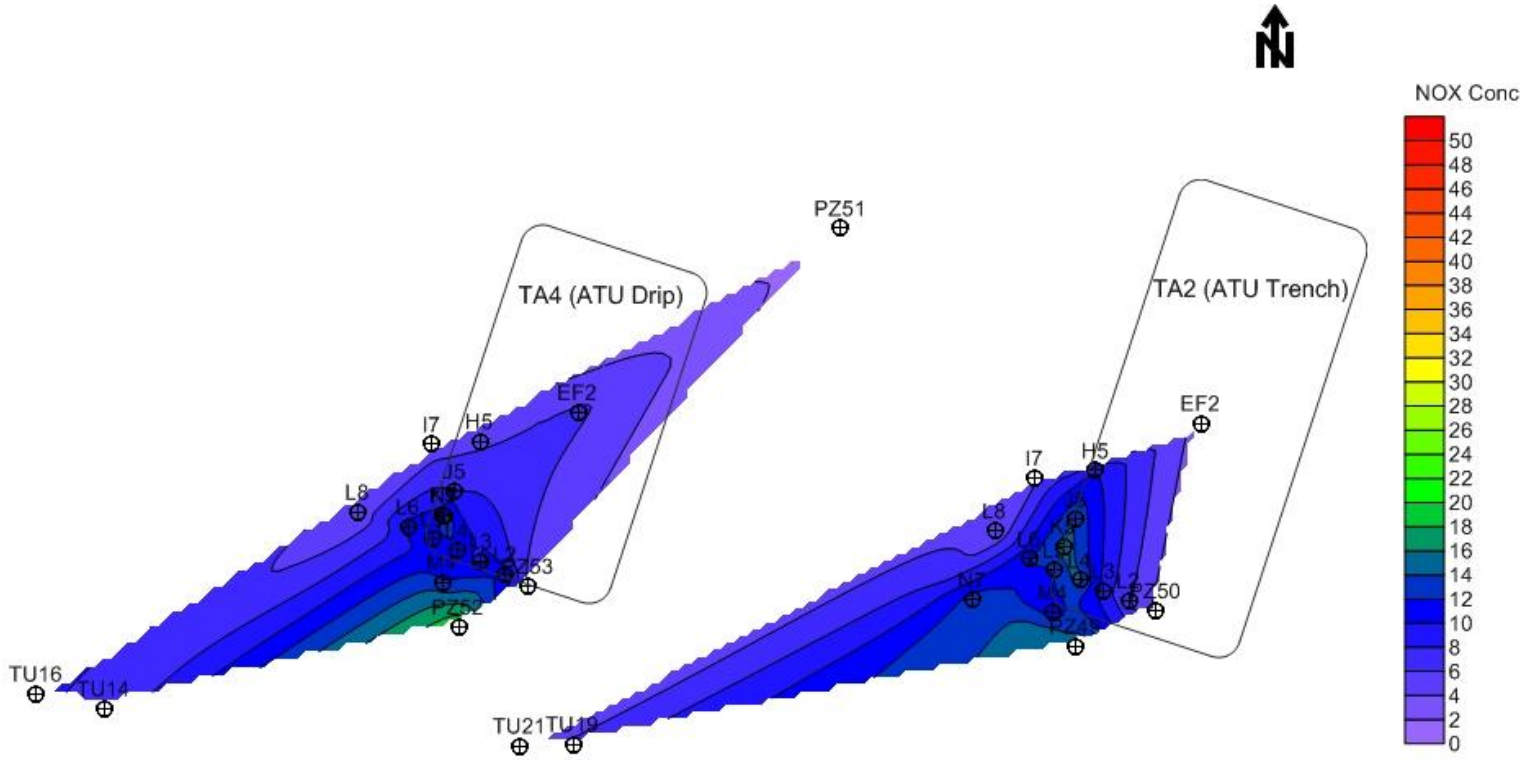


Figure 14
TA2 and TA4 Shallow Elev 117.7-125.4 ft above MSL (October 2012 Sample Event)
Schematic (using Surfer) illustrating NOX concentrations in the subsurface

01R004\Wpdocs\Report\Final

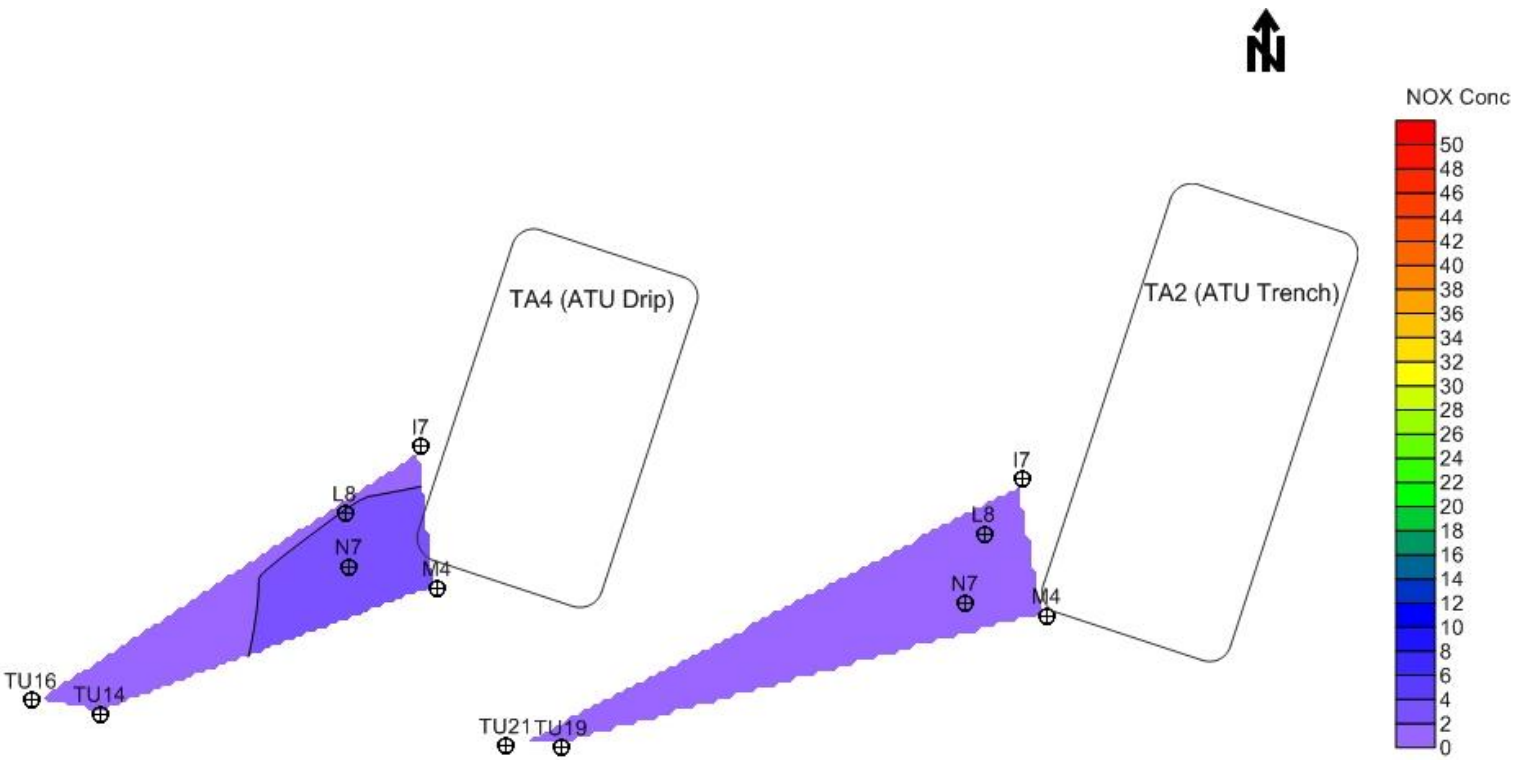


Figure 15
TA2 and TA4 Deep Elev 111-117.7 ft above MSL (October 2012 Sample Event)
Schematic (using Surfer) illustrating NOX concentrations in the subsurface

01R004\Wpdocs\Report\Final

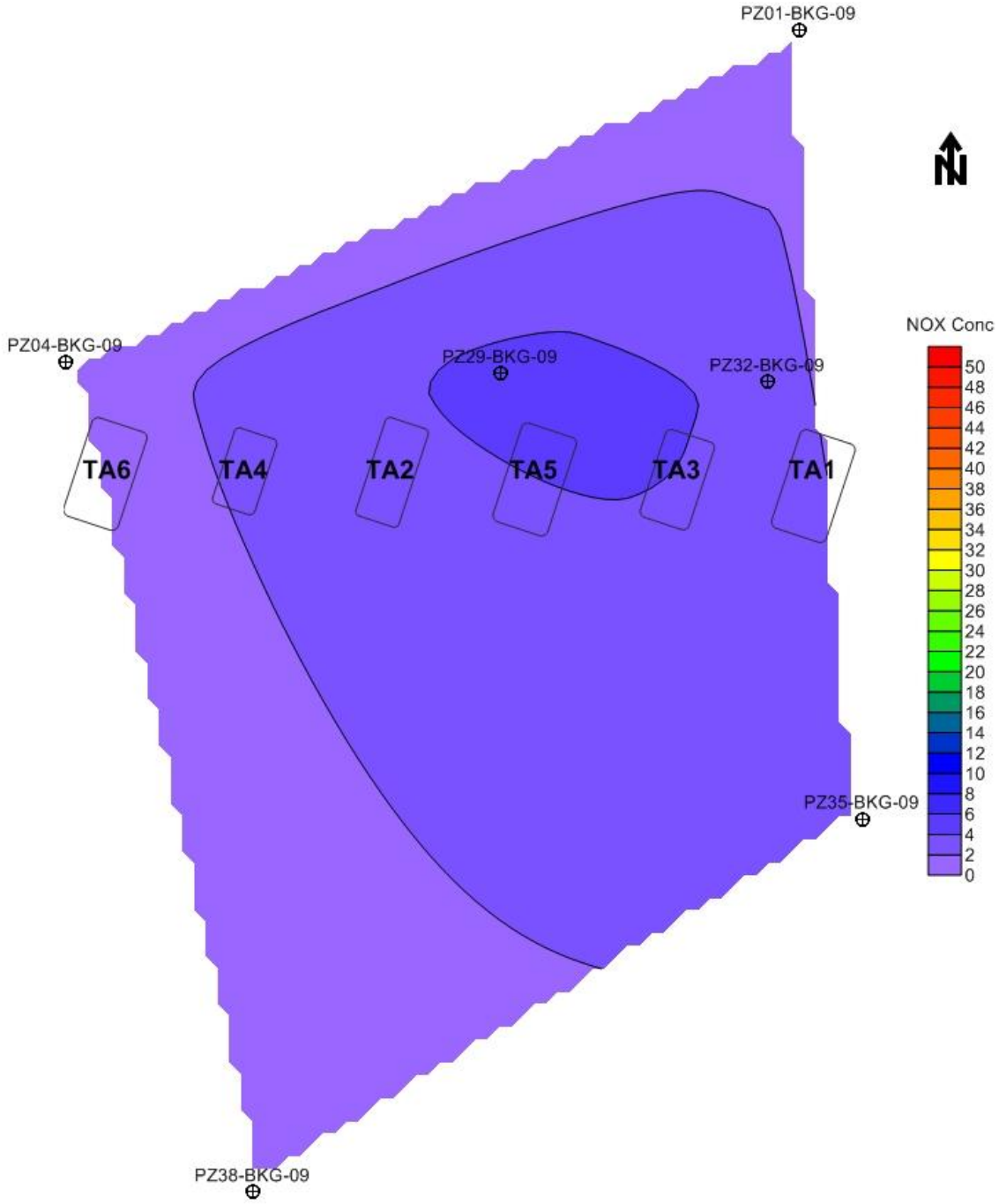


Figure 16
Background Shallow Elev 117-126.8 ft above MSL (October 2012 Sample Event) Schematic (using Surfer) illustrating NOX concentrations in the subsurface excluding samples below test areas

o:\44237-001R004\Wpdocs\Report\Final

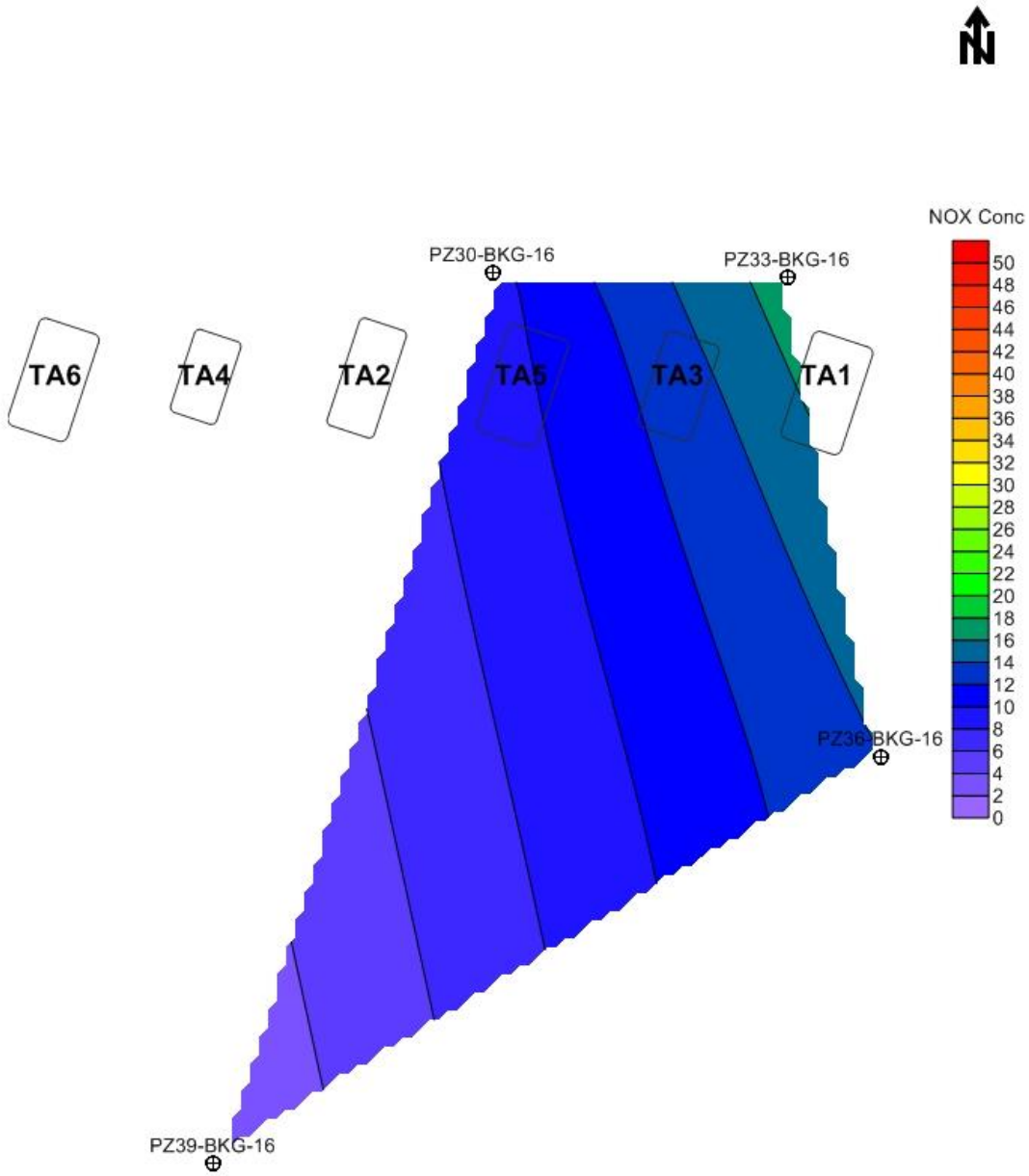


Figure 17
Background Middle Elev 110-118 ft above MSL (October 2012 Sample Event) Schematic (using Surfer) illustrating NOX concentrations in the subsurface excluding samples below test areas

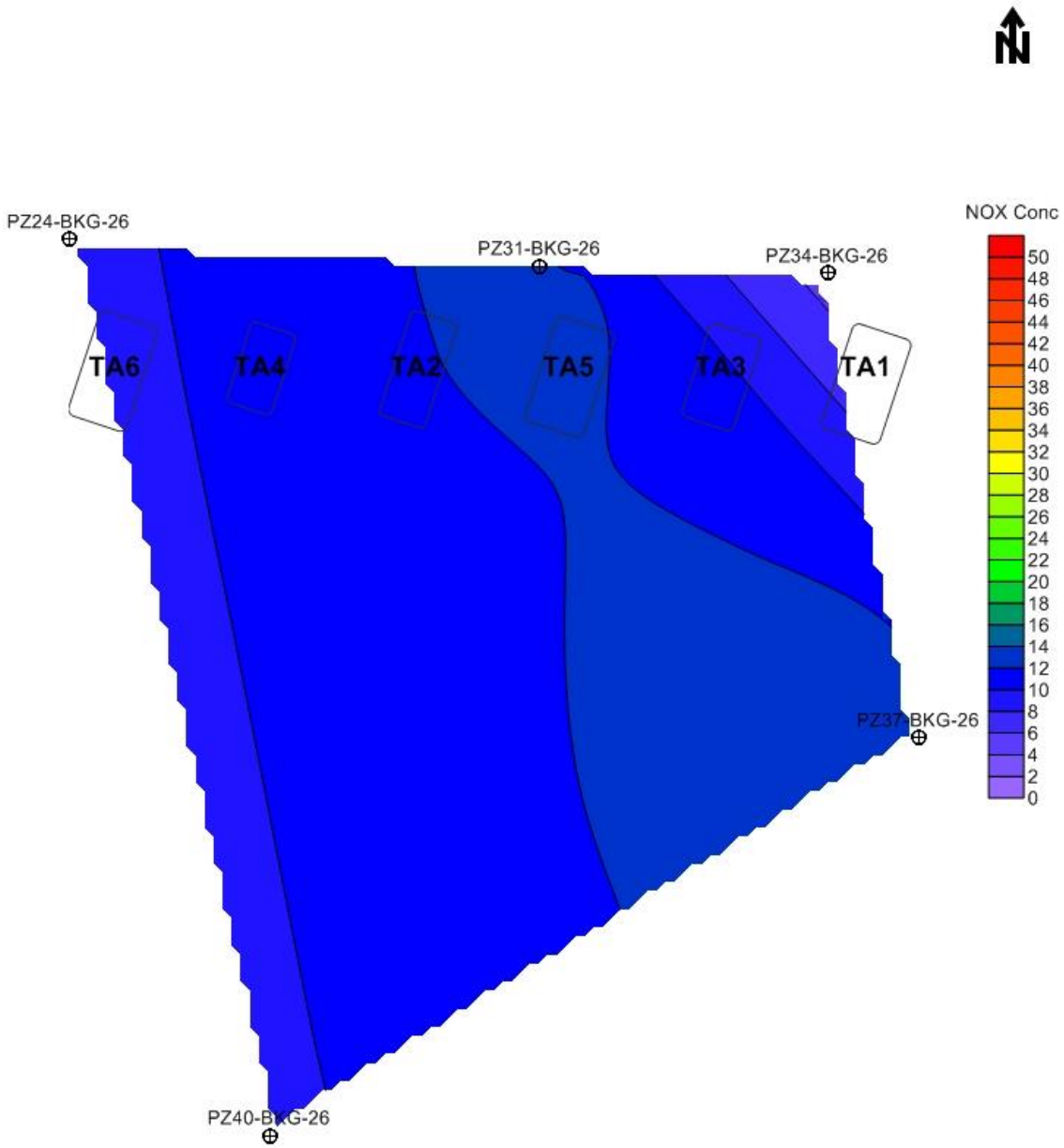


Figure 18
Background Deep Elev 101-110 ft above MSL (October 2012 Sample Event) Schematic (using Surfer) illustrating NOX concentrations in the subsurface excluding samples below test areas

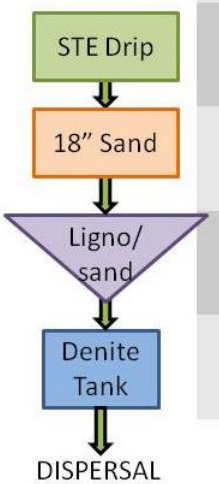
4.3.3.3 PNRS II Vertically Stacked Biofilter Results

Test area 5 (TA5) and test area 6 (TA6) are the PNRS II in-ground vertically stacked biofilter systems being tested primarily for wastewater treatment. TA5 receives STE while TA6 should receive nitrified effluent, if the ATU is functioning properly. Effluent is dispersed above an 18-inch layer of mound sand (slightly limited sand). Underlying the sand is a 9-inch layer of lignocellulosic and sand media mixture above a 60-mil plastic liner. The liner effluent is conveyed to a denitrification tank containing elemental sulfur reactive media for additional treatment. The denitrified effluent is discharged to the natural soil via an infiltrator system.

Both test area denite tanks exhibited low effluent NOx-N of less than or equal to 0.15 mg/L and effluent SO_4 concentration of 260 and 210 mg/L for TA5 and TA6, respectively. The liner effluent sample NOx-N concentration was 1.6 mg/L for TA5. The TA6 sample port was dry. The suction lysimeters (LY), installed at the sand and lignocellosic/sand media mixture interface, NOx-N concentrations were 29 and 0.86 mg/L, for TA5 and TA6 respectively. This again suggests that significant nitrate removal was occurring within the lignocellulosic/sand media mixture prior to the denite tank containing the sulfur media. The nitrogen results are graphically displayed in Figures 19 and 20. A standpipe piezometer (PZ) was installed downgradient of the infiltrator system for both test areas. The NOx-N concentrations for the PZs were 5.3 and 13 mg/L for TA5 and TA6, respectively.

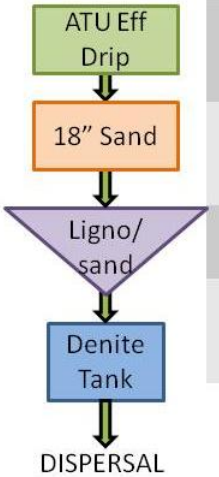
As discussed in previous sample event data summary reports, the background piezometers surrounding the test areas indicate that there is potentially residual nitrogen upgradient of the test areas from an unknown source. To better determine whether the nitrogen is wastewater derived within these piezometers, sucralose (Splenda) analyses are again recommended to be included in the fourth sample event. It appears that the TA5 and TA6 piezometers may be impacted by wastewater, however the source of this impact is unclear at this time.

o:\44237-00\R\00237\00\R\00237-00-R-001-Rev0.docx\Final Report\Final



	TKN mg N/L	NH_3 mg N/L	NO_x mg N/L	TN mg N/L	Fecal Coliform (Ct/100 mL)
STE Drip	64	50	0.04	64.04	97,000
18" Sand	5.1	0.013	29	34.1	1
Ligno/ sand	1.6	0.064	1.6	3.2	Not enough sample
Denite Tank	7.7	1.5	0.02	7.72	1

Figure 19
TA5 Graphical Representation of Nitrogen Results



	TKN mg N/L	NH_3 mg N/L	NO_x mg N/L	TN mg N/L	Fecal Coliform (Ct/100 mL)
ATU Eff Drip	7.7	3.4	3.5	11.2	370
18" Sand	2.1	0.032	0.86	2.96	1
Ligno/ sand	Dry				
Denite Tank	4.3	0.38	0.15	4.45	1

Figure 20
TA6 Graphical Representation of Nitrogen Results

o:\44237-00\R\00237\00\R\00237-00-R-01-Final.docx\Report\Final

5.0 S&GW Test Facility Data Summary Report No. 3: Summary and Recommendations

5.1 Summary

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

- The ATU is not converting all ammonium to oxidized nitrogen; however, it is now providing significant nitrification relative to previous sample events. It is not nitrifying as effectively as desired. In addition, the unit is also providing denitrification (nitrogen reduction).
- The background piezometers surrounding the test areas indicate that there is residual nitrogen up-gradient of the test areas from an unknown source. This will be investigated further in subsequent monitoring events, but it appears that agricultural operations in the surrounding area may be impacting groundwater nitrogen concentrations.
- The nitrogen plume appears to be flowing in a southwesterly direction and similar to the groundwater contours.
- The PNRS II treatment in-ground vertically stacked systems are functioning as intended. Both TA5 and TA6 produced effluent NOx-N equal to or less than 0.15 mg/L.

5.2 Recommendations

The following recommendations are based on the existing available information in order to improve performance and data collected from the S&GW test facility. 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 to be addressed prior to the next sample event.

5.2.1 Aerobic Treatment Unit

As discussed in Section 4.3.3.1, the ATU is not converting all ammonium to oxidized nitrogen (ATU clarifier NH3 concentration of 6.3 mg-N/L; NOx concentration of 3.7 mg-N/L), but it has improved significantly since the last sample event. The performance of the aerobic treatment unit will continue to be evaluated and monitored.

o:\44237-00\R\00237\00\00\R\00237-00-00-R-Report\Final

5.2.2 PNRS II Infiltrator Standpipe Piezometers

As discussed in Section 4.3.3.3, the background piezometers surrounding the test areas indicate that there is residual nitrogen up-gradient of the test areas from an unknown source. To better determine whether the nitrogen is wastewater derived within these piezometers, sucralose (Splenda) analyses are again recommended to be included in the fourth sample event. It appears that the TA5 and TA6 piezometers may be impacted by wastewater, however the source of this impact is unclear at this time.

5.2.3 Adaptive Monitoring

As discussed in Section 3.2.1, additional shallow piezometers (PZ41 through PZ53) were installed prior to this third sample event to better capture the eastern boundary of the plumes. However, as discussed in Section 4.3.3.2, to better capture the eastern boundary of the plumes, it is recommended to install additional shallow piezometers prior to the next sample event.

o:\44237-00\R\00237\00\R\00237-00-R-01-Rev0.docx\Final Report\Final

Appendix A: S&GW Test Facility Sample Identification

Table A.1
S&GW Test Facility Sample Identification

ID #	Sample Identification	Test Area	Grid Location	Northing	Easting	Elev NGVD 29	Notes
1	TA1-PAN-12-N	TA1	North				2' x 3.3' SST pan lysimeter
2	TA1-OBS-N	TA1	North	1244816.74	582859.20	132.50	4"D observation port with slots
3	TA1-OBS-S	TA1	South	1244807.75	582855.08	132.88	4"D observation port without slots
4	TA1-SM-39-N	TA1	North	1244817.38	582860.13	130.27	2"D soil moisture tube with 6" casing
5	TA1-SM-39-C	TA1	Center	1244812.80	582858.09	130.23	2"D soil moisture tube with 6" casing
6	TA1-SM-39-S	TA1	South	1244803.79	582854.15	130.24	2"D soil moisture tube with 6" casing
7	TA1-SM-BKG-S	TA1	South	1244778.23	582851.49	128.69	2"D soil moisture tube with 6" casing
8	TA1-SM-BKG-E	TA1	East	1244814.73	582868.76	129.29	2"D soil moisture tube with 6" casing
9	TA1-PZ-11-EF2	TA1	EF2	1244812.14	582857.35	133.59	1"D standpipe piezometer, 5' screen
10	TA1-LY-24-C	TA1	Center	1244811.87	582857.75	133.69	2"D suction lysimeter, 9" cup
11	TA1-LY-12-S	TA1	South	1244804.42	582853.25	132.60	2"D suction lysimeter, 9" cup
12	TA1-LY-24-S	TA1	South	1244804.42	582854.46	134.14	2"D suction lysimeter, 9" cup
13	TA1-LY-42-S	TA1	South	1244805.37	582853.79	132.66	2"D suction lysimeter, 9" cup
14	TA1-T-6-C	TA1	Center	1244813.56	582858.66	132.34	tensiometer
15	TA1-T-12-C	TA1	Center	1244813.75	582858.12	132.34	tensiometer
16	TA1-T-24-C	TA1	Center	1244813.77	582857.64	132.33	tensiometer
17	TA1-T-36-C	TA1	Center	1244813.80	582857.36	132.36	tensiometer
18	TA1-T-42-C	TA1	Center	1244813.34	582857.00	132.88	tensiometer
19	TA1-T-6-S	TA1	South	1244804.28	582853.77	132.32	tensiometer
20	TA1-T-12-S	TA1	South	1244803.87	582852.93	132.35	tensiometer
21	TA1-T-24-S	TA1	South	1244803.71	582852.77	132.36	tensiometer
22	TA1-T-36-S	TA1	South	1244803.49	582852.89	132.38	tensiometer
23	TA1-T-42-S	TA1	South	1244803.01	582853.26	132.80	tensiometer
24	TA1-PZ-11-J4	TA1	J4	1244805.79	582849.87	133.57	1"D standpipe piezometer, 5' screen
25	TA1-PZ-11-K4	TA1	K4	1244803.97	582849.03	133.58	1"D standpipe piezometer, 5' screen
26	TA1-PZ-11-L2	TA1	L2	1244800.25	582851.77	133.57	1"D standpipe piezometer, 5' screen
27	TA1-PZ-11-L3	TA1	L3	1244801.20	582849.94	133.57	1"D standpipe piezometer, 5' screen
28	TA1-PZ-11-L4	TA1	L4	1244802.21	582848.15	133.57	1"D standpipe piezometer, 5' screen

o:\44237-001\Wpdocs\Report\Draft

Table A.1
S&GW Test Facility Sample Identification

ID #	Sample Identification	Test Area	Grid Location	Northing	Easting	Elev NGVD 29	Notes
29	TA1-PZ-11-L5	TA1	L5	1244803.08	582846.26	133.57	1"D standpipe piezometer, 5' screen
30	TA1-PZ-09-N3	TA1	N3	1244798.01	582846.48	130.43	1"D standpipe piezometer, 5' screen
31	TA1-PZ-16-N3	TA1	N3	1244798.02	582846.37	130.44	1"D standpipe piezometer, 2.5' screen
32	TA1-PZ-09-O7	TA1	O7	1244798.67	582839.96	130.08	1"D standpipe piezometer, 5' screen
33	TA1-PZ-16-O7	TA1	O7	1244799.11	582839.97	130.30	1"D standpipe piezometer, 2.5' screen
34	TA1-PZ-09-M9	TA1	M9	1244804.22	582839.66	130.60	1"D standpipe piezometer, 5' screen
35	TA1-PZ-16-M9	TA1	M9	1244804.35	582839.62	130.64	1"D standpipe piezometer, 2.5' screen
36	TA1-PZ-09-I7	TA1	I7	1244810.91	582845.19	130.27	1"D standpipe piezometer, 5' screen
37	TA1-PZ-16-I7	TA1	I7	1244810.78	582845.02	130.33	1"D standpipe piezometer, 2.5' screen
38	TA1-PZ-09-RS16	TA1	RS16	1244792.19	582817.42	129.65	1"D standpipe piezometer, 5' screen
39	TA1-PZ-16-RS16	TA1	RS16	1244792.14	582817.50	129.72	1"D standpipe piezometer, 2.5' screen
40	TA1-PZ-09-RS18	TA1	RS18	1244792.34	582812.82	130.25	1"D standpipe piezometer, 5' screen
41	TA1-PZ-16-RS18	TA1	RS18	1244792.43	582812.72	130.25	1"D standpipe piezometer, 2.5' screen
42	TA2-PAN-12-N	TA2	North				2' x 3.3' SST pan lysimeter
43	TA2-OBS-N	TA2	North	1244818.77	582722.04	131.67	4"D observation port with slots
44	TA2-OBS-S	TA2	South	1244809.76	582718.30	132.27	4"D observation port without slots
45	TA2-SM-39-C	TA2	Center	1244814.95	582721.02	129.80	2"D soil moisture tube with 6" casing
46	TA2-PZ-10-EF2	TA2	EF2	1244814.23	582720.22	133.90	1"D standpipe piezometer, 5' screen
47	TA2-LY-24-C	TA2	Center	1244814.09	582720.59	132.60	2"D suction lysimeter, 9" cup
48	TA2-LY-12-S	TA2	South	1244806.60	582716.48	132.02	2"D suction lysimeter, 9" cup
49	TA2-LY-24-S	TA2	South	1244806.64	582717.52	132.62	2"D suction lysimeter, 9" cup
50	TA2-LY-42-S	TA2	South	1244807.39	582716.98	133.11	2"D suction lysimeter, 9" cup
51	TA2-PZ-10-H5	TA2	H5	1244810.74	582712.43	133.76	1"D standpipe piezometer, 5' screen
52	TA2-PZ-10-J5	TA2	J5	1244807.11	582710.94	133.73	1"D standpipe piezometer, 5' screen
53	TA2-PZ-10-K5	TA2	K5	1244805.14	582710.05	133.74	1"D standpipe piezometer, 5' screen
54	TA2-PZ-10-L2	TA2	L2	1244801.12	582714.87	133.74	1"D standpipe piezometer, 5' screen
55	TA2-PZ-10-L3	TA2	L3	1244801.83	582713.03	133.73	1"D standpipe piezometer, 5' screen
56	TA2-PZ-10-L4	TA2	L4	1244802.60	582711.25	133.52	1"D standpipe piezometer, 5' screen
57	TA2-PZ-10-L5	TA2	L5	1244803.37	582709.39	133.73	1"D standpipe piezometer, 5' screen
58	TA2-PZ-10-L6	TA2	L6	1244804.19	582707.50	133.72	1"D standpipe piezometer, 5' screen

o:\44237-001\Wpdocs\Report\Draft

Table A.1
S&GW Test Facility Sample Identification

ID #	Sample Identification	Test Area	Grid Location	Northing	Easting	Elev NGVD 29	Notes
59	TA2-PZ-09-M4	TA2	M4	1244800.19	582709.27	129.51	1"D standpipe piezometer, 5' screen
60	TA2-PZ-16-M4	TA2	M4	1244800.27	582709.49	129.50	1"D standpipe piezometer, 2.5' screen
61	TA2-PZ-09-N7	TA2	N7	1244801.15	582703.29	129.36	1"D standpipe piezometer, 5' screen
62	TA2-PZ-16-N7	TA2	N7	1244801.21	582703.43	129.37	1"D standpipe piezometer, 2.5' screen
63	TA2-PZ-09-I7	TA2	I7	1244810.20	582707.91	129.10	1"D standpipe piezometer, 5' screen
64	TA2-PZ-16-I7	TA2	I7	1244810.37	582707.66	129.52	1"D standpipe piezometer, 2.5' screen
65	TA2-PZ-09-L8	TA2	L8	1244806.27	582704.93	129.28	1"D standpipe piezometer, 5' screen
66	TA2-PZ-16-L8	TA2	L8	1244806.33	582704.81	129.27	1"D standpipe piezometer, 2.5' screen
67	TA2-PZ-09-TU19	TA2	TU19	1244790.44	582673.66	128.68	1"D standpipe piezometer, 5' screen
68	TA2-PZ-16-TU19	TA2	TU19	1244790.49	582673.49	128.62	1"D standpipe piezometer, 2.5' screen
69	TA2-PZ-09-TU21	TA2	TU21	1244790.32	582669.75	128.58	1"D standpipe piezometer, 5' screen
70	TA2-PZ-16-TU21	TA2	TU21	1244790.60	582669.40	128.98	1"D standpipe piezometer, 2.5' screen
71	TA3-PAN-12-N	TA3	North				2' x 3.3' SST pan lysimeter
72	TA3-OBS-N	TA3	North	1244817.49	582814.57	131.20	4"D observation port with slots
73	TA3-OBS-S	TA3	South	1244808.15	582811.07	131.11	4"D observation port without slots
74	TA3-SM-39-N	TA3	North	1244817.96	582815.53	130.59	2"D soil moisture tube with 6" casing
75	TA3-SM-39-C	TA3	Center	1244813.53	582813.63	130.60	2"D soil moisture tube with 6" casing
76	TA3-SM-39-S	TA3	South	1244804.15	582809.89	130.57	2"D soil moisture tube with 6" casing
77	TA3-SM-BKG-S	TA3	South	1244795.29	582807.19	129.32	2"D soil moisture tube with 6" casing
78	TA3-SM-BKG-E	TA3	East				2"D soil moisture tube with 6" casing
79	TA3-LY-24-C	TA3	Center	1244812.47	582813.21	133.45	2"D suction lysimeter, 9" cup
80	TA3-LY-12-S	TA3	South	1244804.97	582809.16	132.24	2"D suction lysimeter, 9" cup
81	TA3-LY-24-S	TA3	South	1244804.93	582810.17	132.90	2"D suction lysimeter, 9" cup
82	TA3-LY-42-S	TA3	South	1244805.73	582809.79	132.98	2"D suction lysimeter, 9" cup
83	TA3-T-6-C	TA3	Center	1244814.37	582813.76	132.19	tensiometer
84	TA3-T-12-C	TA3	Center	1244814.50	582813.46	132.70	tensiometer
85	TA3-T-24-C	TA3	Center	1244814.56	582813.15	132.23	tensiometer
86	TA3-T-36-C	TA3	Center	1244814.31	582812.76	131.70	tensiometer
87	TA3-T-42-C	TA3	Center	1244813.89	582812.49	132.20	tensiometer
88	TA3-T-6-S	TA3	South	1244805.33	582809.71	132.19	tensiometer

o:\44237-001\Wpdocs\Report\Draft

Table A.1
S&GW Test Facility Sample Identification

ID #	Sample Identification	Test Area	Grid Location	Northing	Easting	Elev NGVD 29	Notes
89	TA3-T-12-S	TA3	South	1244804.36	582809.00	132.69	tensiometer
90	TA3-T-24-S	TA3	South	1244803.69	582808.77	132.22	tensiometer
91	TA3-T-36-S	TA3	South	1244803.59	582808.72	131.71	tensiometer
92	TA3-T-42-S	TA3	South	1244803.27	582809.06	132.21	tensiometer
93	TA3-PZ-11-EF2	TA3	EF2	1244812.64	582812.80	133.82	1"D standpipe piezometer, 5' screen
94	TA3-PZ-11-I2	TA3	I2	1244806.39	582810.24	133.54	1"D standpipe piezometer, 5' screen
95	TA3-PZ-10-J5	TA3	J5	1244806.06	582803.49	133.49	1"D standpipe piezometer, 5' screen
96	TA3-PZ-10-K5	TA3	K5	1244804.12	582802.85	133.49	1"D standpipe piezometer, 5' screen
97	TA3-PZ-11-L2	TA3	L2	1244800.38	582808.17	133.51	1"D standpipe piezometer, 5' screen
98	TA3-PZ-11-L3	TA3	L3	1244800.93	582806.21	133.51	1"D standpipe piezometer, 5' screen
99	TA3-PZ-11-L4	TA3	L4	1244801.63	582804.23	133.50	1"D standpipe piezometer, 5' screen
100	TA3-PZ-10-L5	TA3	L5	1244802.21	582802.23	133.49	1"D standpipe piezometer, 5' screen
101	TA3-PZ-09-N3	TA3	N3	1244798.56	582803.29	129.88	1"D standpipe piezometer, 5' screen
102	TA3-PZ-16-N3	TA3	N3	1244798.87	582803.18	129.89	1"D standpipe piezometer, 2.5' screen
103	TA3-PZ-09-O7	TA3	O7	1244798.85	582797.09	130.06	1"D standpipe piezometer, 5' screen
104	TA3-PZ-16-O7	TA3	O7	1244798.94	582796.81	130.26	1"D standpipe piezometer, 2.5' screen
105	TA3-PZ-09-I7	TA3	I7	1244809.85	582798.46	130.06	1"D standpipe piezometer, 5' screen
106	TA3-PZ-16-I7	TA3	I7	1244810.00	582798.53	130.06	1"D standpipe piezometer, 2.5' screen
107	TA3-PZ-09-M9	TA3	M9	1244803.45	582796.14	130.18	1"D standpipe piezometer, 5' screen
108	TA3-PZ-16-M9	TA3	M9	1244803.44	582796.02	130.12	1"D standpipe piezometer, 2.5' screen
109	TA3-PZ-09-ST14	TA3	ST14	1244790.15	582780.80	129.88	1"D standpipe piezometer, 5' screen
110	TA3-PZ-16-ST14	TA3	ST14	1244790.27	582780.68	129.81	1"D standpipe piezometer, 2.5' screen
111	TA3-PZ-09-ST16	TA3	ST16	1244790.74	582776.81	129.54	1"D standpipe piezometer, 5' screen
112	TA3-PZ-16-ST16	TA3	ST16	1244790.24	582776.71	130.00	1"D standpipe piezometer, 2.5' screen
113	TA4-PAN-12-N	TA4	North				2' x 3.3' SST pan lysimeter
114	TA4-OBS-N	TA4	North	1244819.86	582676.19	129.91	4"D observation port with slots
115	TA4-OBS-S	TA4	South	1244810.58	582672.01	129.85	4"D observation port without slots
116	TA4-SM-39-C	TA4	Center	1244815.85	582674.87	129.25	2"D soil moisture tube with 6" casing
117	TA4-LY-24-C	TA4	Center	1244814.82	582674.46	132.10	2"D suction lysimeter, 9" cup
118	TA4-LY-12-S	TA4	South	1244807.65	582670.18	130.89	2"D suction lysimeter, 9" cup

o:\44237-001\Wpdocs\Report\Draft

Table A.1
S&GW Test Facility Sample Identification

ID #	Sample Identification	Test Area	Grid Location	Northing	Easting	Elev NGVD 29	Notes
119	TA4-LY-24-S	TA4	South	1244807.45	582671.38	132.75	2"D suction lysimeter, 9" cup
120	TA4-LY-42-S	TA4	South	1244808.40	582670.62	132.57	2"D suction lysimeter, 9" cup
121	TA4-PZ-11-EF2	TA4	EF2	1244815.06	582674.02	132.53	1"D standpipe piezometer, 5' screen
122	TA4-PZ-10-H5	TA4	H5	1244812.91	582666.75	132.48	1"D standpipe piezometer, 5' screen
123	TA4-PZ-10-J5	TA4	J5	1244809.21	582664.90	132.47	1"D standpipe piezometer, 5' screen
124	TA4-PZ-10-K5	TA4	K5	1244807.45	582664.07	132.47	1"D standpipe piezometer, 5' screen
125	TA4-PZ-11-L2	TA4	L2	1244803.06	582668.66	132.47	1"D standpipe piezometer, 5' screen
126	TA4-PZ-11-L3	TA4	L3	1244804.02	582666.85	132.48	1"D standpipe piezometer, 5' screen
127	TA4-PZ-11-L4	TA4	L4	1244804.79	582665.10	132.46	1"D standpipe piezometer, 5' screen
128	TA4-PZ-11-L5	TA4	L5	1244805.65	582663.28	132.46	1"D standpipe piezometer, 5' screen
129	TA4-PZ-11-L6	TA4	L6	1244806.56	582661.46	132.46	1"D standpipe piezometer, 5' screen
130	TA4-PZ-09-M4	TA4	M4	1244802.46	582663.97	128.96	1"D standpipe piezometer, 5' screen
131	TA4-PZ-16-M4	TA4	M4	1244802.29	582664.28	129.54	1"D standpipe piezometer, 5' screen
132	TA4-PZ-09-N7	TA4	N7	1244807.44	582664.14	132.47	1"D standpipe piezometer, 5' screen
133	TA4-PZ-16-N7	TA4	N7	1244803.91	582657.76	128.94	1"D standpipe piezometer, 5' screen
134	TA4-PZ-09-I7	TA4	I7	1244812.68	582663.21	128.83	1"D standpipe piezometer, 5' screen
135	TA4-PZ-16-I7	TA4	I7	1244812.80	582663.08	129.25	1"D standpipe piezometer, 5' screen
136	TA4-PZ-09-L8	TA4	L8	1244807.67	582657.70	128.63	1"D standpipe piezometer, 5' screen
137	TA4-PZ-16-L8	TA4	L8	1244807.84	582657.44	128.92	1"D standpipe piezometer, 5' screen
138	TA4-PZ-09-TU14	TA4	TU14	1244793.10	582638.92	128.32	1"D standpipe piezometer, 5' screen
139	TA4-PZ-16-TU14	TA4	TU14	1244792.96	582639.30	129.06	1"D standpipe piezometer, 5' screen
140	TA4-PZ-09-TU16	TA4	TU16	1244794.18	582633.89	128.57	1"D standpipe piezometer, 5' screen
141	TA4-PZ-16-TU16	TA4	TU16	1244793.99	582634.17	128.70	1"D standpipe piezometer, 5' screen
142	TA5-OBS-I	TA5	Center	1244812.47	582770.36	132.52	4"D observation port, for infiltrator system
143	TA5-OBS-N	TA5	North	1244817.64	582767.53	132.87	3"D observation port connected to collection pipe at bottom of sloped liner
144	TA5-OBS-S	TA5	South	1244810.89	582764.74	132.91	3"D observation port connected to collection pipe at bottom of sloped liner
145	TA5-PZ-I	TA5	South	1244802.11	582764.97	133.23	1"D standpipe piezometer, 5' screen south of infiltrator
146	TA5-LY-C	TA5	Center	1244814.05	582766.03	133.15	2"D suction lysimeter, 9" cup at mixture and sand interface
147	TA5-LINER-SP	TA5	North	1244827.69	582771.40	131.20	3"D sample port

o:\44237-001\Wpdocs\Report\Draft

Table A.1
S&GW Test Facility Sample Identification

ID #	Sample Identification	Test Area	Grid Location	Northing	Easting	Elev NGVD 29	Notes
148	TA5-CLEANOUT	TA5	North	1244829.07	582772.03	131.60	4"D clean-out
149	TA5-Denite Tank	TA5	North	1244831.25	582772.19	129.90	
150	TA6-OBS-I	TA6	Center	1244814.51	582630.94	131.40	4"D observation port, for infiltrator system
151	TA6-OBS-N	TA6	North	1244819.57	582628.85	131.94	3"D observation port connected to collection pipe at bottom of sloped liner
152	TA6-OBS-S	TA6	South	1244812.49	582625.84	132.28	3"D observation port connected to collection pipe at bottom of sloped liner
153	TA6-PZ-I	TA6	South	1244804.06	582626.81	133.43	1"D standpipe piezometer, 5' screen south of infiltrator
154	TA6-LY-C	TA6	Center	1244815.99	582627.26	132.41	2"D suction lysimeter, 9" cup at mix-ture and sand interface
155	TA6-LINER-SP	TA6	North	1244829.10	582632.72	130.89	3"D sample port
156	TA6-CLEANOUT	TA6	North	1244830.50	582633.21	130.48	4"D clean-out
157	TA6-Denite Tank	TA6	North	1244832.30	582633.85	128.98	
158	PZ01-BKG-09	BKG		1244957.50	582852.42	131.28	1.25”D standpipe piezometer, 5’ screen
159	LY01-BKG-24	BKG		1244957.82	582856.59	131.60	2"D suction lysimeter, 9" cup
160	LY02-BKG-42	BKG		1244960.88	582857.29	132.03	2"D suction lysimeter, 9" cup
161	BKG-SM-N	BKG		1244959.90	582854.52	130.62	2"D soil moisture tube with 6" casing
162	PZ04-BKG-09	BKG		1244850.25	582615.24	129.45	1.25”D standpipe piezometer, 5’ screen
163	PZ24-BKG-26	BKG		1244854.09	582614.74	132.38	2”D standpipe piezometer, 5’ screen
164	PZ29-BKG-09	BKG		1244846.58	582755.86	130.93	¾”D standpipe piezometer, 5’ screen
165	PZ30-BKG-16	BKG		1244845.66	582758.17	132.29	1"D standpipe piezometer, 5' screen
166	PZ31-BKG-26	BKG		1244845.87	582757.80	128.99	1"D standpipe piezometer, 5' screen
167	PZ32-BKG-09	BKG		1244843.82	582842.31	133.51	1"D standpipe piezometer, 5' screen
168	PZ33-BKG-16	BKG		1244844.30	582845.33	132.84	1"D standpipe piezometer, 5' screen
169	PZ34-BKG-26	BKG		1244843.73	582845.24	130.45	1"D standpipe piezometer, 5' screen
170	PZ35-BKG-09	BKG		1244702.71	582872.85	129.18	1"D standpipe piezometer, 5' screen
171	PZ36-BKG-16	BKG		1244702.63	582873.08	131.84	1"D standpipe piezometer, 5' screen
172	PZ37-BKG-26	BKG		1244702.80	582872.92	128.31	1"D standpipe piezometer, 5' screen
173	PZ38-BKG-09	BKG		1244582.29	582675.83	126.66	1"D standpipe piezometer, 5' screen
174	PZ39-BKG-16	BKG		1244582.30	582675.42	129.60	1"D standpipe piezometer, 5' screen
175	PZ40-BKG-26	BKG		1244582.13	582675.66	126.10	1"D standpipe piezometer, 5' screen

o:\44237-001\Wpdocs\Report\Draft

Table A.1
S&GW Test Facility Sample Identification

ID #	Sample Identification	Test Area	Grid Location	Northing	Easting	Elev NGVD 29	Notes
176	STE Pump Tank			1244840.78	582676.05	129.10	STE effluent dose tank
177	ATU Clarifier			1244841.16	582671.78	129.12	
178	ATU Eff Pump Tank			1244840.54	582681.28	129.16	Nitrified effluent dose tank
179	GCREC Pump Station						GCREC mound lift station
180	PNRS II STE-Tank 1						PNRS II Tank 1
181	PZ41	TA1				132.29	1"D standpipe piezometer, 5' screen
182	PZ42	TA1				132.99	1"D standpipe piezometer, 5' screen
183	PZ43	TA1				131.34	1"D standpipe piezometer, 5' screen
184	PZ44	TA3				131.82	1"D standpipe piezometer, 5' screen
185	PZ45	TA3				132.48	1"D standpipe piezometer, 5' screen
186	PZ46	TA1				131.81	1"D standpipe piezometer, 5' screen
187	PZ47	TA1				131.78	1"D standpipe piezometer, 5' screen
188	PZ48	TA1				129.70	1"D standpipe piezometer, 5' screen
189	PZ49	TA2				131.91	1"D standpipe piezometer, 5' screen
190	PZ50	TA2				131.76	1"D standpipe piezometer, 5' screen
191	PZ51	TA4				131.90	1"D standpipe piezometer, 5' screen
192	PZ52	TA4				131.69	1"D standpipe piezometer, 5' screen
193	PZ53	TA4				131.57	1"D standpipe piezometer, 5' screen

o:\44237-001\Wpdocs\Report\Draft

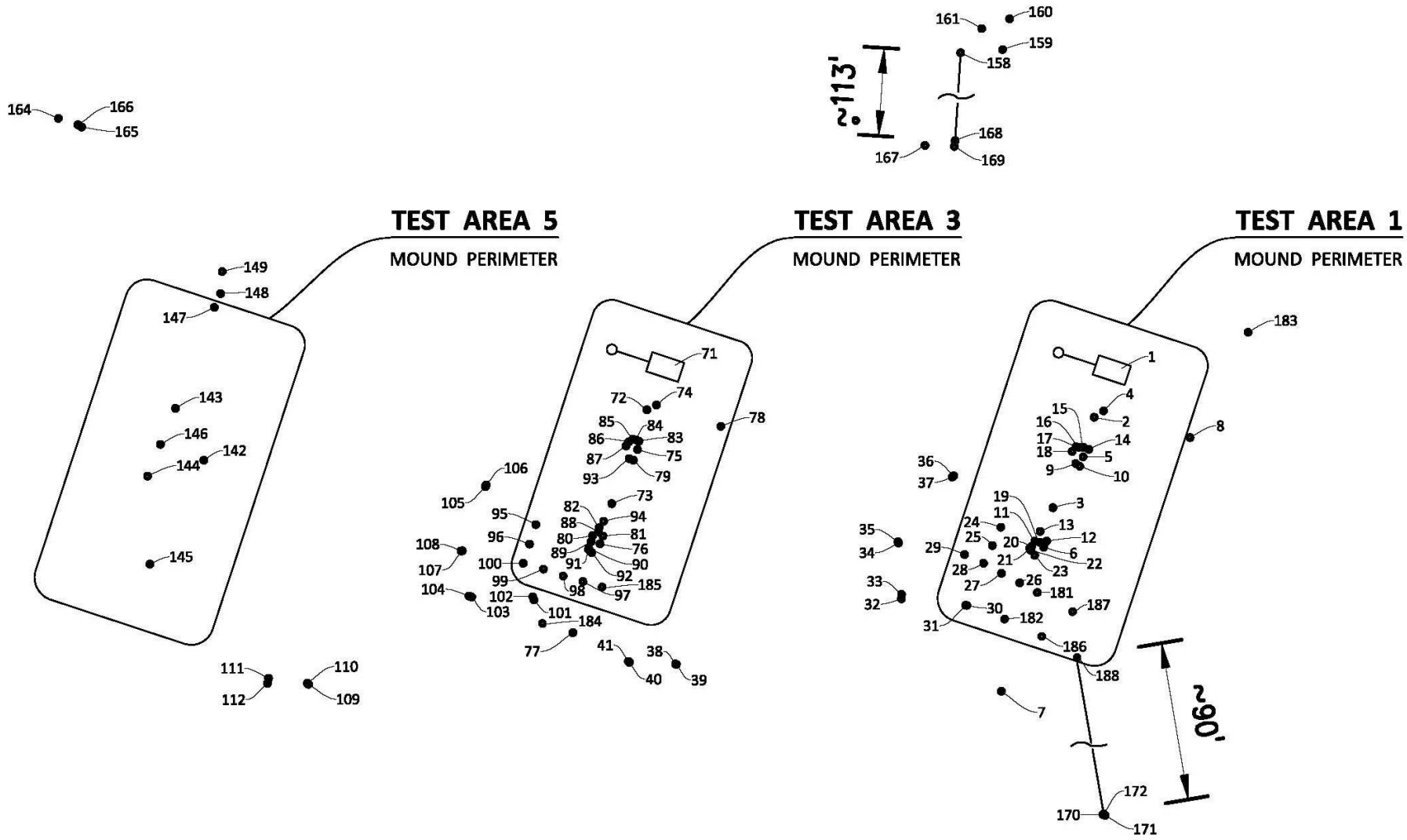


Figure A.1
S&GW Test Facility System Schematic of TA1, TA3, and TA5 (STE System)
[1]Location identification corresponds to Table A.1 ID #

/pdocs\Report\Draft

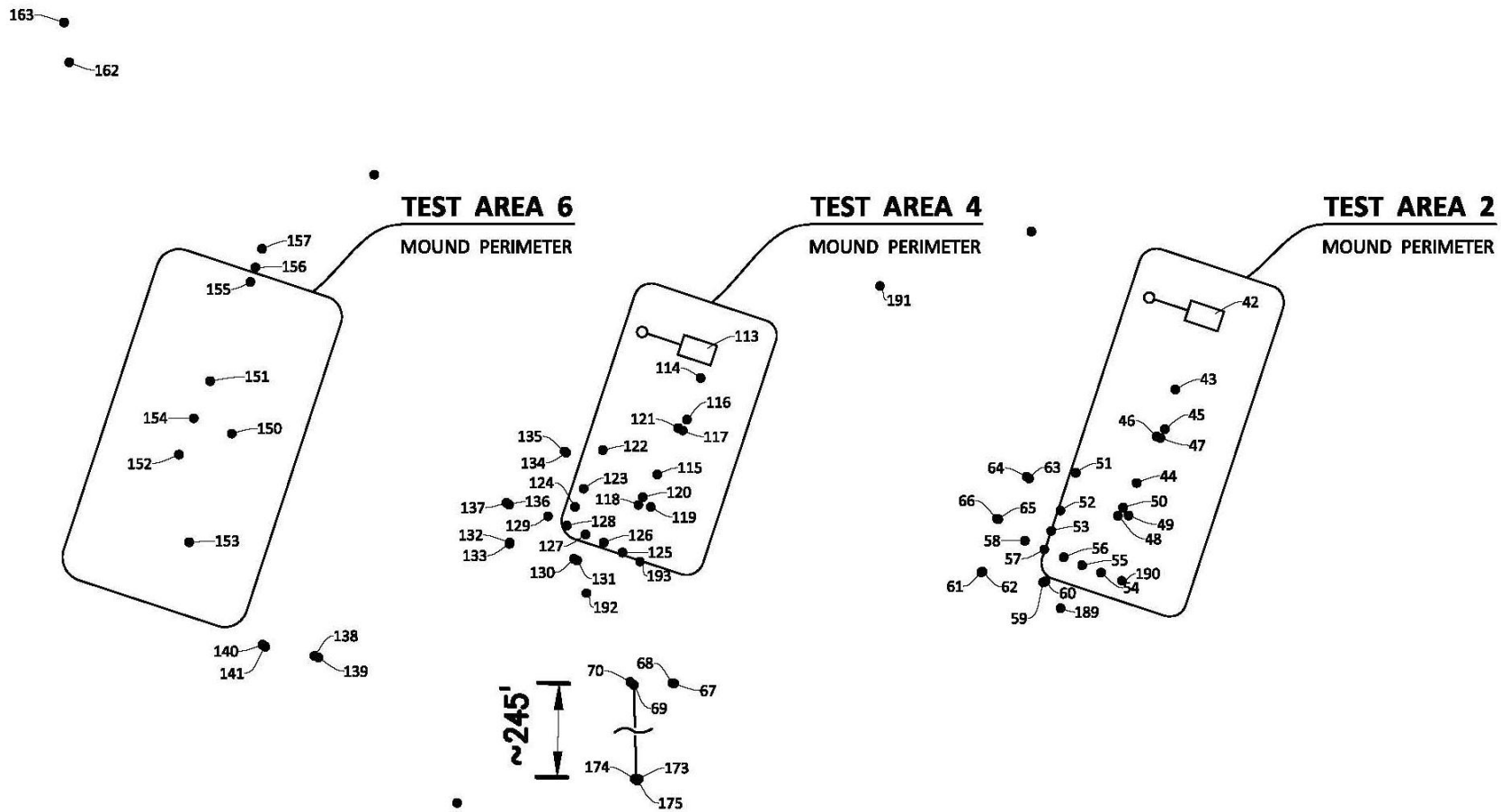


Figure A.2
S&GW Test Facility System Schematic of TA2, TA4, and TA6 (ATU Effluent System)
[1]Location identification corresponds to Table A.1 ID #

/pdocs\Report\Draft

Appendix B: GCREC Weather Station Data

o:\44237-001\Wpdocs\Report\Draft

Table B.1
Daily Recorded Meteorological Data

Period	60cm Temp avg (°F)	60cm Temp min (°F)	60cm Temp max (°F)	Tsoil avg – 10cm (°F)	Tsoil Min (avg) – 10cm (°F)	Tsoil Max (avg) – 10cm (°F)	2m DewPt avg (°F)	Relative Humidity avg 2m (%)	2m Rain total (in)	2m Rain max over 15min (in)	10m Wind avg (mph)	10m Wind min (mph)	10m Wind max (mph)	ET avg (in/day)
28-Aug-12	81.01	75.54	89.69	80.93	79.47	82.74	77.45	88	0.22	0.13	11.76	3.47	27.43	0.16
29-Aug-12	79.71	72.41	88.95	81.67	80.22	83.26	75.87	88	0.03	0.01	7.55	0.00	22.97	0.15
30-Aug-12	80.55	73.09	93.60	82.28	80.51	84.67	75.03	84	0.51	0.28	4.49	0.00	25.77	0.17
31-Aug-12	81.31	72.79	91.74	82.64	80.92	84.42	75.68	84	0	0	5.20	0.10	17.43	0.17
1-Sep-12	80.36	72.19	91.71	82.95	81.28	84.79	73.86	81	0	0	5.97	0.37	17.40	0.18
2-Sep-12	78.68	67.24	89.33	82.59	80.78	84.31	70.78	77	0	0	5.04	0.20	18.50	0.17
3-Sep-12	79.01	66.34	91.80	82.35	80.42	84.13	71.38	78	0	0	3.67	0.07	14.47	0.16
4-Sep-12	79.25	67.57	93.13	82.93	80.65	85.21	72.12	80	0	0	3.87	0.00	16.77	0.16
5-Sep-12	79.06	69.46	91.17	83.36	81.19	85.71	73.37	84	0	0	5.54	0.27	18.17	0.17
6-Sep-12	76.74	69.84	88.63	82.93	81.72	83.71	73.08	88	0	0	5.62	0.07	25.07	0.12
7-Sep-12	78.97	70.00	90.16	83.05	80.96	85.50	73.79	85	0	0	5.21	0.10	20.30	0.17
8-Sep-12	79.73	69.48	90.14	83.40	81.34	85.46	73.55	82	0	0	6.99	0.63	20.37	0.17
9-Sep-12	76.44	72.28	82.81	81.70	80.26	83.70	75.58	95	0.91	0.41	5.85	0.07	23.83	0.06
10-Sep-12	79.05	72.10	89.29	81.62	79.95	83.59	75.69	90	0	0	3.40	0.00	12.67	0.13
11-Sep-12	78.05	71.33	89.13	81.97	80.47	83.79	73.66	86	0.08	0.08	8.44	1.73	22.43	0.15
12-Sep-12	77.19	69.78	86.76	81.39	79.86	82.76	71.76	83	0.01	0.01	9.40	2.27	29.10	0.14
13-Sep-12	77.97	71.38	89.80	81.53	80.04	83.03	73.14	85	0	0	7.84	1.70	22.10	0.14
14-Sep-12	78.08	71.35	88.77	81.93	80.37	83.62	73.96	87	0.02	0.02	8.01	1.80	24.50	0.15
15-Sep-12	77.13	71.82	89.01	82.22	80.85	83.68	73.39	88	0	0	7.00	2.33	22.90	0.14
16-Sep-12	76.73	70.95	90.18	82.21	80.89	84.09	73.15	89	0.35	0.05	5.89	0.20	24.80	0.13
17-Sep-12	77.69	70.30	89.47	81.77	80.13	83.82	73.84	89	0.62	0.46	7.27	1.73	19.30	0.15
18-Sep-12	75.77	71.62	86.86	81.07	80.31	82.20	74.70	95	0.72	0.37	7.89	0.33	27.90	0.10
19-Sep-12	78.20	70.79	86.74	81.02	79.25	82.74	74.82	88	0.01	0.01	4.76	0.33	19.23	0.13

Table B.1 (continued)
Daily Recorded Meteorological Data

Period	60cm Temp avg (°F)	60cm Temp min (°F)	60cm Temp max (°F)	Tsoil avg – 10cm (°F)	Tsoil Min (avg) – 10cm (°F)	Tsoil Max (avg) – 10cm (°F)	2m DewPt avg (°F)	Relative Humidity avg 2m (%)	2m Rain total (in)	2m Rain max over 15min (in)	10m Wind avg (mph)	10m Wind min (mph)	10m Wind max (mph)	ET avg (in/day)
20-Sep-12	78.16	72.73	87.98	81.34	80.17	82.62	74.84	89	0	0	3.04	0.00	13.53	0.10
21-Sep-12	76.52	70.90	86.45	81.20	80.04	82.38	73.05	89	0	0	4.89	0.00	26.40	0.11
22-Sep-12	76.78	70.77	87.51	81.21	79.88	82.71	73.21	89	0.27	0.07	4.09	0.17	11.73	0.11
23-Sep-12	79.01	68.23	90.82	81.26	79.41	83.12	71.22	79	0.01	0.01	4.23	0.00	13.13	0.16
24-Sep-12	73.61	67.01	83.93	80.43	79.43	81.55	63.59	71	0	0	5.61	0.43	16.50	0.11
25-Sep-12	73.34	63.93	85.75	79.61	78.01	81.30	66.85	79	0	0	4.30	0.30	10.17	0.12
26-Sep-12	76.40	65.75	89.62	80.36	78.51	82.51	71.47	86	0	0	3.95	0.00	24.40	0.13
27-Sep-12	77.38	68.79	90.59	81.09	79.47	82.89	72.40	84	0.02	0.01	4.27	0.03	16.53	0.13
28-Sep-12	78.02	69.35	90.86	81.06	79.52	82.56	72.70	85	0.08	0.03	4.98	0.33	17.43	0.14
29-Sep-12	78.50	69.37	90.66	81.42	79.65	83.28	73.65	86	0	0	4.52	0.07	13.60	0.13
30-Sep-12	76.38	68.68	89.47	81.34	80.06	83.30	73.73	90	1	0.49	3.64	0.00	30.00	0.12
1-Oct-12	78.19	71.02	88.21	80.62	79.23	82.26	74.58	88	0	0	6.73	0.33	20.93	0.13
2-Oct-12	77.06	72.00	84.96	80.74	79.70	82.09	75.16	93	0.37	0.26	6.98	0.07	21.33	0.10
3-Oct-12	75.72	72.19	88.21	80.40	79.45	81.46	74.67	95	0.49	0.2	5.45	0.07	20.27	0.09
4-Oct-12	75.98	69.75	91.92	79.93	78.73	82.76	73.63	93	1.86	0.7	5.65	0.10	43.20	0.12
5-Oct-12	76.85	69.42	91.38	79.41	77.90	82.36	73.48	90	0.6	0.43	5.51	0.00	28.73	0.14
6-Oct-12	77.03	69.93	90.10	79.17	77.54	81.09	73.72	90	0	0	3.72	0.03	26.20	0.12
7-Oct-12	75.49	68.63	87.98	79.53	78.28	80.87	72.42	89	0	0	4.28	0.07	20.83	0.11
8-Oct-12	75.55	68.65	86.88	79.57	78.28	81.01	73.24	92	0	0	3.80	0.20	12.60	0.10
9-Oct-12	75.96	67.55	86.68	79.73	78.17	81.37	72.92	90	0	0	4.60	0.03	12.60	0.12
10-Oct-12	74.78	66.36	86.36	79.65	78.35	81.00	69.25	82	0	0	5.55	0.63	15.50	0.12

o:\44237-001\Wpdocs\Report\Draft

Table B.1 (continued)
Daily Recorded Meteorological Data

Period	60cm Temp avg (°F)	60cm Temp min (°F)	60cm Temp max (°F)	Tsoil avg – 10cm (°F)	Tsoil Min (avg) – 10cm (°F)	Tsoil Max (avg) – 10cm (°F)	2m DewPt avg (°F)	Relative Humidity avg 2m (%)	2m Rain total (in)	2m Rain max over 15min (in)	10m Wind avg (mph)	10m Wind min (mph)	10m Wind max (mph)	ET avg (in/day)
11-Oct-12	72.18	61.84	84.34	78.50	76.91	80.01	66.84	83	0	0	6.40	1.13	18.33	0.12
12-Oct-12	72.70	62.71	84.67	78.04	76.59	79.52	64.75	76	0	0	7.06	2.13	18.43	0.12
13-Oct-12	73.40	62.98	84.78	77.57	76.21	78.89	65.87	77	0	0	8.79	2.17	25.33	0.12
14-Oct-12	75.57	66.65	86.92	77.98	76.59	79.43	69.50	81	0	0	7.32	1.87	25.37	0.12
15-Oct-12	76.20	69.37	87.31	78.67	77.27	80.33	71.64	86	0	0	5.19	0.27	21.27	0.11
16-Oct-12	73.95	64.09	85.87	78.43	76.95	79.83	68.66	83	0	0	4.09	0.10	13.10	0.11
17-Oct-12	71.19	64.83	81.09	77.80	76.82	78.78	68.80	90	0	0	3.11	0.00	9.33	0.07
18-Oct-12	75.14	65.30	88.34	77.89	76.15	79.86	70.54	86	0	0	4.05	0.00	15.83	0.12
19-Oct-12	74.60	61.93	86.54	78.03	76.21	79.68	69.37	84	0	0	3.78	0.00	14.37	0.11
20-Oct-12	72.64	58.30	84.13	78.12	77.11	79.47	62.20	70	0	0	5.56	0.07	17.43	0.11
21-Oct-12	67.09	54.57	81.30	75.96	74.55	77.18	55.86	68	0	0	6.50	0.77	18.20	0.10
22-Oct-12	70.98	61.05	84.13	75.60	74.28	76.91	63.25	76	0	0	8.97	2.23	23.40	0.11
23-Oct-12	70.98	62.44	81.52	75.52	74.39	76.46	65.56	82	0	0	7.79	1.87	20.90	0.09
24-Oct-12	74.46	64.99	85.71	75.87	74.73	77.23	67.88	80	0	0	9.85	2.17	27.47	0.11
25-Oct-12	73.91	68.86	82.74	76.21	75.43	77.05	70.30	87	0	0	8.94	2.03	25.83	0.08
26-Oct-12	75.68	70.50	84.96	76.32	75.65	77.09	67.29	75	0	0	12.77	3.83	30.97	0.11

o:\44237-001\Wpdocs\Report\Draft

Appendix C: S&GW Test Facility Tensiometer Data

Table C.1
S&GW Test Facility Test Area 3
Daily Average Tensiometer Data (mbar)

	TA3-Center					TA3-South				
Depth below IS:	6"	12"	24"	36"	42"	6"	12"	24"	36"	42"
Date	mbar	mbar	mbar	mbar	mbar	mbar	mbar	mbar	mbar	mbar
08/28/12	154.259	142.153	141.322	141.797	143.933	143.221	145.595	144.764	145.120	145.358
08/29/12	145.951	135.150	136.456	136.100	137.643	136.812	138.236	137.643	136.693	137.999
08/30/12	151.648	146.544	144.527	143.696	145.358	143.221	146.782	143.577	146.188	143.458
08/31/12	103.341	100.611	97.288	97.882	96.695	97.169	97.051	97.051	96.932	96.101
09/01/12	78.060	73.075	73.431	70.345	72.363	70.345	71.888	70.820	70.464	71.176
09/02/12	54.916	53.254	52.186	50.287	51.830	49.100	51.711	48.625	51.236	48.388
09/03/12	34.976	35.213	32.958	33.433	32.721	32.246	32.721	31.178	32.602	30.347
09/04/12	27.024	27.024	23.582	26.193	22.869	25.243	22.751	24.294	22.869	22.869
09/05/12	31.178	29.397	27.736	29.041	26.074	28.804	25.243	28.448	25.006	27.380
09/06/12	41.029	37.231	37.824	35.807	36.875	34.976	36.044	34.857	35.094	34.501
09/07/12	65.004	60.257	60.613	59.426	58.476	59.070	57.171	59.189	55.984	58.714
09/08/12	73.313	72.363	69.989	70.227	69.277	68.921	69.040	68.209	68.565	67.141
09/09/12	61.562	59.901	59.307	58.120	58.476	57.290	58.002	56.696	57.171	56.221
09/10/12	200.074	193.427	192.121	190.222	189.748	189.866	188.561	190.460	187.255	190.104
09/11/12	149.393	143.221	142.746	142.153	142.034	143.815	142.509	144.883	141.322	145.239
09/12/12	98.238	95.270	93.609	93.490	92.184	93.134	91.591	92.897	90.997	92.540
09/13/12	60.019	60.257	57.646	58.358	57.171	57.171	57.052	56.103	56.696	55.034
09/14/12	84.232	81.977	81.028	79.722	79.959	78.772	79.485	78.416	78.891	77.942
09/15/12	83.401	81.146	80.197	79.010	79.128	78.060	78.535	77.704	77.704	77.229
09/16/12	93.846	90.404	90.048	88.268	88.742	87.793	88.149	87.793	87.318	87.555
09/17/12	104.291	100.493	100.374	98.356	98.712	97.763	98.119	97.644	96.932	97.525
09/18/12	99.662	96.576	94.677	93.727	93.846	93.134	93.965	92.897	93.371	92.540
09/19/12	134.082	129.928	126.486	126.604	125.536	126.367	125.655	126.486	125.180	126.130
09/20/12	135.981	131.352	129.809	130.640	130.521	132.183	132.183	132.895	130.996	133.251
09/21/12	93.134	91.828	89.455	88.386	88.980	86.725	89.217	86.131	88.742	85.656
09/22/12	79.010	74.618	75.212	73.194	73.194	72.838	72.007	73.075	70.820	72.838
09/23/12	85.419	80.197	81.146	78.654	79.128	78.179	77.704	78.298	76.399	78.298
09/24/12	75.686	73.194	71.651	71.414	70.345	70.701	69.871	70.583	69.396	70.108
09/25/12	24.294	20.496	23.225	19.309	22.632	18.953	21.920	19.190	20.614	19.665
09/26/12	33.314	33.433	30.347	33.077	28.923	32.483	28.448	31.771	28.567	30.228
09/27/12	57.646	54.678	54.678	53.254	53.491	52.305	52.779	52.186	52.067	51.948
09/28/12	47.676	46.726	44.827	45.302	43.759	44.352	43.165	43.521	42.809	42.572
09/29/12	55.272	51.948	52.779	49.931	51.948	48.863	51.236	48.625	50.168	48.506
09/30/12	69.040	66.903	64.886	65.598	63.343	64.886	62.749	64.530	62.393	63.699
10/01/12	62.393	59.070	58.239	58.239	55.984	57.646	54.678	57.527	53.729	56.696
10/02/12	89.336	85.419	84.707	83.164	83.520	82.452	83.045	82.452	82.333	82.452
10/03/12	113.905	108.801	108.445	106.071	107.495	105.359	107.614	105.715	106.546	105.715
10/04/12	154.734	147.731	148.206	144.764	147.731	144.645	148.443	145.951	147.257	146.426
10/05/12	140.966	135.388	135.031	133.607	135.150	134.082	136.100	134.913	135.031	135.388
10/06/12	98.119	94.914	91.947	92.897	91.354	92.540	91.591	92.303	91.354	92.066
10/07/12	82.570	78.654	77.823	76.280	77.467	75.686	77.467	75.568	76.755	75.805

o:\44237-001\Wpdocs\Report\Draft

Table C.1 (continued)
S&GW Test Facility Test Area 3
Daily Average Tensiometer Data (mbar)

	TA3-Center					TA3-South				
Depth below IS:	6"	12"	24"	36"	42"	6"	12"	24"	36"	42"
Date	mbar	mbar	mbar	mbar	mbar	mbar	mbar	mbar	mbar	mbar
10/08/12	81.028	81.028	77.229	78.179	76.636	76.517	76.992	75.449	76.873	74.381
10/09/12	82.452	78.891	79.010	76.636	77.942	75.330	77.467	75.212	76.399	75.093
10/10/12	69.159	67.497	66.073	65.479	65.242	64.292	65.123	63.699	64.530	63.105
10/11/12	58.002	56.577	54.797	55.390	53.610	54.322	53.135	53.848	52.779	53.017
10/12/12	42.216	42.097	39.367	41.148	38.418	40.198	38.062	39.367	38.062	38.180
10/13/12	37.231	38.180	35.332	36.637	34.976	35.332	35.094	34.382	35.213	33.195
10/14/12	19.783	16.816	17.647	16.341	16.579	16.104	15.867	16.223	14.917	16.104
10/15/12	28.685	29.635	25.837	28.685	25.125	27.854	25.125	26.786	25.362	25.362
10/16/12	55.034	49.337	52.186	47.557	50.880	47.201	49.931	47.557	48.150	48.150
10/17/12	39.249	38.062	36.756	36.756	36.163	36.044	35.688	35.451	35.213	34.738
10/18/12	35.094	32.127	32.483	30.822	31.296	29.991	30.466	29.753	29.516	29.279
10/19/12	68.209	65.598	63.936	63.817	62.868	63.105	62.393	62.749	61.800	62.037
10/20/12	43.284	40.317	40.079	39.249	38.774	38.655	37.943	38.418	36.994	38.062
10/21/12	NAN	NAN	NAN	NAN	NAN	NAN	NAN	NAN	NAN	NAN
10/22/12	NAN	NAN	NAN	NAN	NAN	NAN	NAN	NAN	NAN	NAN
10/23/12	NAN	NAN	16.579	17.410	16.223	16.460	15.867	15.511	15.748	14.680
10/24/12	38.418	36.994	35.094	35.688	33.908	34.857	33.314	34.145	32.958	33.195
10/25/12	55.272	51.711	51.711	50.168	50.406	49.575	49.575	49.456	48.625	49.219
10/26/12	72.363	67.022	68.209	64.886	67.022	63.817	65.954	63.817	64.411	63.936

NAN (not-a-number) indicates an exceptional occurrence in datalogger function or processing occurred (an invalid measurement).

NR indicates no reading occurred.

EM indicates an equipment malfunction occurred. We are in the process of troubleshooting the problem.

NEG indicates negative soil tensiometer readings were recorded which is being investigated

o:\44237-001\Wpdocs\Report\Draft

Table C.2
S&GW Test Facility Test Area 1
Daily Average Tensiometer Data (mbar)

	TA1-Center					TA1-South				
Depth below IS:	6"	12"	24"	36"	42"	6"	12"	24"	36"	42"
Date	mbar	mbar	mbar	mbar	mbar	mbar	mbar	mbar	mbar	mbar
08/28/12	148.443	140.254	149.749	147.138	147.019	146.544	NEG	NEG	NEG	NEG
08/29/12	137.287	134.557	139.304	138.355	137.049	137.287	NEG	NEG	NEG	NEG
08/30/12	146.544	143.102	146.663	145.358	145.714	146.070	NEG	NEG	NEG	NEG
08/31/12	97.407	95.508	97.644	96.101	97.882	96.339	NEG	NEG	NEG	NEG
09/01/12	70.464	71.295	70.227	71.888	70.108	72.007	NEG	NEG	NEG	NEG
09/02/12	50.643	48.625	49.693	49.100	48.981	49.931	NEG	NEG	NEG	NEG
09/03/12	32.365	29.872	32.009	29.991	31.415	30.228	NEG	NEG	NEG	NEG
09/04/12	23.225	21.683	23.582	20.970	23.700	20.496	NEG	NEG	NEG	NEG
09/05/12	25.243	26.074	25.599	25.006	25.955	23.938	NEG	NEG	NEG	NEG
09/06/12	34.145	34.382	33.433	34.264	32.958	34.145	NEG	NEG	NEG	NEG
09/07/12	55.509	58.002	55.509	57.052	55.865	55.865	NEG	NEG	NEG	NAN
09/08/12	68.446	66.666	68.209	66.666	67.853	66.785	NEG	NEG	NEG	NEG
09/09/12	56.577	56.103	55.984	55.984	55.509	55.984	NEG	NEG	NEG	NEG
09/10/12	187.611	189.035	187.967	189.391	188.798	188.798	NEG	NEG	NEG	NEG
09/11/12	142.509	143.933	143.577	145.001	144.527	144.171	NEG	NEG	NEG	NEG
09/12/12	91.472	91.710	91.472	91.591	92.066	91.116	NEG	NEG	NEG	NEG
09/13/12	56.577	54.322	56.221	54.085	55.747	54.204	NEG	NEG	NEG	NEG
09/14/12	78.535	77.704	78.060	77.823	77.704	78.060	NEG	NEG	NEG	NEG
09/15/12	77.348	76.873	76.873	76.873	76.636	76.873	NEG	NEG	NEG	NEG
09/16/12	86.962	87.318	86.725	87.437	86.725	87.318	NEG	NEG	NEG	NEG
09/17/12	96.576	97.288	96.101	97.169	96.101	97.051	NEG	NEG	NEG	NEG
09/18/12	93.490	92.184	93.490	92.778	93.371	93.015	NEG	NEG	NEG	NEG
09/19/12	126.248	124.824	126.961	125.655	127.198	125.655	NEG	NEG	NEG	NEG
09/20/12	133.251	132.183	134.438	133.489	134.319	132.895	NEG	NEG	NEG	NEG
09/21/12	88.505	85.538	87.793	86.369	87.081	87.199	NEG	NEG	NEG	NAN
09/22/12	70.345	72.363	70.227	71.888	70.464	71.295	NEG	NEG	NEG	NEG
09/23/12	75.686	77.942	75.330	77.586	75.686	76.992	NEG	NEG	NEG	NEG
09/24/12	69.515	69.396	69.633	69.277	69.752	68.921	NEG	NEG	NEG	NEG
09/25/12	19.190	20.377	18.003	20.614	17.291	20.733	NEG	NEG	NEG	NEG
09/26/12	28.923	28.804	29.516	27.617	29.872	26.549	NEG	NEG	NEG	NEG
09/27/12	51.474	51.592	50.999	51.592	50.762	51.355	NEG	NEG	NEG	NEG
09/28/12	42.572	41.741	42.453	41.266	42.216	40.910	NEG	NEG	NEG	NEG
09/29/12	48.981	48.863	47.913	49.100	47.201	49.337	NEG	NEG	NEG	NEG
09/30/12	62.512	62.631	62.631	62.037	63.105	61.444	NEG	NEG	NEG	NEG
10/01/12	53.491	55.390	53.610	54.204	54.085	52.898	NEG	NEG	NEG	NEG
10/02/12	82.214	82.214	81.977	82.570	82.096	82.689	NEG	NEG	NEG	NEG
10/03/12	106.308	105.715	105.834	106.665	105.596	107.021	NEG	NEG	NEG	NEG
10/04/12	146.900	146.900	146.900	148.562	146.544	149.037	NEG	NEG	NEG	NEG
10/05/12	135.625	135.031	135.981	136.337	135.862	136.456	NEG	NEG	NEG	NAN
10/06/12	92.303	90.523	93.015	91.354	93.015	91.235	NEG	NEG	NEG	NEG
10/07/12	76.755	75.330	76.399	76.517	76.043	76.755	NEG	NEG	NEG	NEG

o:\44237-001\Wpdocs\Report\Draft

Table C.2 (continued)
S&GW Test Facility Test Area 1
Daily Average Tensiometer Data (mbar)

	TA1-Center					TA1-South				
Depth below IS:	6"	12"	24"	36"	42"	6"	12"	24"	36"	42"
Date	mbar	mbar	mbar	mbar	mbar	mbar	mbar	mbar	mbar	mbar
10/08/12	77.229	73.669	76.755	73.787	76.399	74.618	NEG	NEG	NEG	NEG
10/09/12	75.686	75.093	74.856	75.686	74.262	75.805	NEG	NEG	NEG	NEG
10/10/12	64.292	62.749	63.699	62.987	63.224	63.224	NEG	NEG	NEG	NEG
10/11/12	52.779	52.186	52.661	51.830	52.661	51.474	NEG	NEG	NEG	NEG
10/12/12	38.299	37.112	38.299	36.281	38.299	36.044	NEG	NAN	NEG	NAN
10/13/12	35.332	32.483	34.976	32.365	34.264	32.483	NEG	NEG	NEG	NAN
10/14/12	14.324	15.867	13.968	15.392	13.968	14.799	NEG	NEG	NEG	NAN
10/15/12	25.955	24.056	26.193	23.225	26.193	22.751	NEG	NEG	NEG	NAN
10/16/12	46.726	48.625	45.421	48.981	45.064	48.863	NEG	NEG	NEG	NAN
10/17/12	34.857	34.264	34.501	33.908	34.264	33.670	NEG	NEG	NEG	NAN
10/18/12	28.567	28.923	27.854	28.567	27.380	28.092	NEG	NEG	NEG	NAN
10/19/12	61.800	61.444	61.681	61.325	61.800	61.088	NEG	NAN	NAN	NAN
10/20/12	36.519	37.468	36.163	36.875	36.044	36.163	NEG	NAN	NEG	NEG
10/21/12	NAN	NAN	NAN	NAN	NAN	NAN	NEG	NAN	NEG	NEG
10/22/12	NAN	NAN	NAN	NAN	NAN	NAN	NEG	NAN	NEG	NEG
10/23/12	15.392	13.968	15.155	13.730	14.680	13.493	NEG	NAN	NEG	NEG
10/24/12	32.839	32.246	32.602	31.534	32.483	31.059	NEG	NAN	NEG	NAN
10/25/12	48.032	48.981	47.676	48.744	47.557	48.269	NEG	NAN	NEG	NEG
10/26/12	63.224	64.055	62.275	64.292	61.681	64.174	NEG	NEG	NEG	NEG

NAN (not-a-number) indicates an exceptional occurrence in datalogger function or processing occurred (an invalid measurement).

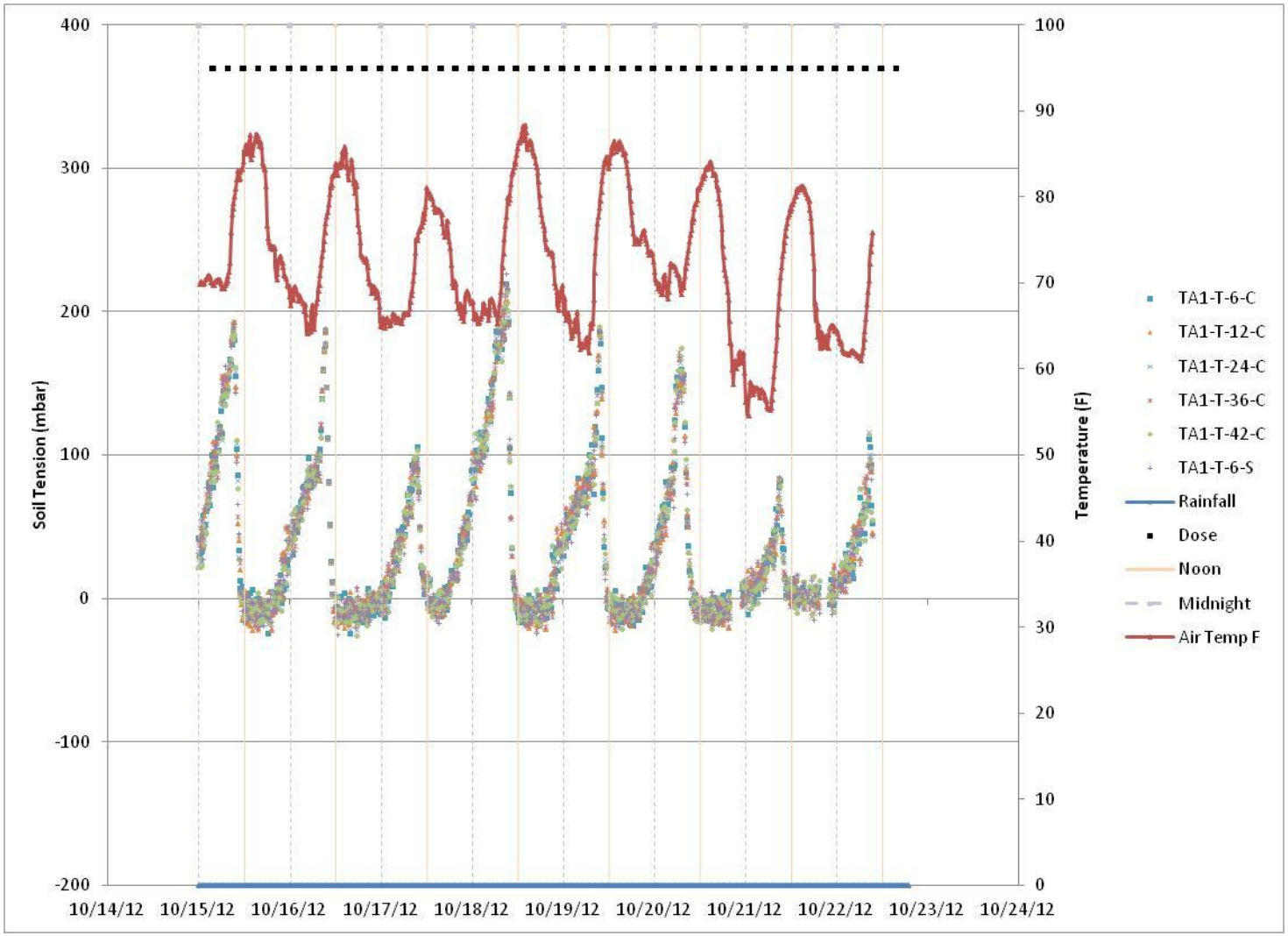
NR indicates no reading occurred.

EM indicates an equipment malfunction occurred. We are in the process of troubleshooting the problem.

NEG indicates negative soil tensiometer readings were recorded which is being investigated

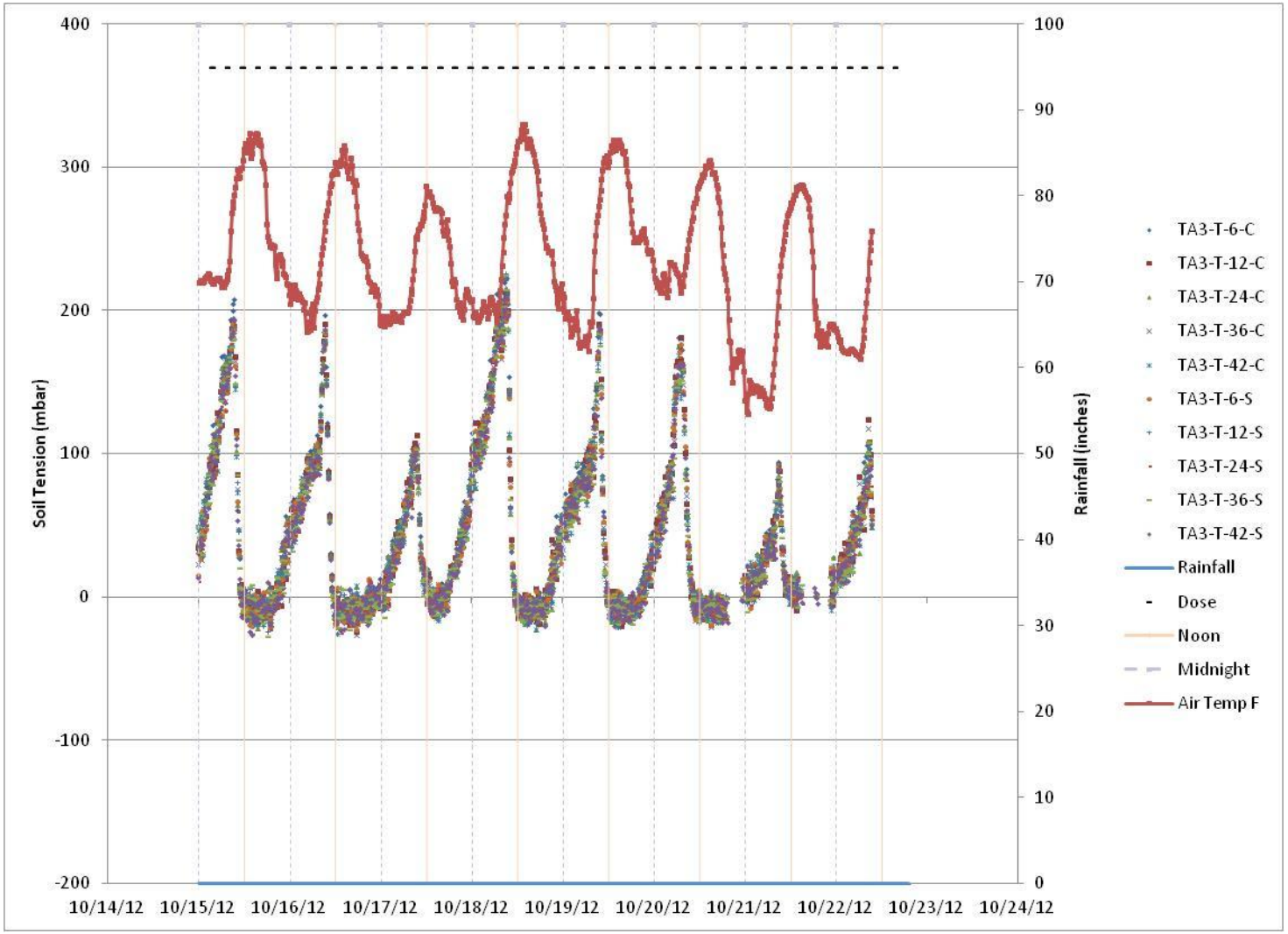
o:\44237-001\Wpdocs\Report\Draft

Figure C.1
TA1 S&GW Test Facility
Soil Tension (mbar), Rainfall (inches), Temperature (°F) and Dose
15 Minute Interval



/pdocs\Report\Draft

Figure C.2
TA3 S&GW Test Facility
Soil Tension (mbar), Rainfall (inches), Temperature (°F) and Dose
15 Minute Interval



/pdocs\Report\Draft

Appendix D: S&GW Test Facility Soil Moisture Data

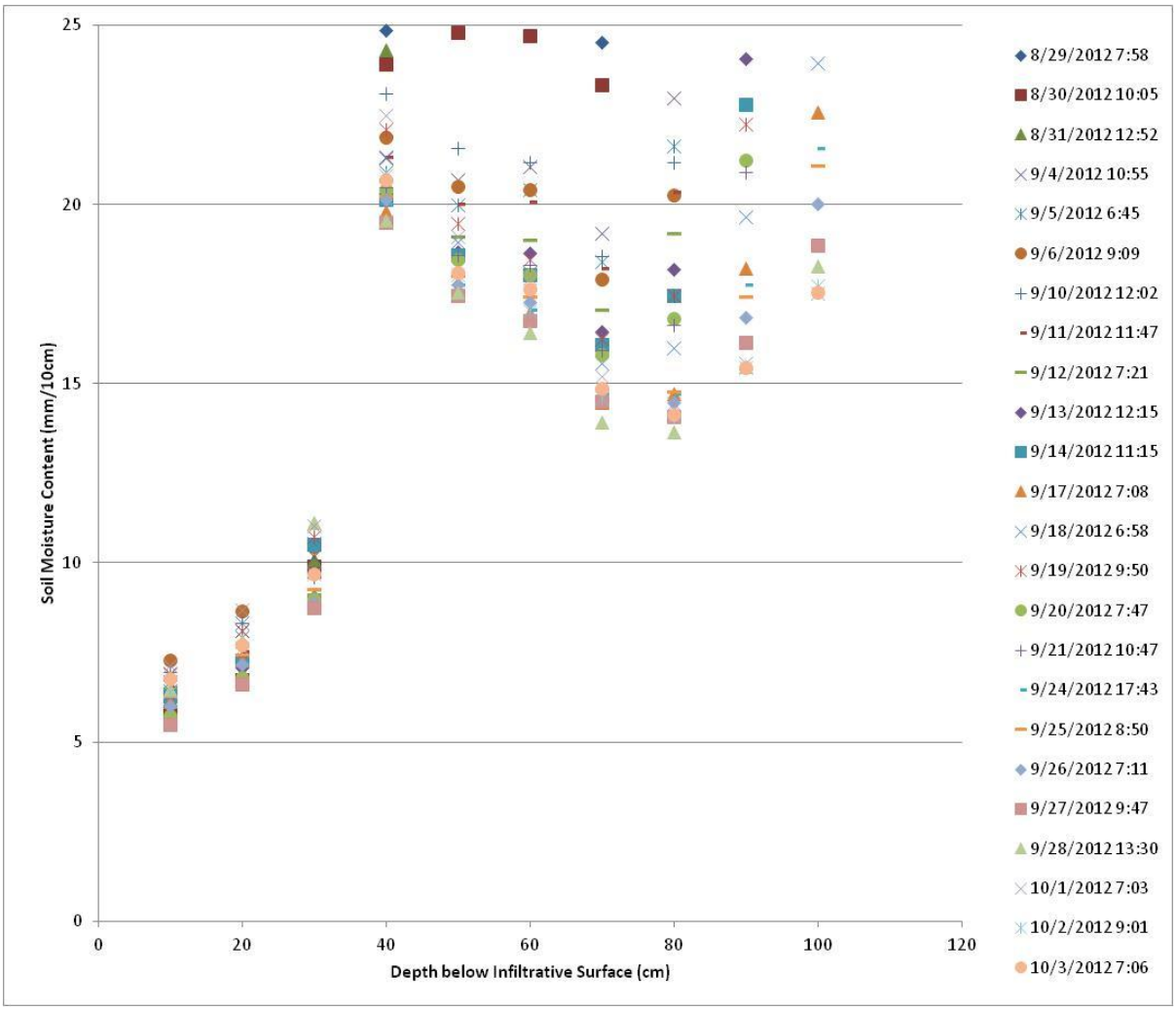


Figure D.1

Soil Moisture Test Area 1 North

o:\44237-001\Wpdocs\Report\Draft

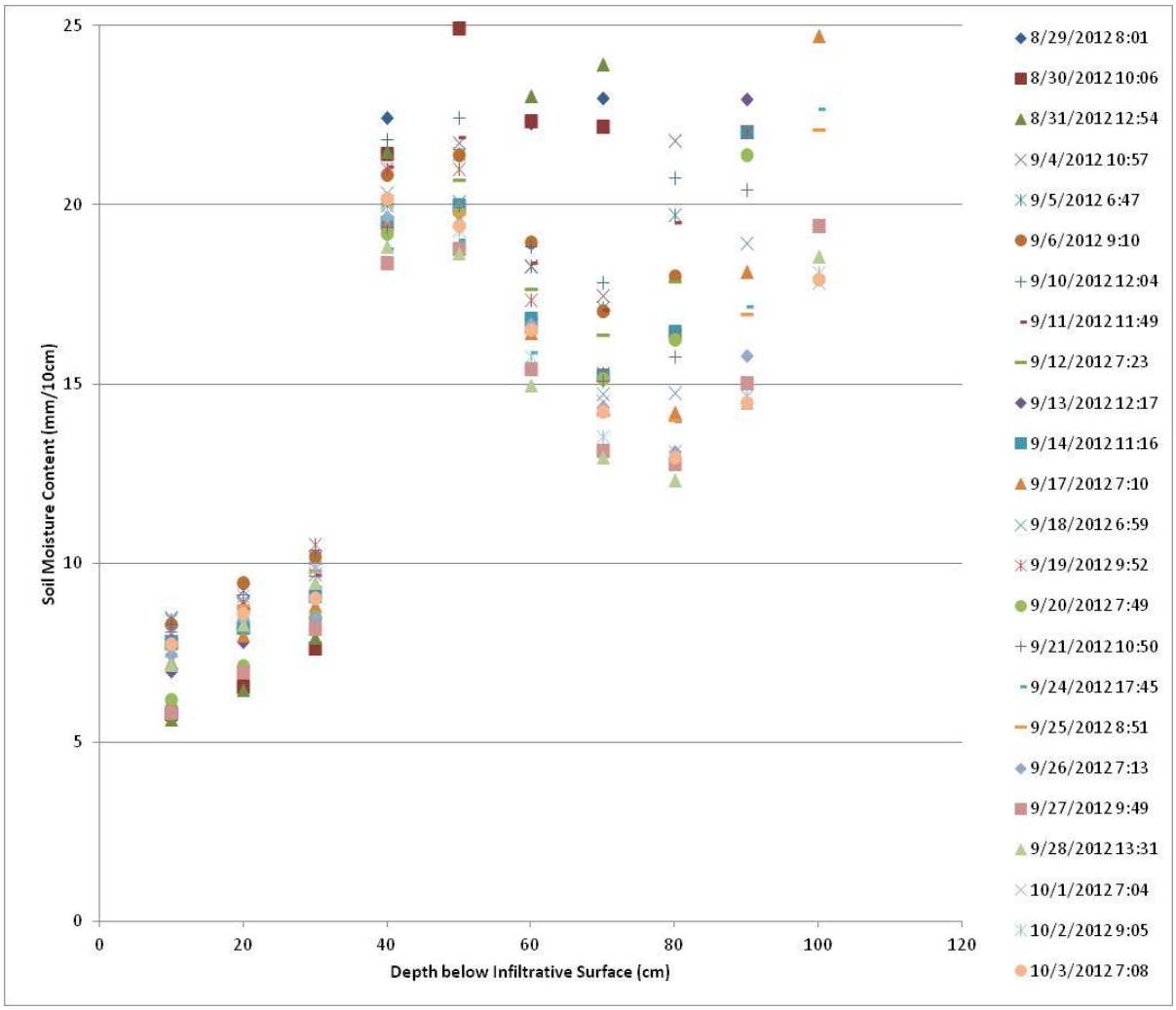


Figure D.2
Soil Moisture Test Area 1 Center

o:\44237-001\Wpdocs\Report\Draft

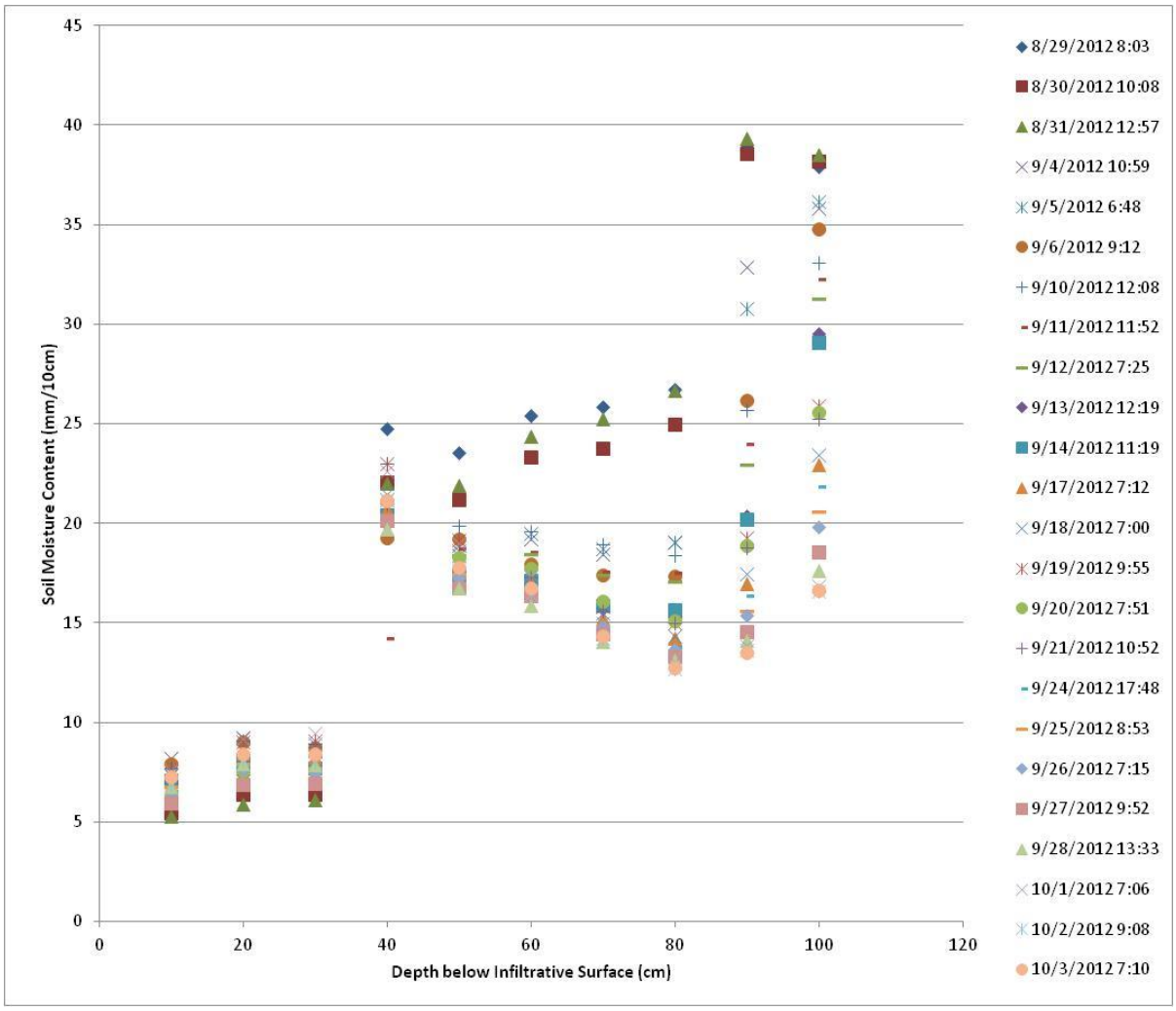


Figure D.3
Soil Moisture Test Area 1 South

o:\44237-001\Wpdocs\Report\Draft

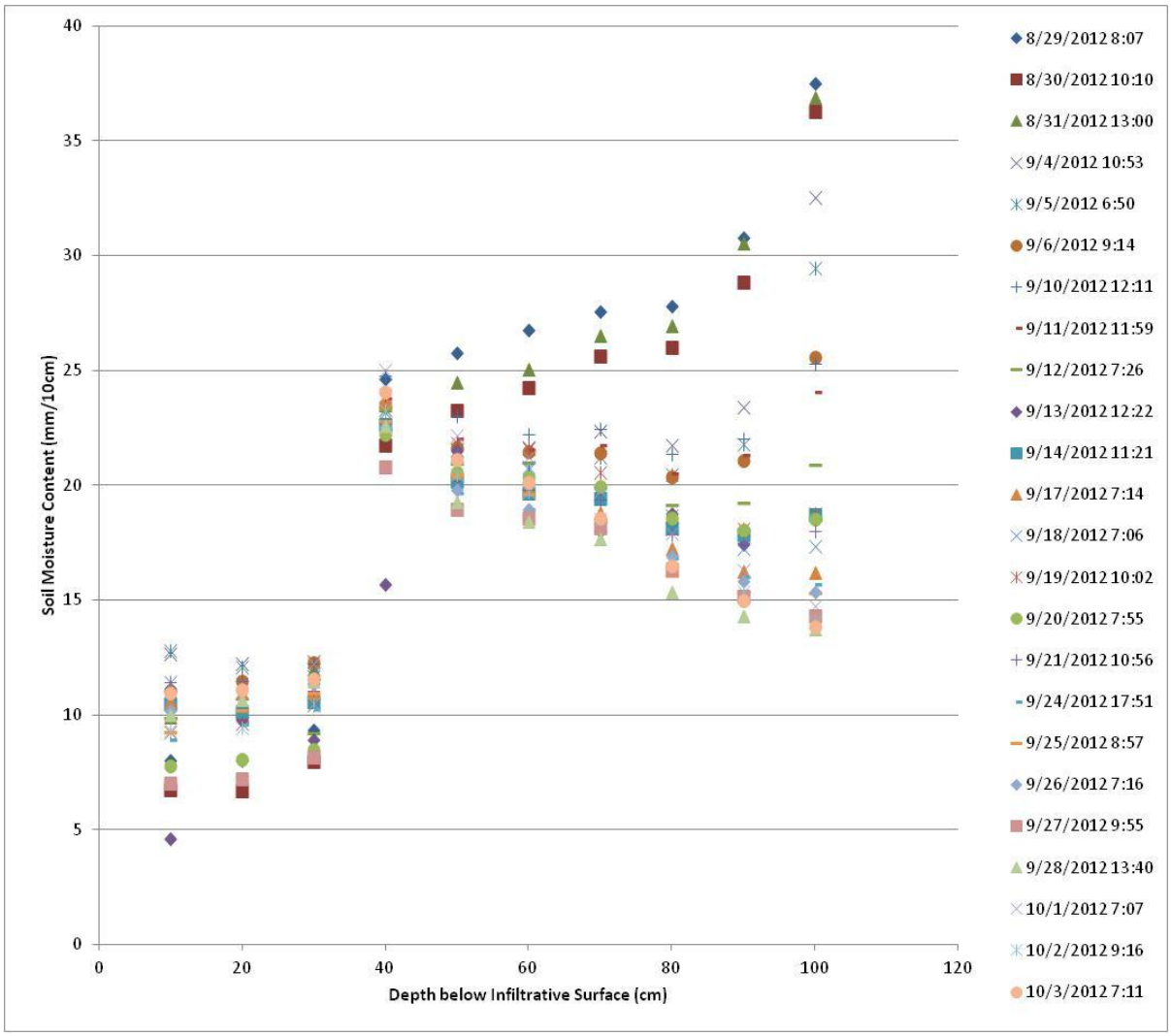


Figure D.4
Soil Moisture Test Area 3 North

o:\44237-001\Wpdocs\Report\Draft

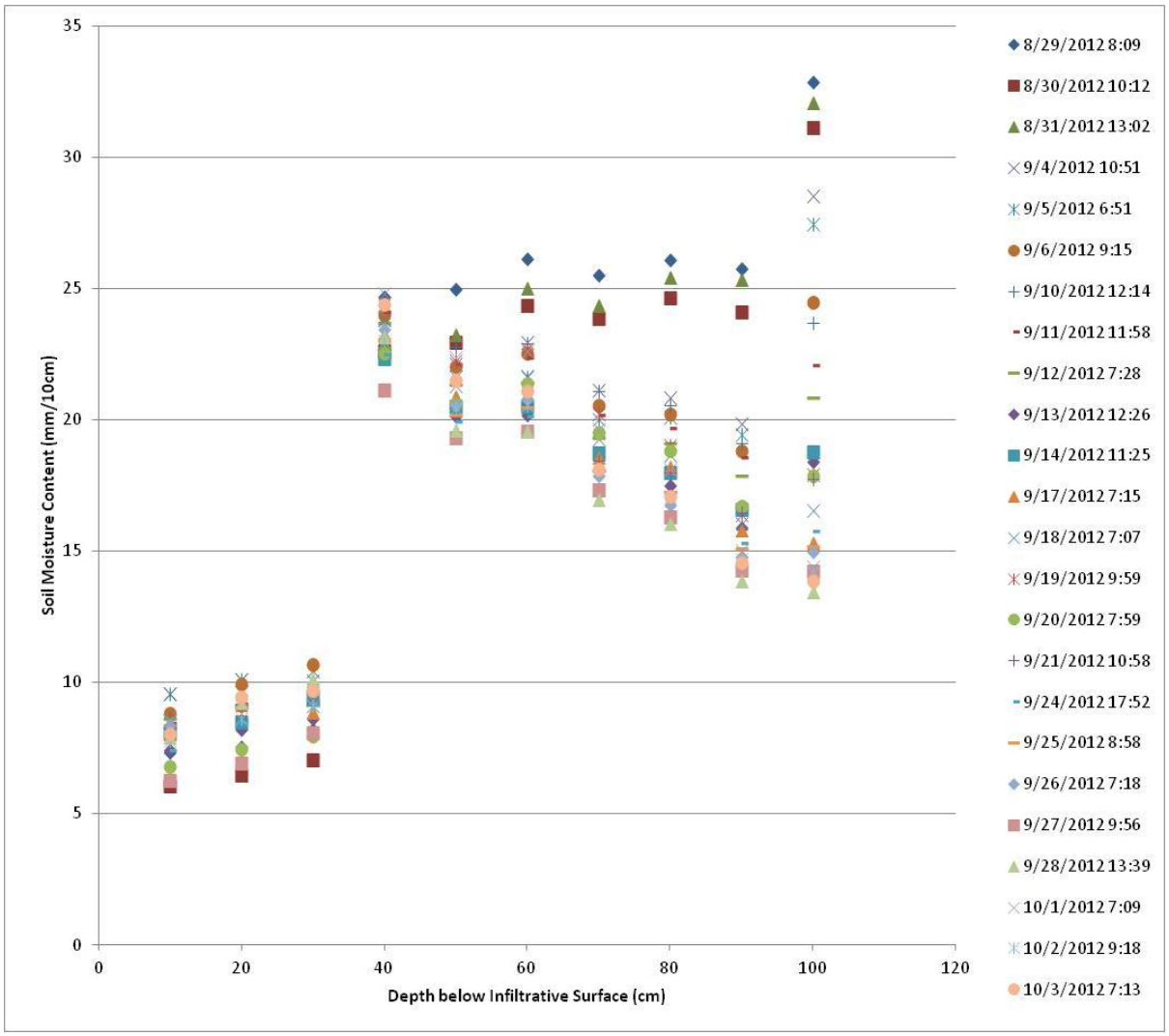


Figure D.5
Soil Moisture Test Area 3 Center

o:\44237-001\Wpdocs\Report\Draft

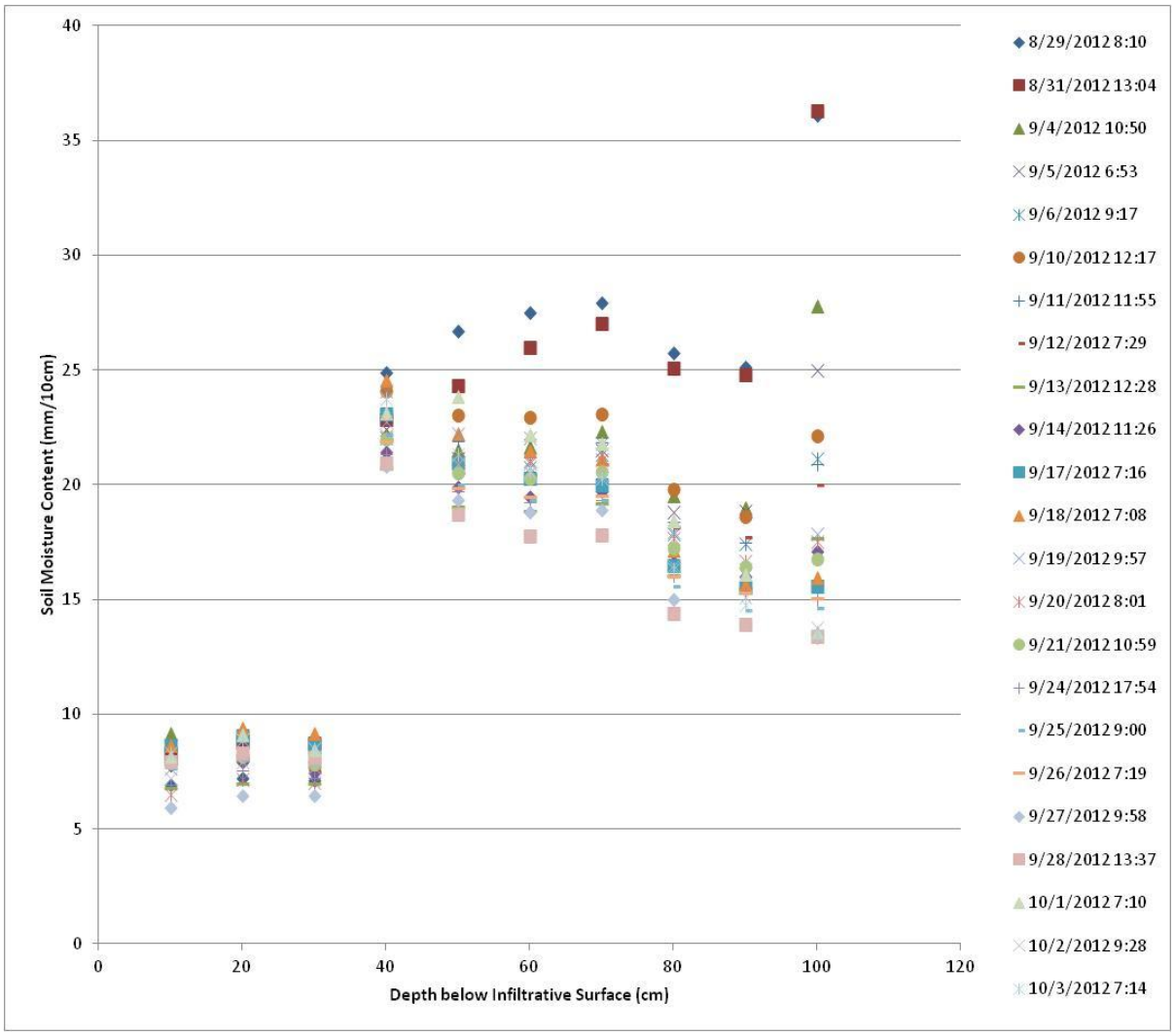


Figure D.6
Soil Moisture Test Area 3 South

o:\44237-001\Wpdocs\Report\Draft

Appendix E: Laboratory Report

o:\44237-001\Wpdocs\Report\Draft

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

December 3, 2012
Work Order: 1211968

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**PNRS II STE-Tank 1**						
Matrix		**Wastewater**						
SAL Sample Number		**1211968-01**						
Date/Time Collected		**10/26/12 08:58**						
Collected by		**Travis Wright**						
Date/Time Received		**10/26/12 11:10**						
Field Parameters								
pH	SU	7.0	DEP FT1100	0.1	0.1		10/26/12 08:58	1
Water Temperature	°C	25.6	DEP FT1400	0.1	0.1		10/26/12 08:58	1
Specific conductance	umhos/cm	1,115	DEP FT1200	0.1	0.1		10/26/12 08:58	1
Dissolved Oxygen	mg/L	0.5	DEP FT1500	0.1	0.1		10/26/12 08:58	1
Inorganics								
Ammonia as N	mg/L	70	EPA 350.1	4.0	0.95	11/05/12 09:35	11/05/12 13:05	100
Ammonium as NH4	mg/L	89	EPA 350.1	0.05	0.01		11/05/12 15:43	1
Carbonaceous BOD	mg/L	110	SM 5210B	2	2	10/26/12 15:00	10/31/12 08:23	1
Chloride	mg/L	63	EPA 300.0	0.20	0.050		10/29/12 15:57	1
Nitrate (as N)	mg/L	0.03 I	EPA 300.0	0.04	0.01		10/27/12 02:16	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/27/12 02:16	1
Phosphorous - Total as P	mg/L	5.7	SM 4500P-E	0.40	0.10	10/30/12 11:03	11/02/12 12:16	10
Total Alkalinity	mg/L	380	SM 2320B	8.0	2.0		10/29/12 09:13	1
Total Kjeldahl Nitrogen	mg/L	63	EPA 351.2	0.20	0.05	10/29/12 16:45	10/31/12 15:23	41.67
Total Solids	mg/L	2,600	SM 2540B	10	10	10/29/12 10:15	10/30/12 16:11	1
Total Suspended Solids	mg/L	22	SM 2540D	1	1	10/29/12 08:42	10/30/12 12:00	1
Nitrate+Nitrite (N)	mg/L	0.03 I	EPA 300.0	0.08	0.02		10/27/12 02:16	1
Microbiology								
Fecal Coliforms	CFU/100 ml	84,000	SM 9222D	1	1	10/26/12 12:47	10/27/12 11:55	1
Sample Description		**PNRS II STE-Tank 1**						
Matrix		**Wastewater**						
SAL Sample Number		**1211968-01RE1**						
Date/Time Collected		**10/26/12 08:58**						
Collected by		**Travis Wright**						
Date/Time Received		**10/26/12 11:10**						
Inorganics								
Total Kjeldahl Nitrogen	mg/L	73 Q	EPA 351.2	0.20	0.05	10/29/12 16:45	11/30/12 14:56	1
Sample Description		**STE Pump Tank**						
Matrix		**Wastewater**						
SAL Sample Number		**1211968-02**						
Date/Time Collected		**10/26/12 09:43**						
Collected by		**Travis Wright**						
Date/Time Received		**10/26/12 11:10**						

Florida Certification Number: E84129
NELAP Accredited

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

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

December 3, 2012
Work Order: 1211968

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**STE Pump Tank**						
Matrix		**Wastewater**						
SAL Sample Number		**1211968-02**						
Date/Time Collected		**10/26/12 09:43**						
Collected by		**Travis Wright**						
Date/Time Received		**10/26/12 11:10**						
Field Parameters								
pH	SU	7.6	DEP FT1100	0.1	0.1		10/26/12 09:43	1
Water Temperature	°C	26.8	DEP FT1400	0.1	0.1		10/26/12 09:43	1
Specific conductance	umhos/cm	983	DEP FT1200	0.1	0.1		10/26/12 09:43	1
Dissolved Oxygen	mg/L	1.0	DEP FT1500	0.1	0.1		10/26/12 09:43	1
Inorganics								
Ammonia as N	mg/L	50	EPA 350.1	4.0	0.95	11/05/12 09:35	11/05/12 13:07	100
Ammonium as NH4	mg/L	63	EPA 350.1	0.05	0.01		11/05/12 15:43	1
Carbonaceous BOD	mg/L	32	SM 5210B	2	2	10/26/12 15:00	10/31/12 08:23	1
Chloride	mg/L	51	EPA 300.0	0.20	0.050		10/29/12 15:57	1
Nitrate (as N)	mg/L	0.04	EPA 300.0	0.04	0.01		10/27/12 02:16	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/27/12 02:16	1
Phosphorous - Total as P	mg/L	4.4	SM 4500P-E	0.40	0.10	10/30/12 11:03	11/02/12 12:16	10
Sulfate	mg/L	68	EPA 300.0	0.60	0.20		10/27/12 02:16	1
Total Alkalinity	mg/L	320	SM 2320B	8.0	2.0		10/29/12 09:13	1
Total Kjeldahl Nitrogen	mg/L	45	EPA 351.2	0.20	0.05	10/29/12 16:45	10/31/12 15:24	41.67
Total Solids	mg/L	520	SM 2540B	10	10	10/29/12 10:15	10/30/12 16:11	1
Total Suspended Solids	mg/L	18	SM 2540D	1	1	10/29/12 08:42	10/30/12 12:00	1
Nitrate+Nitrite (N)	mg/L	0.04 I	EPA 300.0	0.08	0.02		10/27/12 02:16	1
Microbiology								
Fecal Coliforms	CFU/100 ml	97,000	SM 9222D	1	1	10/26/12 12:47	10/27/12 11:55	1

Sample Description		**STE Pump Tank**						
Matrix		**Wastewater**						
SAL Sample Number		**1211968-02RE1**						
Date/Time Collected		**10/26/12 09:43**						
Collected by		**Travis Wright**						
Date/Time Received		**10/26/12 11:10**						
Inorganics								
Total Kjeldahl Nitrogen	mg/L	64 Q	EPA 351.2	0.20	0.05	10/29/12 16:45	11/30/12 14:56	1

Florida Certification Number: E84129
NELAP Accredited

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

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

December 3, 2012
Work Order: 1211968

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**STE Pump Tank DUP**						
Matrix		**Wastewater**						
SAL Sample Number		**1211968-03**						
Date/Time Collected		**10/26/12 09:47**						
Collected by		**Travis Wright**						
Date/Time Received		**10/26/12 11:10**						
Field Parameters								
pH	SU	7.6	DEP FT1100	0.1	0.1		10/26/12 09:47	1
Water Temperature	°C	26.8	DEP FT1400	0.1	0.1		10/26/12 09:47	1
Specific conductance	umhos/cm	983	DEP FT1200	0.1	0.1		10/26/12 09:47	1
Dissolved Oxygen	mg/L	1.0	DEP FT1500	0.1	0.1		10/26/12 09:47	1
Inorganics								
Ammonia as N	mg/L	51	EPA 350.1	4.0	0.95	11/05/12 09:35	11/05/12 13:08	100
Ammonium as NH4	mg/L	63	EPA 350.1	0.05	0.01		11/05/12 15:43	1
Carbonaceous BOD	mg/L	28	SM 5210B	2	2	10/26/12 15:00	10/31/12 08:23	1
Chloride	mg/L	52	EPA 300.0	0.20	0.050		10/29/12 15:57	1
Nitrate (as N)	mg/L	0.03 I	EPA 300.0	0.04	0.01		10/27/12 02:16	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/27/12 02:16	1
Phosphorous - Total as P	mg/L	4.3	SM 4500P-E	0.40	0.10	10/30/12 11:03	11/02/12 12:17	10
Sulfate	mg/L	58	EPA 300.0	0.60	0.20		10/27/12 02:16	1
Total Alkalinity	mg/L	310	SM 2320B	8.0	2.0		10/29/12 09:13	1
Total Kjeldahl Nitrogen	mg/L	44	EPA 351.2	0.20	0.05	10/29/12 16:45	10/31/12 15:25	41.67
Total Solids	mg/L	500	SM 2540B	10	10	10/29/12 10:15	10/30/12 16:11	1
Total Suspended Solids	mg/L	19	SM 2540D	1	1	10/29/12 08:42	10/30/12 12:00	1
Nitrate+Nitrite (N)	mg/L	0.03 I	EPA 300.0	0.08	0.02		10/27/12 02:16	1
Microbiology								
Fecal Coliforms	CFU/100 ml	64,000	SM 9222D	1	1	10/26/12 12:47	10/27/12 11:55	1

Sample Description		**STE Pump Tank DUP**						
Matrix		**Wastewater**						
SAL Sample Number		**1211968-03RE1**						
Date/Time Collected		**10/26/12 09:47**						
Collected by		**Travis Wright**						
Date/Time Received		**10/26/12 11:10**						
Inorganics								
Total Kjeldahl Nitrogen	mg/L	66 Q	EPA 351.2	0.20	0.05	10/29/12 16:45	11/30/12 14:56	1

Florida Certification Number: E84129
NELAP Accredited

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

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

December 3, 2012
Work Order: 1211968

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**NO3 Clarifier**						
Matrix		**Wastewater**						
SAL Sample Number		**1211968-04**						
Date/Time Collected		**10/26/12 09:07**						
Collected by		**Travis Wright**						
Date/Time Received		**10/26/12 11:10**						
Field Parameters								
pH	SU	7.5	DEP FT1100	0.1	0.1		10/26/12 09:07	1
Water Temperature	°C	25.9	DEP FT1400	0.1	0.1		10/26/12 09:07	1
Specific conductance	umhos/cm	643	DEP FT1200	0.1	0.1		10/26/12 09:07	1
Dissolved Oxygen	mg/L	1.6	DEP FT1500	0.1	0.1		10/26/12 09:07	1
Inorganics								
Ammonia as N	mg/L	6.3	EPA 350.1	0.40	0.095	11/05/12 09:35	11/05/12 12:25	10
Ammonium as NH4	mg/L	7.9	EPA 350.1	0.05	0.01		11/05/12 15:43	1
Carbonaceous BOD	mg/L	10	SM 5210B	2	2	10/26/12 15:00	10/31/12 08:23	1
Chloride	mg/L	50	EPA 300.0	0.20	0.050		10/29/12 15:57	1
Nitrate (as N)	mg/L	2.0	EPA 300.0	0.04	0.01		10/27/12 02:16	1
Nitrite (as N)	mg/L	1.7	EPA 300.0	0.04	0.01		10/27/12 02:16	1
Total Kjeldahl Nitrogen	mg/L	12	EPA 351.2	0.20	0.05	10/31/12 15:41	11/05/12 11:34	9.62
Total Solids	mg/L	420	SM 2540B	10	10	10/29/12 10:15	10/30/12 16:11	1
Total Suspended Solids	mg/L	2	SM 2540D	1	1	10/29/12 08:42	10/30/12 12:00	1
Nitrate+Nitrite (N)	mg/L	3.7	EPA 300.0	0.08	0.02		10/27/12 02:16	1
Sample Description		**NO3 Pump Tank**						
Matrix		**Wastewater**						
SAL Sample Number		**1211968-05**						
Date/Time Collected		**10/26/12 09:21**						
Collected by		**Travis Wright**						
Date/Time Received		**10/26/12 11:10**						
Field Parameters								
pH	SU	7.5	DEP FT1100	0.1	0.1		10/26/12 09:21	1
Water Temperature	°C	25.9	DEP FT1400	0.1	0.1		10/26/12 09:21	1
Specific conductance	umhos/cm	667	DEP FT1200	0.1	0.1		10/26/12 09:21	1
Dissolved Oxygen	mg/L	1.9	DEP FT1500	0.1	0.1		10/26/12 09:21	1
Inorganics								
Ammonia as N	mg/L	3.4	EPA 350.1	0.40	0.095	11/05/12 09:35	11/05/12 12:26	10
Ammonium as NH4	mg/L	4.3	EPA 350.1	0.05	0.01		11/05/12 15:43	1
Carbonaceous BOD	mg/L	7	SM 5210B	2	2	10/26/12 15:00	10/31/12 08:23	1
Chloride	mg/L	49	EPA 300.0	0.20	0.050		10/29/12 15:57	1
Fluoride	mg/L	0.32	EPA 300.0	0.040	0.010		10/27/12 02:16	1
Nitrate (as N)	mg/L	2.8	EPA 300.0	0.04	0.01		10/27/12 02:16	1
Nitrite (as N)	mg/L	0.75	EPA 300.0	0.04	0.01		10/27/12 02:16	1
Orthophosphate as P	mg/L	2.2	EPA 300.0	0.040	0.010		10/27/12 02:16	1

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

December 3, 2012
Work Order: 1211968

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**NO3 Pump Tank**						
Matrix		**Wastewater**						
SAL Sample Number		**1211968-05**						
Date/Time Collected		**10/26/12 09:21**						
Collected by		**Travis Wright**						
Date/Time Received		**10/26/12 11:10**						
Phosphorous - Total as P	mg/L	4.0	SM 4500P-E	0.40	0.10	10/30/12 11:03	11/02/12 12:18	10
Sulfate	mg/L	58	EPA 300.0	0.60	0.20		10/27/12 02:16	1
Total Alkalinity	mg/L	150	SM 2320B	8.0	2.0		10/29/12 09:13	1
Total Kjeldahl Nitrogen	mg/L	7.7	EPA 351.2	0.20	0.05	10/31/12 15:41	11/05/12 11:36	9.62
Total Solids	mg/L	400	SM 2540B	10	10	10/29/12 10:15	10/30/12 16:11	1
Total Suspended Solids	mg/L	1	SM 2540D	1	1	10/29/12 08:42	10/30/12 12:00	1
Nitrate+Nitrite (N)	mg/L	3.5	EPA 300.0	0.08	0.02		10/27/12 02:16	1
Metals								
Boron	mg/L	0.11	EPA 200.7	0.10	0.050	10/31/12 08:00	10/31/12 16:53	1
Calcium	mg/L	55	EPA 200.7	0.50	0.042	10/31/12 08:00	10/31/12 16:53	1
Iron	mg/L	0.051 I	EPA 200.7	0.10	0.020	10/31/12 08:00	10/31/12 16:53	1
Magnesium	mg/L	16	EPA 200.7	0.50	0.020	10/31/12 08:00	10/31/12 16:53	1
Manganese	mg/L	0.011	EPA 200.7	0.010	0.0010	10/31/12 08:00	10/31/12 16:53	1
Potassium	mg/L	19	EPA 200.7	0.050	0.010	10/31/12 08:00	10/31/12 16:53	1
Sodium	mg/L	45	EPA 200.7	0.50	0.13	10/31/12 08:00	10/31/12 16:53	1
Microbiology								
Fecal Coliforms	CFU/100 ml	370	SM 9222D	1	1	10/26/12 12:47	10/27/12 11:55	1
Sample Description		**NO3 Pump Tank DUP**						
Matrix		**Wastewater**						
SAL Sample Number		**1211968-06**						
Date/Time Collected		**10/26/12 09:26**						
Collected by		**Travis Wright**						
Date/Time Received		**10/26/12 11:10**						
Field Parameters								
pH	SU	7.5	DEP FT1100	0.1	0.1		10/26/12 09:26	1
Water Temperature	°C	25.9	DEP FT1400	0.1	0.1		10/26/12 09:26	1
Specific conductance	umhos/cm	667	DEP FT1200	0.1	0.1		10/26/12 09:26	1
Dissolved Oxygen	mg/L	1.9	DEP FT1500	0.1	0.1		10/26/12 09:26	1
Inorganics								
Ammonia as N	mg/L	3.4	EPA 350.1	0.40	0.095	11/05/12 09:35	11/05/12 12:28	10
Ammonium as NH4	mg/L	4.3	EPA 350.1	0.05	0.01		11/05/12 15:43	1
Carbonaceous BOD	mg/L	8	SM 5210B	2	2	10/26/12 15:00	10/31/12 08:23	1
Chloride	mg/L	50	EPA 300.0	0.20	0.050		10/29/12 15:57	1
Fluoride	mg/L	0.29	EPA 300.0	0.040	0.010		10/27/12 02:16	1
Nitrate (as N)	mg/L	2.7	EPA 300.0	0.04	0.01		10/27/12 02:16	1
Nitrite (as N)	mg/L	0.77	EPA 300.0	0.04	0.01		10/27/12 02:16	1

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

December 3, 2012
Work Order: 1211968

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**NO3 Pump Tank DUP**						
Matrix		**Wastewater**						
SAL Sample Number		**1211968-06**						
Date/Time Collected		**10/26/12 09:26**						
Collected by		**Travis Wright**						
Date/Time Received		**10/26/12 11:10**						
Orthophosphate as P	mg/L	2.1	EPA 300.0	0.040	0.010		10/27/12 02:16	1
Phosphorous - Total as P	mg/L	4.1	SM 4500P-E	0.40	0.10	10/30/12 11:03	11/02/12 12:19	10
Sulfate	mg/L	57	EPA 300.0	0.60	0.20		10/27/12 02:16	1
Total Alkalinity	mg/L	150	SM 2320B	8.0	2.0		10/29/12 09:13	1
Total Kjeldahl Nitrogen	mg/L	7.0	EPA 351.2	0.20	0.05	10/31/12 15:41	11/05/12 11:38	9.62
Total Solids	mg/L	420	SM 2540B	10	10	10/29/12 10:15	10/30/12 16:11	1
Total Suspended Solids	mg/L	1 U	SM 2540D	1	1	10/29/12 08:42	10/30/12 12:00	1
Nitrate+Nitrite (N)	mg/L	3.4	EPA 300.0	0.08	0.02		10/27/12 02:16	1
Metals								
Boron	mg/L	0.11	EPA 200.7	0.10	0.050	10/31/12 08:00	10/31/12 16:56	1
Calcium	mg/L	53	EPA 200.7	0.50	0.042	10/31/12 08:00	10/31/12 16:56	1
Iron	mg/L	0.052 I	EPA 200.7	0.10	0.020	10/31/12 08:00	10/31/12 16:56	1
Magnesium	mg/L	16	EPA 200.7	0.50	0.020	10/31/12 08:00	10/31/12 16:56	1
Manganese	mg/L	0.011	EPA 200.7	0.010	0.0010	10/31/12 08:00	10/31/12 16:56	1
Potassium	mg/L	17	EPA 200.7	0.050	0.010	10/31/12 08:00	10/31/12 16:56	1
Sodium	mg/L	43	EPA 200.7	0.50	0.13	10/31/12 08:00	10/31/12 16:56	1
Microbiology								
Fecal Coliforms	CFU/100 ml	300	SM 9222D	1	1	10/26/12 12:47	10/27/12 11:55	1

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

December 3, 2012
Work Order: 1211968

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22602 - BOD										
Blank (BJ22602-BLK1)					Prepared: 10/26/12 Analyzed: 10/31/12					
Carbonaceous BOD	2 U	2	2	mg/L						
Blank (BJ22602-BLK2)					Prepared: 10/26/12 Analyzed: 10/31/12					
Carbonaceous BOD	2 U	2	2	mg/L						
LCS (BJ22602-BS1)					Prepared: 10/26/12 Analyzed: 10/31/12					
Carbonaceous BOD	210	2	2	mg/L	200		105	85-115		
LCS (BJ22602-BS2)					Prepared: 10/26/12 Analyzed: 10/31/12					
Carbonaceous BOD	206	2	2	mg/L	200		103	85-115		
LCS Dup (BJ22602-BSD1)					Prepared: 10/26/12 Analyzed: 10/31/12					
Carbonaceous BOD	216	2	2	mg/L	200		108	85-115	3	200
LCS Dup (BJ22602-BSD2)					Prepared: 10/26/12 Analyzed: 10/31/12					
Carbonaceous BOD	195	2	2	mg/L	200		97	85-115	5	200
Duplicate (BJ22602-DUP1)		**Source: 1212351-01**			Prepared: 10/26/12 Analyzed: 10/31/12					
Carbonaceous BOD	2 U	2	2	mg/L		ND				25
Duplicate (BJ22602-DUP2)		**Source: 1211968-02**			Prepared: 10/26/12 Analyzed: 10/31/12					
Carbonaceous BOD	35	2	2	mg/L		32			8	25
Batch BJ22629 - Ion Chromatography 300.0 Prep										
Blank (BJ22629-BLK1)					Prepared & Analyzed: 10/27/12					
Orthophosphate as P	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						
Fluoride	0.010 U	0.040	0.010	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

December 3, 2012
Work Order: 1211968

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22629 - Ion Chromatography 300.0 Prep										
LCS (BJ22629-BS1)					Prepared & Analyzed: 10/27/12					
Fluoride	0.834	0.040	0.010	mg/L	0.90		93	85-115		
Orthophosphate as P	0.922	0.040	0.010	mg/L	0.90		102	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		
Sulfate	8.76	0.60	0.20	mg/L	9.0		97	85-115		
LCS Dup (BJ22629-BSD1)					Prepared & Analyzed: 10/27/12					
Sulfate	8.82	0.60	0.20	mg/L	9.0		98	85-115	0.7	200
Nitrate (as N)	1.69	0.04	0.01	mg/L	1.7		99	85-115	0.6	200
Nitrite (as N)	1.41	0.04	0.01	mg/L	1.4		101	85-115	0	200
Fluoride	0.884	0.040	0.010	mg/L	0.90		98	85-115	6	200
Orthophosphate as P	0.926	0.040	0.010	mg/L	0.90		103	85-115	0.4	200
Matrix Spike (BJ22629-MS1)		**Source: 1212361-07**			Prepared & Analyzed: 10/27/12					
Sulfate	15.4	0.60	0.20	mg/L	9.0	6.36	100	85-115		
Orthophosphate as P	0.831	0.040	0.010	mg/L	0.90	ND	92	85-115		
Fluoride	0.956	0.040	0.010	mg/L	0.90	0.0744	98	85-115		
Nitrate (as N)	1.66	0.04	0.01	mg/L	1.7	ND	98	85-115		
Nitrite (as N)	1.42	0.04	0.01	mg/L	1.4	ND	101	85-115		
Matrix Spike (BJ22629-MS2)		**Source: 1212434-01**			Prepared & Analyzed: 10/27/12					
Orthophosphate as P	19.5	0.040	0.010	mg/L	18		108	85-115		
Sulfate	243	0.60	0.20	mg/L	180	66.8	98	85-115		
Nitrite (as N)	28.4	0.04	0.01	mg/L	28		101	85-115		
Nitrate (as N)	42.4	0.04	0.01	mg/L	34	8.72	99	85-115		
Fluoride	18.7	0.040	0.010	mg/L	18		104	85-115		

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

December 3, 2012
Work Order: 1211968

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22902 - TSS prep										
Blank (BJ22902-BLK1)					Prepared: 10/29/12 Analyzed: 10/30/12					
Total Suspended Solids	1 U	1	1	mg/L						
Blank (BJ22902-BLK2)					Prepared: 10/29/12 Analyzed: 10/30/12					
Total Suspended Solids	1 U	1	1	mg/L						
LCS (BJ22902-BS1)					Prepared: 10/29/12 Analyzed: 10/30/12					
Total Suspended Solids	45.2	1	1	mg/L	50		90	85-115		
LCS (BJ22902-BS2)					Prepared: 10/29/12 Analyzed: 10/30/12					
Total Suspended Solids	44.5	1	1	mg/L	50		89	85-115		
Duplicate (BJ22902-DUP1)		**Source: 1212509-01**			Prepared: 10/29/12 Analyzed: 10/30/12					
Total Suspended Solids	13.0	1	1	mg/L		14.0			7	30
Duplicate (BJ22902-DUP2)		**Source: 1212509-02**			Prepared: 10/29/12 Analyzed: 10/30/12					
Total Suspended Solids	11.5	1	1	mg/L		9.00			24	30
Batch BJ22912 - TS prep										
Blank (BJ22912-BLK1)					Prepared: 10/29/12 Analyzed: 10/30/12					
Total Solids	19.9	10	10	mg/L						
Duplicate (BJ22912-DUP1)		**Source: 1211968-06**			Prepared: 10/29/12 Analyzed: 10/30/12					
Total Solids	420	10	10	mg/L		417			0.8	20
Batch BJ22930 - Ion Chromatography 300.0 Prep										
Blank (BJ22930-BLK1)					Prepared & Analyzed: 10/29/12					
Chloride	0.050 U	0.20	0.050	mg/L						

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

December 3, 2012
Work Order: 1211968

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22930 - Ion Chromatography 300.0 Prep										
LCS (BJ22930-BS1)					Prepared & Analyzed: 10/29/12					
Chloride	2.93	0.20	0.050	mg/L	3.0		98	85-115		
LCS Dup (BJ22930-BSD1)					Prepared & Analyzed: 10/29/12					
Chloride	2.92	0.20	0.050	mg/L	3.0		97	85-115	0.3	200
Matrix Spike (BJ22930-MS1)		**Source: 1211968-04**			Prepared & Analyzed: 10/29/12					
Nitrite (as N)	15.4	0.04	0.01	mg/L	14	1.60	99	85-115		
Nitrate (as N)	19.1	0.04	0.01	mg/L	17	1.95	101	85-115		
Chloride	81.6	0.20	0.050	mg/L	30	50.4	104	80-120		
Matrix Spike (BJ22930-MS2)		**Source: 1212597-01**			Prepared & Analyzed: 10/29/12					
Chloride	46.4 +O	0.20	0.050	mg/L	3.0	322	NR	80-120		
Batch BJ22947 - Digestion for TKN by EPA 351.2										
Blank (BJ22947-BLK1)					Prepared: 10/29/12 Analyzed: 10/31/12					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
LCS (BJ22947-BS1)					Prepared: 10/29/12 Analyzed: 10/31/12					
Total Kjeldahl Nitrogen	2.63	0.20	0.05	mg/L	2.5		104	90-110		
Matrix Spike (BJ22947-MS1)		**Source: 1212521-02**			Prepared: 10/29/12 Analyzed: 10/31/12					
Total Kjeldahl Nitrogen	3.14	0.20	0.05	mg/L	2.5	0.544	102	90-110		
Matrix Spike Dup (BJ22947-MSD1)		**Source: 1212521-02**			Prepared: 10/29/12 Analyzed: 10/31/12					
Total Kjeldahl Nitrogen	3.03	0.20	0.05	mg/L	2.5	0.544	98	90-110	3	20

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

December 3, 2012
Work Order: 1211968

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ23011 - Digestion for TP by EPA 365.2/SM4500PE										
Blank (BJ23011-BLK1)					Prepared: 10/30/12 Analyzed: 11/02/12					
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						
LCS (BJ23011-BS1)					Prepared: 10/30/12 Analyzed: 11/02/12					
Phosphorous - Total as P	0.805	0.040	0.010	mg/L	0.80		101	90-110		
Matrix Spike (BJ23011-MS1)		**Source: 1212559-07**			Prepared: 10/30/12 Analyzed: 11/02/12					
Phosphorous - Total as P	1.04	0.040	0.010	mg/L	1.0	0.0697	97	75-125		
Matrix Spike (BJ23011-MS2)		**Source: 1212584-01**			Prepared: 10/30/12 Analyzed: 11/02/12					
Phosphorous - Total as P	1.19	0.040	0.010	mg/L	1.0	0.227	97	75-125		
Matrix Spike Dup (BJ23011-MSD1)		**Source: 1212559-07**			Prepared: 10/30/12 Analyzed: 11/02/12					
Phosphorous - Total as P	1.03	0.040	0.010	mg/L	1.0	0.0697	96	75-125	0.3	25
Matrix Spike Dup (BJ23011-MSD2)		**Source: 1212584-01**			Prepared: 10/30/12 Analyzed: 11/02/12					
Phosphorous - Total as P	1.19	0.040	0.010	mg/L	1.0	0.227	97	75-125	0.04	25
Batch BJ23101 - alkalinity										
Blank (BJ23101-BLK1)					Prepared & Analyzed: 10/29/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
Blank (BJ23101-BLK2)					Prepared & Analyzed: 10/29/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
LCS (BJ23101-BS1)					Prepared & Analyzed: 10/29/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		

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

December 3, 2012
Work Order: 1211968

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ23101 - alkalinity										
LCS (BJ23101-BS2)					Prepared & Analyzed: 10/29/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		
Matrix Spike (BJ23101-MS1)		**Source: 1211968-05**			Prepared & Analyzed: 10/29/12					
Total Alkalinity	270	8.0	2.0	mg/L	120	150	95	80-120		
Matrix Spike (BJ23101-MS2)		**Source: 1212585-01**			Prepared & Analyzed: 10/29/12					
Total Alkalinity	280	8.0	2.0	mg/L	120	160	95	80-120		
Matrix Spike Dup (BJ23101-MSD1)		**Source: 1211968-05**			Prepared & Analyzed: 10/29/12					
Total Alkalinity	270	8.0	2.0	mg/L	120	150	95	80-120	0	26
Matrix Spike Dup (BJ23101-MSD2)		**Source: 1212585-01**			Prepared & Analyzed: 10/29/12					
Total Alkalinity	270	8.0	2.0	mg/L	120	160	86	80-120	4	26
Batch BJ23129 - Digestion for TKN by EPA 351.2										
Blank (BJ23129-BLK1)					Prepared: 10/31/12 Analyzed: 11/05/12					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
LCS (BJ23129-BS1)					Prepared: 10/31/12 Analyzed: 11/05/12					
Total Kjeldahl Nitrogen	2.58	0.20	0.05	mg/L	2.5		102	90-110		
Matrix Spike (BJ23129-MS1)		**Source: 1212554-02**			Prepared: 10/31/12 Analyzed: 11/05/12					
Total Kjeldahl Nitrogen	2.81	0.20	0.05	mg/L	2.5	0.519	90	90-110		
Matrix Spike (BJ23129-MS2)		**Source: 1212594-07**			Prepared: 10/31/12 Analyzed: 11/05/12					
Total Kjeldahl Nitrogen	3.28	0.20	0.05	mg/L	2.5	0.667	103	90-110		

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

December 3, 2012
Work Order: 1211968

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ23129 - Digestion for TKN by EPA 351.2										
Matrix Spike Dup (BJ23129-MSD1)		**Source: 1212554-02**			Prepared: 10/31/12 Analyzed: 11/05/12					
Total Kjeldahl Nitrogen	3.19	0.20	0.05	mg/L	2.5	0.519	105	90-110	13	20
Matrix Spike Dup (BJ23129-MSD2)		**Source: 1212594-07**			Prepared: 10/31/12 Analyzed: 11/05/12					
Total Kjeldahl Nitrogen	3.36	0.20	0.05	mg/L	2.5	0.667	106	90-110	2	20
Batch BK20509 - Ammonia by SEAL										
Blank (BK20509-BLK1)					Prepared & Analyzed: 11/05/12					
Ammonia as N	0.009 U	0.040	0.009	mg/L						
LCS (BK20509-BS1)					Prepared & Analyzed: 11/05/12					
Ammonia as N	0.55	0.040	0.009	mg/L	0.50		110	90-110		
Matrix Spike (BK20509-MS1)		**Source: 1212620-01**			Prepared & Analyzed: 11/05/12					
Ammonia as N	0.99	0.040	0.009	mg/L	0.50	ND	198	90-110		
Matrix Spike Dup (BK20509-MSD1)		**Source: 1212620-01**			Prepared & Analyzed: 11/05/12					
Ammonia as N	1.0	0.040	0.009	mg/L	0.50	ND	203	90-110	2	10
Batch BK22705 - Digestion for TKN by EPA 351.2										
Blank (BK22705-BLK1)					Prepared: 11/27/12 Analyzed: 11/30/12					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
LCS (BK22705-BS1)					Prepared: 11/27/12 Analyzed: 11/30/12					
Total Kjeldahl Nitrogen	2.55	0.20	0.05	mg/L	2.5		100	90-110		

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

December 3, 2012
Work Order: 1211968

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BK22705 - Digestion for TKN by EPA 351.2										
Matrix Spike (BK22705-MS1)		**Source: 1213368-27**			Prepared: 11/27/12 Analyzed: 11/30/12					
Total Kjeldahl Nitrogen	2.99	0.20	0.05	mg/L	2.5	0.674	91	90-110		
Matrix Spike (BK22705-MS2)		**Source: 1213571-07**			Prepared: 11/27/12 Analyzed: 11/30/12					
Total Kjeldahl Nitrogen	es at 90.1%	0.20	0.05	mg/L	2.5	0.728	89	90-110		
Matrix Spike Dup (BK22705-MSD1)		**Source: 1213368-27**			Prepared: 11/27/12 Analyzed: 11/30/12					
Total Kjeldahl Nitrogen	3.00	0.20	0.05	mg/L	2.5	0.674	92	90-110	0.5	20
Matrix Spike Dup (BK22705-MSD2)		**Source: 1213571-07**			Prepared: 11/27/12 Analyzed: 11/30/12					
Total Kjeldahl Nitrogen	3.24	0.20	0.05	mg/L	2.5	0.728	99	90-110	8	20

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

December 3, 2012
Work Order: 1211968

Metals - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22613 - Metals Preparation for EPA Method 200.7										
Blank (BJ22613-BLK1)					Prepared & Analyzed: 10/31/12					
Potassium	0.082	0.050	0.010	mg/L						
Iron	0.020 U	0.10	0.020	mg/L						
Calcium	0.042 U	0.50	0.042	mg/L						
Manganese	0.0010 U	0.010	0.0010	mg/L						
Boron	0.050 U	0.10	0.050	mg/L						
Sodium	0.13 U	0.50	0.13	mg/L						
Magnesium	0.020 U	0.50	0.020	mg/L						
LCS (BJ22613-BS1)					Prepared & Analyzed: 10/31/12					
Potassium	21	0.050	0.010	mg/L	20		105	85-115		
Calcium	21	0.50	0.042	mg/L	20		105	85-115		
Iron	8.5	0.10	0.020	mg/L	8.0		106	85-115		
Boron	0.41	0.10	0.050	mg/L	0.40		103	85-115		
Manganese	0.41	0.010	0.0010	mg/L	0.40		101	85-115		
Magnesium	21	0.50	0.020	mg/L	20		106	85-115		
Sodium	21	0.50	0.13	mg/L	20		107	85-115		
Matrix Spike (BJ22613-MS1)		**Source: 1212532-01**			Prepared & Analyzed: 10/31/12					
Boron	0.61	0.10	0.050	mg/L	0.40	0.19	104	70-130		
Manganese	0.40	0.010	0.0010	mg/L	0.40	ND	99	70-130		
Iron	8.3	0.10	0.020	mg/L	8.0	ND	104	70-130		
Magnesium	25	0.50	0.020	mg/L	20	4.9	100	70-130		
Sodium	86	0.50	0.13	mg/L	20	67	95	70-130		
Calcium	84	0.50	0.042	mg/L	20	62	111	70-130		
Potassium	33	0.050	0.010	mg/L	20	12	101	70-130		
Matrix Spike (BJ22613-MS2)		**Source: 1212532-02**			Prepared & Analyzed: 10/31/12					
Sodium	27	0.50	0.13	mg/L	20	6.0	104	70-130		
Manganese	0.42	0.010	0.0010	mg/L	0.40	0.0053	103	70-130		
Boron	0.44	0.10	0.050	mg/L	0.40	ND	111	70-130		
Magnesium	23	0.50	0.020	mg/L	20	2.6	104	70-130		
Potassium	22	0.050	0.010	mg/L	20	0.61	105	70-130		
Calcium	73	0.50	0.042	mg/L	20	52	108	70-130		
Iron	8.7	0.10	0.020	mg/L	8.0	0.050	108	70-130		

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

December 3, 2012
Work Order: 1211968

Metals - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22613 - Metals Preparation for EPA Method 200.7										
Matrix Spike Dup (BJ22613-MSD1)		**Source: 1212532-01**			Prepared & Analyzed: 10/31/12					
Sodium	87	0.50	0.13	mg/L	20	67	98	70-130	0.8	30
Manganese	0.41	0.010	0.0010	mg/L	0.40	ND	101	70-130	2	30
Iron	8.4	0.10	0.020	mg/L	8.0	ND	105	70-130	1	30
Boron	0.63	0.10	0.050	mg/L	0.40	0.19	109	70-130	3	30
Potassium	32	0.050	0.010	mg/L	20	12	100	70-130	0.7	30
Calcium	85	0.50	0.042	mg/L	20	62	115	70-130	1	30
Magnesium	25	0.50	0.020	mg/L	20	4.9	100	70-130	0.08	30
Matrix Spike Dup (BJ22613-MSD2)		**Source: 1212532-02**			Prepared & Analyzed: 10/31/12					
Magnesium	24	0.50	0.020	mg/L	20	2.6	107	70-130	2	30
Calcium	74	0.50	0.042	mg/L	20	52	112	70-130	1	30
Iron	8.6	0.10	0.020	mg/L	8.0	0.050	106	70-130	1	30
Manganese	0.41	0.010	0.0010	mg/L	0.40	0.0053	101	70-130	2	30
Boron	0.44	0.10	0.050	mg/L	0.40	ND	109	70-130	2	30
Sodium	27	0.50	0.13	mg/L	20	6.0	105	70-130	0.8	30
Potassium	22	0.050	0.010	mg/L	20	0.61	108	70-130	3	30

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

December 3, 2012
Work Order: 1211968

Microbiology - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22633 - FC-MF										
Blank (BJ22633-BLK1)					Prepared: 10/26/12 Analyzed: 10/27/12					
Fecal Coliforms	1 U	1	1	CFU/100 ml						
Duplicate (BJ22633-DUP1)		**Source: 1212553-01**			Prepared: 10/26/12 Analyzed: 10/27/12					
Fecal Coliforms	1 U	1	1	CFU/100 ml		ND				200

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

December 3, 2012
Work Order: 1211968

* 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.

Q Sample held beyond the accepted holding time.
+O Matrix spike source sample was over the reccommended range for the method.

Questions regarding this report should be directed to :

Kathryn Nordmark
Telephone (813) 855-1844 FAX (813) 855-2218
Kathryn@southernanalyticallabs.com

Kathryn@southernanalyticallabs.com

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

1211968

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: S&GW Test Facility SE #3 (STE & NO3)

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	250mL P, H_2SO_4 TKN, NH_4, TP	1LP, Cool Nox, Cl, Alkalinity, CBOD, TS, TSS	125mL P, $Na_2S_2O_3$ FC-MF	1LP, Cool NOx, Cl, SO_4, Alkalinity, CBOD, TS, TSS	250mL P, H_2SO_4 TKN, NH_4	1LP, Cool NOx, Cl, CBOD, TS, TSS	1LP, Cool NOx, Cl, SO_4, Alkalinity, CBOD, TS, TSS, F, OP	250mL P, HNO_3 B, Ca, Fe, Mg, Mn, K, Na					Field pH	Field Temperature	Field Conductivity	Field DO
01	PNRS II STE-Tank 1	10/26/12	08:58	WW		X	1	1	2										7.01	25.6	1115	.53
02	STE Pump Tank	10/26/12	0943	WW		X	1		2	1									7.56	26.8	983	.96
03	STE Pump Tank DUP	10/26/12	0947	WW		X	1		2	1									7.56	26.8	983	.96
04	NO3 Clarifier	10/26/12	0907	WW		X					1	1							7.46	25.9	643	1.56
05	NO3 Pump Tank	10/26/12	0921	WW		X	1		2				1	1					7.46	25.9	667	1.88
06	NO3 Pump Tank DUP	10/26/12	0926	WW		X	1		2				1	1					7.46	25.9	667	1.8

Containers Prepared/ Relinquished:	Date/Time:	Received:	Date/Time:
	1700 10/25/12		10-26-12 05:48
Relinquished:	Date/Time: 10-26-12 1110	Received:	Date/Time: 10-26-12 1110
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

Seal intact? Y N N/A

Samples intact upon arrival? Y N N/A

Received on ice? Temp_____ Y N N/A

Proper preservatives indicated? Y N N/A

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

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

Proper containers used? Y N N/A

Instructions / Remarks:

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

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

November 5, 2012
Work Order: 1211969

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**TA1-LY-24-C**						
Matrix		**Groundwater**						
SAL Sample Number		**1211969-03**						
Date/Time Collected		**10/15/12 14:05**						
Collected by		**Josephine Edeback-Hirst**						
Date/Time Received		**10/16/12 15:30**						
Field Parameters								
pH	SU	6.1	DEP FT1100	0.1	0.1		10/15/12 14:05	TJH
Water Temperature	°C	33.1	DEP FT1400	0.1	0.1		10/15/12 14:05	TJH
Specific conductance	umhos/cm	781	DEP FT1200	0.1	0.1		10/15/12 14:05	TJH
Dissolved Oxygen	mg/L	6.3	DEP FT1500	0.1	0.1		10/15/12 14:05	TJH
Inorganics								
Ammonia as N	mg/L	0.013 I	EPA 350.1	0.040	0.009		10/18/12 10:30	MMF
Ammonium as NH4	mg/L	0.02 I	EPA 350.1	0.05	0.01		10/25/12 16:05	KMM
Chloride	mg/L	51	EPA 300.0	0.20	0.050		10/16/12 16:49	JAG
Nitrate (as N)	mg/L	44	EPA 300.0	0.04	0.01		10/16/12 16:49	JAG
Nitrite (as N)	mg/L	0.05	EPA 300.0	0.04	0.01		10/16/12 16:49	JAG
Total Kjeldahl Nitrogen	mg/L	0.65	EPA 351.2	0.20	0.05	10/19/12 14:57	10/23/12 15:27	MMF
Nitrate+Nitrite (N)	mg/L	44	EPA 300.0	0.08	0.02		10/16/12 16:49	JAG

Sample Description		**TA1-LY-12-S**						
Matrix		**Groundwater**						
SAL Sample Number		**1211969-04**						
Date/Time Collected		**10/15/12 14:15**						
Collected by		**Josephine Edeback-Hirst**						
Date/Time Received		**10/16/12 15:30**						
Field Parameters								
pH	SU	6.7	DEP FT1100	0.1	0.1		10/15/12 14:15	TJH
Water Temperature	°C	31.9	DEP FT1400	0.1	0.1		10/15/12 14:15	TJH
Specific conductance	umhos/cm	866	DEP FT1200	0.1	0.1		10/15/12 14:15	TJH
Dissolved Oxygen	mg/L	6.4	DEP FT1500	0.1	0.1		10/15/12 14:15	TJH
Inorganics								
Ammonia as N	mg/L	0.010 I	EPA 350.1	0.040	0.009		10/25/12 11:07	MMF
Ammonium as NH4	mg/L	0.01 U	EPA 350.1	0.05	0.01		10/25/12 16:05	KMM
Chloride	mg/L	56	EPA 300.0	0.20	0.050		10/16/12 16:49	JAG
Nitrate (as N)	mg/L	48	EPA 300.0	0.04	0.01		10/16/12 16:49	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/16/12 16:49	JAG
Total Kjeldahl Nitrogen	mg/L	1.4	EPA 351.2	0.20	0.05	10/19/12 14:57	10/23/12 15:28	MMF
Nitrate+Nitrite (N)	mg/L	48	EPA 300.0	0.08	0.02		10/16/12 16:49	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

November 5, 2012
Work Order: 1211969

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**TA1-LY-24-S**						
Matrix		**Groundwater**						
SAL Sample Number		**1211969-05**						
Date/Time Collected		**10/15/12 14:20**						
Collected by		**Josephine Edeback-Hirst**						
Date/Time Received		**10/16/12 15:30**						
Field Parameters								
pH	SU	6.2	DEP FT1100	0.1	0.1		10/15/12 14:20	TJH
Water Temperature	°C	32.7	DEP FT1400	0.1	0.1		10/15/12 14:20	TJH
Specific conductance	umhos/cm	734	DEP FT1200	0.1	0.1		10/15/12 14:20	TJH
Dissolved Oxygen	mg/L	5.8	DEP FT1500	0.1	0.1		10/15/12 14:20	TJH
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/25/12 11:09	MMF
Ammonium as NH4	mg/L	0.01 U	EPA 350.1	0.05	0.01		10/25/12 16:05	KMM
Chemical Oxygen Demand	mg/L	20 I	EPA 410.4	25	10		10/24/12 12:30	ARM
Chloride	mg/L	49	EPA 300.0	0.20	0.050		10/16/12 16:49	JAG
Nitrate (as N)	mg/L	45	EPA 300.0	0.04	0.01		10/16/12 16:49	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/16/12 16:49	JAG
Phosphorous - Total as P	mg/L	0.24	SM 4500P-E	0.040	0.010	10/16/12 13:13	10/22/12 11:40	MMF
Total Alkalinity	mg/L	22	SM 2320B	8.0	2.0		10/16/12 08:00	TJH
Total Kjeldahl Nitrogen	mg/L	0.73	EPA 351.2	0.20	0.05	10/19/12 14:57	10/23/12 15:30	MMF
Nitrate+Nitrite (N)	mg/L	45	EPA 300.0	0.08	0.02		10/16/12 16:49	JAG
Sample Description		**TA1-LY-42-S**						
Matrix		**Groundwater**						
SAL Sample Number		**1211969-06**						
Date/Time Collected		**10/15/12 14:35**						
Collected by		**Josephine Edeback-Hirst**						
Date/Time Received		**10/16/12 15:30**						
Field Parameters								
pH	SU	5.6	DEP FT1100	0.1	0.1		10/15/12 14:35	TJH
Water Temperature	°C	30.9	DEP FT1400	0.1	0.1		10/15/12 14:35	TJH
Specific conductance	umhos/cm	816	DEP FT1200	0.1	0.1		10/15/12 14:35	TJH
Dissolved Oxygen	mg/L	5.5	DEP FT1500	0.1	0.1		10/15/12 14:35	TJH
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/25/12 11:11	MMF
Ammonium as NH4	mg/L	0.01 U	EPA 350.1	0.05	0.01		10/25/12 16:05	KMM
Chemical Oxygen Demand	mg/L	17 I	EPA 410.4	25	10	10/17/12 09:25	10/17/12 13:00	ARM
Chloride	mg/L	66	EPA 300.0	0.20	0.050		10/16/12 16:49	JAG
Nitrate (as N)	mg/L	53	EPA 300.0	0.04	0.01		10/16/12 16:49	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/16/12 16:49	JAG
Phosphorous - Total as P	mg/L	0.053	SM 4500P-E	0.040	0.010	10/25/12 10:24	10/29/12 12:11	MMF
Total Alkalinity	mg/L	9.4	SM 2320B	8.0	2.0		10/16/12 08:00	TJH
Total Kjeldahl Nitrogen	mg/L	0.74	EPA 351.2	0.20	0.05	10/19/12 14:57	10/23/12 15:32	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

November 5, 2012
Work Order: 1211969

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**TA1-LY-42-S**						
Matrix		**Groundwater**						
SAL Sample Number		**1211969-06**						
Date/Time Collected		**10/15/12 14:35**						
Collected by		**Josephine Edeback-Hirst**						
Date/Time Received		**10/16/12 15:30**						
Nitrate+Nitrite (N)	mg/L	53	EPA 300.0	0.08	0.02		10/16/12 16:49	JAG
Sample Description		**TA1-PZ-11-J4**						
Matrix		**Groundwater**						
SAL Sample Number		**1211969-07**						
Date/Time Collected		**10/18/12 11:27**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/18/12 15:30**						
Field Parameters								
pH	SU	4.7	DEP FT1100	0.1	0.1		10/18/12 11:27	TJH
Water Temperature	°C	27.6	DEP FT1400	0.1	0.1		10/18/12 11:27	TJH
Specific conductance	umhos/cm	233	DEP FT1200	0.1	0.1		10/18/12 11:27	TJH
Dissolved Oxygen	mg/L	1.1	DEP FT1500	0.1	0.1		10/18/12 11:27	TJH
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/25/12 11:13	MMF
Ammonium as NH4	mg/L	0.01 U	EPA 350.1	0.05	0.01		10/25/12 16:05	KMM
Chemical Oxygen Demand	mg/L	11 I	EPA 410.4	25	10	10/23/12 11:15	10/23/12 15:17	MMF
Chloride	mg/L	10	EPA 300.0	0.20	0.050		10/19/12 17:41	JAG
Nitrate (as N)	mg/L	4.7	EPA 300.0	0.04	0.01		10/19/12 17:41	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/19/12 17:41	JAG
Phosphorous - Total as P	mg/L	0.073	SM 4500P-E	0.040	0.010	10/25/12 10:24	10/29/12 12:12	MMF
Total Alkalinity	mg/L	2.0 U	SM 2320B	8.0	2.0		10/22/12 10:55	TJH
Total Kjeldahl Nitrogen	mg/L	0.76	EPA 351.2	0.20	0.05	10/19/12 14:57	10/23/12 15:33	MMF
Nitrate+Nitrite (N)	mg/L	4.7	EPA 300.0	0.08	0.02		10/19/12 17:41	JAG
Sample Description		**TA1-PZ-11-K4**						
Matrix		**Groundwater**						
SAL Sample Number		**1211969-08**						
Date/Time Collected		**10/18/12 11:55**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/18/12 15:30**						
Field Parameters								
pH	SU	4.7	DEP FT1100	0.1	0.1		10/18/12 11:55	TJH
Water Temperature	°C	27.8	DEP FT1400	0.1	0.1		10/18/12 11:55	TJH
Specific conductance	umhos/cm	231	DEP FT1200	0.1	0.1		10/18/12 11:55	TJH
Dissolved Oxygen	mg/L	1.3	DEP FT1500	0.1	0.1		10/18/12 11:55	TJH
Inorganics								

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

November 5, 2012
Work Order: 1211969

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**TA1-PZ-11-K4**						
Matrix		**Groundwater**						
SAL Sample Number		**1211969-08**						
Date/Time Collected		**10/18/12 11:55**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/18/12 15:30**						
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/25/12 11:15	MMF
Ammonium as NH4	mg/L	0.01 U	EPA 350.1	0.05	0.01		10/25/12 16:05	KMM
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	10/23/12 11:15	10/23/12 15:17	MMF
Chloride	mg/L	9.7	EPA 300.0	0.20	0.050		10/19/12 17:41	JAG
Nitrate (as N)	mg/L	4.8	EPA 300.0	0.04	0.01		10/19/12 17:41	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/19/12 17:41	JAG
Phosphorous - Total as P	mg/L	0.059	SM 4500P-E	0.040	0.010	10/25/12 10:24	10/29/12 12:13	MMF
Total Alkalinity	mg/L	2.0 U	SM 2320B	8.0	2.0		10/22/12 10:55	TJH
Total Kjeldahl Nitrogen	mg/L	1.0	EPA 351.2	0.20	0.05	10/19/12 14:57	10/23/12 15:35	MMF
Nitrate+Nitrite (N)	mg/L	4.8	EPA 300.0	0.08	0.02		10/19/12 17:41	JAG
Sample Description		**TA1-PZ-11-L3**						
Matrix		**Groundwater**						
SAL Sample Number		**1211969-11**						
Date/Time Collected		**10/18/12 13:55**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/18/12 15:30**						
Field Parameters								
pH	SU	4.8	DEP FT1100	0.1	0.1		10/18/12 13:55	TJH
Water Temperature	°C	27.7	DEP FT1400	0.1	0.1		10/18/12 13:55	TJH
Specific conductance	umhos/cm	406	DEP FT1200	0.1	0.1		10/18/12 13:55	TJH
Dissolved Oxygen	mg/L	2.0	DEP FT1500	0.1	0.1		10/18/12 13:55	TJH
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/25/12 11:17	MMF
Ammonium as NH4	mg/L	0.01 U	EPA 350.1	0.05	0.01		10/25/12 16:05	KMM
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	10/23/12 11:15	10/23/12 15:17	MMF
Chloride	mg/L	29	EPA 300.0	0.20	0.050		10/19/12 17:41	JAG
Nitrate (as N)	mg/L	17	EPA 300.0	0.04	0.01		10/19/12 17:41	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/19/12 17:41	JAG
Phosphorous - Total as P	mg/L	0.089	SM 4500P-E	0.040	0.010	10/25/12 10:24	10/29/12 12:15	MMF
Total Alkalinity	mg/L	2.1 I	SM 2320B	8.0	2.0		10/22/12 10:55	TJH
Total Kjeldahl Nitrogen	mg/L	1.1	EPA 351.2	0.20	0.05	10/19/12 14:57	10/23/12 15:37	MMF
Nitrate+Nitrite (N)	mg/L	17	EPA 300.0	0.08	0.02		10/19/12 17:41	JAG

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

November 5, 2012
Work Order: 1211969

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**TA1-PZ-11-L3 DUP**						
Matrix		**Groundwater**						
SAL Sample Number		**1211969-12**						
Date/Time Collected		**10/18/12 13:55**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/18/12 15:30**						
Field Parameters								
pH	SU	4.8	DEP FT1100	0.1	0.1		10/18/12 13:55	TJH
Water Temperature	°C	27.7	DEP FT1400	0.1	0.1		10/18/12 13:55	TJH
Specific conductance	umhos/cm	406	DEP FT1200	0.1	0.1		10/18/12 13:55	TJH
Dissolved Oxygen	mg/L	2.0	DEP FT1500	0.1	0.1		10/18/12 13:55	TJH
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/25/12 11:19	MMF
Ammonium as NH4	mg/L	0.01 U	EPA 350.1	0.05	0.01		10/25/12 16:05	KMM
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	10/23/12 11:15	10/23/12 15:17	MMF
Chloride	mg/L	29	EPA 300.0	0.20	0.050		10/19/12 17:41	JAG
Nitrate (as N)	mg/L	17	EPA 300.0	0.04	0.01		10/19/12 17:41	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/19/12 17:41	JAG
Phosphorous - Total as P	mg/L	0.094	SM 4500P-E	0.040	0.010	10/25/12 10:24	10/29/12 12:16	MMF
Total Alkalinity	mg/L	2.1 I	SM 2320B	8.0	2.0		10/22/12 10:55	TJH
Total Kjeldahl Nitrogen	mg/L	1.1	EPA 351.2	0.20	0.05	10/19/12 14:57	10/23/12 15:38	MMF
Nitrate+Nitrite (N)	mg/L	17	EPA 300.0	0.08	0.02		10/19/12 17:41	JAG
Sample Description		**TA1-PZ-11-L5**						
Matrix		**Groundwater**						
SAL Sample Number		**1211969-14**						
Date/Time Collected		**10/18/12 12:18**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/18/12 15:30**						
Field Parameters								
pH	SU	4.9	DEP FT1100	0.1	0.1		10/18/12 12:18	TJH
Water Temperature	°C	27.8	DEP FT1400	0.1	0.1		10/18/12 12:18	TJH
Specific conductance	umhos/cm	253	DEP FT1200	0.1	0.1		10/18/12 12:18	TJH
Dissolved Oxygen	mg/L	1.5	DEP FT1500	0.1	0.1		10/18/12 12:18	TJH
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/25/12 11:21	MMF
Ammonium as NH4	mg/L	0.01 U	EPA 350.1	0.05	0.01		10/25/12 16:05	KMM
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	10/23/12 11:15	10/23/12 15:17	MMF
Chloride	mg/L	11	EPA 300.0	0.20	0.050		10/19/12 17:41	JAG
Nitrate (as N)	mg/L	6.2	EPA 300.0	0.04	0.01		10/19/12 17:41	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/19/12 17:41	JAG
Phosphorous - Total as P	mg/L	0.044	SM 4500P-E	0.040	0.010	10/25/12 10:24	10/29/12 12:17	MMF
Total Alkalinity	mg/L	2.1 I	SM 2320B	8.0	2.0		10/22/12 10:55	TJH
Total Kjeldahl Nitrogen	mg/L	0.74	EPA 351.2	0.20	0.05	10/19/12 14:57	10/23/12 15:40	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

November 5, 2012
Work Order: 1211969

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**TA1-PZ-11-L5**						
Matrix		**Groundwater**						
SAL Sample Number		**1211969-14**						
Date/Time Collected		**10/18/12 12:18**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/18/12 15:30**						
Nitrate+Nitrite (N)	mg/L	6.2	EPA 300.0	0.08	0.02		10/19/12 17:41	JAG
Sample Description		**TA1-PZ-09-N3**						
Matrix		**Groundwater**						
SAL Sample Number		**1211969-15**						
Date/Time Collected		**10/18/12 12:43**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/18/12 15:30**						
Field Parameters								
pH	SU	6.3	DEP FT1100	0.1	0.1		10/18/12 12:43	TJH
Water Temperature	°C	28.6	DEP FT1400	0.1	0.1		10/18/12 12:43	TJH
Specific conductance	umhos/cm	665	DEP FT1200	0.1	0.1		10/18/12 12:43	TJH
Dissolved Oxygen	mg/L	2.9	DEP FT1500	0.1	0.1		10/18/12 12:43	TJH
Inorganics								
Ammonia as N	mg/L	0.085	EPA 350.1	0.040	0.009		10/25/12 12:51	MMF
Ammonium as NH4	mg/L	0.11	EPA 350.1	0.05	0.01		10/25/12 16:05	KMM
Chemical Oxygen Demand	mg/L	72	EPA 410.4	25	10		10/24/12 12:30	ARM
Chloride	mg/L	40	EPA 300.0	0.20	0.050		10/22/12 17:06	JAG
Fluoride	mg/L	0.014 I	EPA 300.0	0.040	0.010		10/19/12 17:41	JAG
Nitrate (as N)	mg/L	15	EPA 300.0	0.04	0.01		10/19/12 17:41	JAG
Nitrite (as N)	mg/L	0.30	EPA 300.0	0.04	0.01		10/19/12 17:41	JAG
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		10/19/12 17:41	JAG
Phosphorous - Total as P	mg/L	4.2	SM 4500P-E	0.20	0.050	10/25/12 10:24	10/29/12 13:09	MMF
Sulfate	mg/L	62	EPA 300.0	0.60	0.20		10/19/12 17:41	JAG
Total Alkalinity	mg/L	65	SM 2320B	8.0	2.0		10/22/12 10:55	TJH
Total Kjeldahl Nitrogen	mg/L	0.79	EPA 351.2	0.20	0.05	10/19/12 14:57	10/23/12 16:32	MMF
Total Organic Carbon	mg/L	18	SM 5310B	1.0	0.50		10/23/12 09:46	MEJ
Nitrate+Nitrite (N)	mg/L	16	EPA 300.0	0.08	0.02		10/19/12 17:41	JAG
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	16	SM 5310B	1.0	0.50		10/23/12 09:46	MEJ
Metals								
Boron	mg/L	0.062 I	EPA 200.7	0.10	0.050	10/22/12 08:00	10/23/12 14:41	VWC
Calcium	mg/L	31	EPA 200.7	0.50	0.042	10/22/12 08:00	10/23/12 14:41	VWC
Iron	mg/L	0.060 I	EPA 200.7	0.10	0.020	10/22/12 08:00	10/23/12 14:41	VWC
Magnesium	mg/L	7.7	EPA 200.7	0.50	0.020	10/22/12 08:00	10/23/12 14:41	VWC
Manganese	mg/L	0.054	EPA 200.7	0.010	0.0010	10/22/12 08:00	10/23/12 14:41	VWC
Potassium	mg/L	10	EPA 200.7	0.050	0.010	10/22/12 08:00	10/23/12 14:41	VWC
Sodium	mg/L	69	EPA 200.7	0.50	0.13	10/22/12 08:00	10/23/12 14:41	VWC

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

November 5, 2012
Work Order: 1211969

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**TA1-PZ-09-N3 DUP**						
Matrix		**Groundwater**						
SAL Sample Number		**1211969-16**						
Date/Time Collected		**10/18/12 12:43**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/18/12 15:30**						
Field Parameters								
pH	SU	6.3	DEP FT1100	0.1	0.1		10/18/12 12:43	TJH
Water Temperature	°C	28.6	DEP FT1400	0.1	0.1		10/18/12 12:43	TJH
Specific conductance	umhos/cm	665	DEP FT1200	0.1	0.1		10/18/12 12:43	TJH
Dissolved Oxygen	mg/L	2.9	DEP FT1500	0.1	0.1		10/18/12 12:43	TJH
Inorganics								
Ammonia as N	mg/L	0.080	EPA 350.1	0.040	0.009		10/25/12 12:53	MMF
Ammonium as NH4	mg/L	0.10	EPA 350.1	0.05	0.01		10/25/12 16:05	KMM
Chemical Oxygen Demand	mg/L	60	EPA 410.4	25	10		10/24/12 12:30	ARM
Chloride	mg/L	42	EPA 300.0	0.20	0.050		10/22/12 17:06	JAG
Fluoride	mg/L	0.020 I	EPA 300.0	0.040	0.010		10/19/12 17:41	JAG
Nitrate (as N)	mg/L	15	EPA 300.0	0.04	0.01		10/19/12 17:41	JAG
Nitrite (as N)	mg/L	0.29	EPA 300.0	0.04	0.01		10/19/12 17:41	JAG
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		10/19/12 17:41	JAG
Phosphorous - Total as P	mg/L	4.2	SM 4500P-E	0.20	0.050	10/25/12 10:24	10/29/12 13:09	MMF
Sulfate	mg/L	63	EPA 300.0	0.60	0.20		10/19/12 17:41	JAG
Total Alkalinity	mg/L	65	SM 2320B	8.0	2.0		10/22/12 10:55	TJH
Total Kjeldahl Nitrogen	mg/L	0.85	EPA 351.2	0.20	0.05	10/19/12 14:57	10/23/12 16:33	MMF
Total Organic Carbon	mg/L	18	SM 5310B	1.0	0.50		10/23/12 09:46	MEJ
Nitrate+Nitrite (N)	mg/L	16	EPA 300.0	0.08	0.02		10/19/12 17:41	JAG
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	15	SM 5310B	1.0	0.50		10/23/12 09:46	MEJ
Metals								
Boron	mg/L	0.054 I	EPA 200.7	0.10	0.050	10/22/12 08:00	10/23/12 14:45	VWC
Calcium	mg/L	33	EPA 200.7	0.50	0.042	10/22/12 08:00	10/23/12 14:45	VWC
Iron	mg/L	0.058 I	EPA 200.7	0.10	0.020	10/22/12 08:00	10/23/12 14:45	VWC
Magnesium	mg/L	7.8	EPA 200.7	0.50	0.020	10/22/12 08:00	10/23/12 14:45	VWC
Manganese	mg/L	0.055	EPA 200.7	0.010	0.0010	10/22/12 08:00	10/23/12 14:45	VWC
Potassium	mg/L	10	EPA 200.7	0.050	0.010	10/22/12 08:00	10/23/12 14:45	VWC
Sodium	mg/L	70	EPA 200.7	0.50	0.13	10/22/12 08:00	10/23/12 14:45	VWC

Sample Description	**TA1-PZ-16-N3**
Matrix	**Groundwater**
SAL Sample Number	**1211969-17**
Date/Time Collected	**10/18/12 13:35**
Collected by	**Ian Geraldi**
Date/Time Received	**10/18/12 15:30**

Field Parameters

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

November 5, 2012
Work Order: 1211969

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**TA1-PZ-16-N3**						
Matrix		**Groundwater**						
SAL Sample Number		**1211969-17**						
Date/Time Collected		**10/18/12 13:35**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/18/12 15:30**						
pH	SU	5.2	DEP FT1100	0.1	0.1		10/18/12 13:35	TJH
Water Temperature	°C	27.0	DEP FT1400	0.1	0.1		10/18/12 13:35	TJH
Specific conductance	umhos/cm	287	DEP FT1200	0.1	0.1		10/18/12 13:35	TJH
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		10/18/12 13:35	TJH
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/25/12 11:35	MMF
Ammonium as NH4	mg/L	0.01 U	EPA 350.1	0.05	0.01		10/25/12 16:05	KMM
Chloride	mg/L	14	EPA 300.0	0.20	0.050		10/19/12 17:41	JAG
Nitrate (as N)	mg/L	8.1	EPA 300.0	0.04	0.01		10/19/12 17:41	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/19/12 17:41	JAG
Total Kjeldahl Nitrogen	mg/L	0.83	EPA 351.2	0.20	0.05	10/19/12 14:57	10/23/12 15:51	MMF
Nitrate+Nitrite (N)	mg/L	8.1	EPA 300.0	0.08	0.02		10/19/12 17:41	JAG
Sample Description		**TA1-PZ-09-O7**						
Matrix		**Groundwater**						
SAL Sample Number		**1211969-18**						
Date/Time Collected		**10/18/12 10:25**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/18/12 15:30**						
Field Parameters								
pH	SU	5.6	DEP FT1100	0.1	0.1		10/18/12 10:25	TJH
Water Temperature	°C	26.9	DEP FT1400	0.1	0.1		10/18/12 10:25	TJH
Specific conductance	umhos/cm	282	DEP FT1200	0.1	0.1		10/18/12 10:25	TJH
Dissolved Oxygen	mg/L	0.9	DEP FT1500	0.1	0.1		10/18/12 10:25	TJH
Inorganics								
Ammonia as N	mg/L	0.020 I	EPA 350.1	0.040	0.009		10/25/12 11:37	MMF
Ammonium as NH4	mg/L	0.03 I	EPA 350.1	0.05	0.01		10/25/12 16:05	KMM
Chemical Oxygen Demand	mg/L	42	EPA 410.4	25	10		10/24/12 12:30	ARM
Chloride	mg/L	15	EPA 300.0	0.20	0.050		10/19/12 17:41	JAG
Nitrate (as N)	mg/L	4.6	EPA 300.0	0.04	0.01		10/19/12 17:41	JAG
Nitrite (as N)	mg/L	0.02 I	EPA 300.0	0.04	0.01		10/19/12 17:41	JAG
Phosphorous - Total as P	mg/L	1.8	SM 4500P-E	0.20	0.050	10/25/12 10:24	10/29/12 12:52	MMF
Total Alkalinity	mg/L	17	SM 2320B	8.0	2.0		10/22/12 10:55	TJH
Total Kjeldahl Nitrogen	mg/L	0.78	EPA 351.2	0.20	0.05	10/19/12 14:57	10/23/12 15:52	MMF
Nitrate+Nitrite (N)	mg/L	4.7	EPA 300.0	0.08	0.02		10/19/12 17:41	JAG

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

November 5, 2012
Work Order: 1211969

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**TA1-PZ-16-O7**						
Matrix		**Groundwater**						
SAL Sample Number		**1211969-19**						
Date/Time Collected		**10/18/12 10:59**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/18/12 15:30**						
Field Parameters								
pH	SU	5.2	DEP FT1100	0.1	0.1		10/18/12 10:59	TJH
Water Temperature	°C	26.7	DEP FT1400	0.1	0.1		10/18/12 10:59	TJH
Specific conductance	umhos/cm	319	DEP FT1200	0.1	0.1		10/18/12 10:59	TJH
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		10/18/12 10:59	TJH
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/25/12 11:39	MMF
Ammonium as NH4	mg/L	0.01 U	EPA 350.1	0.05	0.01		10/25/12 16:05	KMM
Chemical Oxygen Demand	mg/L	29	EPA 410.4	25	10	10/23/12 11:15	10/23/12 15:17	MMF
Chloride	mg/L	14	EPA 300.0	0.20	0.050		10/19/12 17:41	JAG
Nitrate (as N)	mg/L	9.7	EPA 300.0	0.04	0.01		10/19/12 17:41	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/19/12 17:41	JAG
Phosphorous - Total as P	mg/L	0.13	SM 4500P-E	0.040	0.010	10/25/12 10:24	10/29/12 12:22	MMF
Total Alkalinity	mg/L	5.2 I	SM 2320B	8.0	2.0		10/22/12 10:55	TJH
Total Kjeldahl Nitrogen	mg/L	0.22	EPA 351.2	0.20	0.05	10/19/12 14:57	10/23/12 16:34	MMF
Nitrate+Nitrite (N)	mg/L	9.7	EPA 300.0	0.08	0.02		10/19/12 17:41	JAG
Sample Description		**TA1-PZ-09-M9**						
Matrix		**Groundwater**						
SAL Sample Number		**1211969-20**						
Date/Time Collected		**10/18/12 09:15**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/18/12 15:30**						
Field Parameters								
pH	SU	6.0	DEP FT1100	0.1	0.1		10/18/12 09:15	TJH
Water Temperature	°C	26.5	DEP FT1400	0.1	0.1		10/18/12 09:15	TJH
Specific conductance	umhos/cm	242	DEP FT1200	0.1	0.1		10/18/12 09:15	TJH
Dissolved Oxygen	mg/L	2.5	DEP FT1500	0.1	0.1		10/18/12 09:15	TJH
Inorganics								
Ammonia as N	mg/L	0.038 I	EPA 350.1	0.040	0.009		10/25/12 11:41	MMF
Ammonium as NH4	mg/L	0.05	EPA 350.1	0.05	0.01		10/25/12 16:05	KMM
Chloride	mg/L	13	EPA 300.0	0.20	0.050		10/19/12 17:41	JAG
Nitrate (as N)	mg/L	7.2	EPA 300.0	0.04	0.01		10/19/12 17:41	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/19/12 17:41	JAG
Total Kjeldahl Nitrogen	mg/L	0.47	EPA 351.2	0.20	0.05	10/19/12 14:57	10/23/12 15:55	MMF
Nitrate+Nitrite (N)	mg/L	7.2	EPA 300.0	0.08	0.02		10/19/12 17:41	JAG

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

November 5, 2012
Work Order: 1211969

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**TA1-PZ-16-M9**						
Matrix		**Groundwater**						
SAL Sample Number		**1211969-21**						
Date/Time Collected		**10/18/12 09:50**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/18/12 15:30**						
Field Parameters								
pH	SU	5.2	DEP FT1100	0.1	0.1		10/18/12 09:50	TJH
Water Temperature	°C	26.5	DEP FT1400	0.1	0.1		10/18/12 09:50	TJH
Specific conductance	umhos/cm	313	DEP FT1200	0.1	0.1		10/18/12 09:50	TJH
Dissolved Oxygen	mg/L	0.5	DEP FT1500	0.1	0.1		10/18/12 09:50	TJH
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/25/12 11:43	MMF
Ammonium as NH4	mg/L	0.01 U	EPA 350.1	0.05	0.01		10/25/12 16:05	KMM
Chloride	mg/L	14	EPA 300.0	0.20	0.050		10/19/12 17:41	JAG
Nitrate (as N)	mg/L	11	EPA 300.0	0.04	0.01		10/19/12 17:41	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/19/12 17:41	JAG
Total Kjeldahl Nitrogen	mg/L	0.63	EPA 351.2	0.20	0.05	10/19/12 14:57	10/23/12 15:56	MMF
Nitrate+Nitrite (N)	mg/L	11	EPA 300.0	0.08	0.02		10/19/12 17:41	JAG

Sample Description		**TA1-PZ-09-I7**						
Matrix		**Groundwater**						
SAL Sample Number		**1211969-22**						
Date/Time Collected		**10/18/12 08:10**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/18/12 15:30**						
Field Parameters								
pH	SU	5.5	DEP FT1100	0.1	0.1		10/18/12 08:10	TJH
Water Temperature	°C	25.7	DEP FT1400	0.1	0.1		10/18/12 08:10	TJH
Specific conductance	umhos/cm	209	DEP FT1200	0.1	0.1		10/18/12 08:10	TJH
Dissolved Oxygen	mg/L	3.5	DEP FT1500	0.1	0.1		10/18/12 08:10	TJH
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/25/12 11:45	MMF
Ammonium as NH4	mg/L	0.01 U	EPA 350.1	0.05	0.01		10/25/12 16:05	KMM
Chloride	mg/L	7.3	EPA 300.0	0.20	0.050		10/19/12 17:41	JAG
Nitrate (as N)	mg/L	9.9	EPA 300.0	0.04	0.01		10/19/12 17:41	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/19/12 17:41	JAG
Total Kjeldahl Nitrogen	mg/L	0.44	EPA 351.2	0.20	0.05	10/19/12 14:57	10/23/12 16:36	MMF
Nitrate+Nitrite (N)	mg/L	9.9	EPA 300.0	0.08	0.02		10/19/12 17:41	JAG

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

November 5, 2012
Work Order: 1211969

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**TA1-PZ-16-I7**						
Matrix		**Groundwater**						
SAL Sample Number		**1211969-23**						
Date/Time Collected		**10/18/12 08:50**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/18/12 15:30**						
Field Parameters								
pH	SU	5.2	DEP FT1100	0.1	0.1		10/18/12 08:50	TJH
Water Temperature	°C	26.1	DEP FT1400	0.1	0.1		10/18/12 08:50	TJH
Specific conductance	umhos/cm	311	DEP FT1200	0.1	0.1		10/18/12 08:50	TJH
Dissolved Oxygen	mg/L	0.3	DEP FT1500	0.1	0.1		10/18/12 08:50	TJH
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/25/12 11:46	MMF
Ammonium as NH4	mg/L	0.01 U	EPA 350.1	0.05	0.01		10/25/12 16:05	KMM
Chloride	mg/L	16	EPA 300.0	0.20	0.050		10/19/12 17:41	JAG
Nitrate (as N)	mg/L	12	EPA 300.0	0.04	0.01		10/19/12 17:41	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/19/12 17:41	JAG
Total Kjeldahl Nitrogen	mg/L	2.0	EPA 351.2	0.20	0.05	10/22/12 15:15	10/24/12 10:09	MMF
Nitrate+Nitrite (N)	mg/L	12	EPA 300.0	0.08	0.02		10/19/12 17:41	JAG

Sample Description		**TA1-PZ-09-RS16**						
Matrix		**Groundwater**						
SAL Sample Number		**1211969-24**						
Date/Time Collected		**10/17/12 12:40**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/18/12 14:25**						
Field Parameters								
pH	SU	6.1	DEP FT1100	0.1	0.1		10/17/12 12:40	TJH
Water Temperature	°C	26.6	DEP FT1400	0.1	0.1		10/17/12 12:40	TJH
Specific conductance	umhos/cm	189	DEP FT1200	0.1	0.1		10/17/12 12:40	TJH
Dissolved Oxygen	mg/L	0.6	DEP FT1500	0.1	0.1		10/17/12 12:40	TJH
Inorganics								
Ammonia as N	mg/L	0.057	EPA 350.1	0.040	0.009		10/23/12 11:02	MMF
Ammonium as NH4	mg/L	0.07	EPA 350.1	0.05	0.01		10/24/12 15:47	MMF
Chloride	mg/L	6.8	EPA 300.0	0.20	0.050		10/18/12 17:38	JAG
Nitrate (as N)	mg/L	3.3	EPA 300.0	0.04	0.01		10/18/12 17:38	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/18/12 17:38	JAG
Total Kjeldahl Nitrogen	mg/L	0.99	EPA 351.2	0.20	0.05	10/22/12 15:15	10/24/12 10:10	MMF
Nitrate+Nitrite (N)	mg/L	3.3	EPA 300.0	0.08	0.02		10/18/12 17:38	JAG

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

November 5, 2012
Work Order: 1211969

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**TA1-PZ-16-RS16**						
Matrix		**Groundwater**						
SAL Sample Number		**1211969-25**						
Date/Time Collected		**10/17/12 13:15**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/17/12 14:25**						
Field Parameters								
pH	SU	5.9	DEP FT1100	0.1	0.1		10/17/12 13:15	TJH
Water Temperature	°C	26.4	DEP FT1400	0.1	0.1		10/17/12 13:15	TJH
Specific conductance	umhos/cm	323	DEP FT1200	0.1	0.1		10/17/12 13:15	TJH
Dissolved Oxygen	mg/L	0.1	DEP FT1500	0.1	0.1		10/17/12 13:15	TJH
Inorganics								
Ammonia as N	mg/L	0.033 I	EPA 350.1	0.040	0.009		10/25/12 11:48	MMF
Ammonium as NH4	mg/L	0.04 I	EPA 350.1	0.05	0.01		10/29/12 16:36	MMF
Chloride	mg/L	13	EPA 300.0	0.20	0.050		10/18/12 17:38	JAG
Nitrate (as N)	mg/L	7.9	EPA 300.0	0.04	0.01		10/18/12 17:38	JAG
Nitrite (as N)	mg/L	0.03 I	EPA 300.0	0.04	0.01		10/18/12 17:38	JAG
Total Kjeldahl Nitrogen	mg/L	1.7	EPA 351.2	0.20	0.05	10/22/12 15:15	10/24/12 10:12	MMF
Nitrate+Nitrite (N)	mg/L	7.9	EPA 300.0	0.08	0.02		10/18/12 17:38	JAG

Sample Description		**TA1-PZ-09-RS18**						
Matrix		**Groundwater**						
SAL Sample Number		**1211969-26**						
Date/Time Collected		**10/17/12 11:30**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/17/12 14:25**						
Field Parameters								
pH	SU	5.8	DEP FT1100	0.1	0.1		10/17/12 11:30	TJH
Water Temperature	°C	26.5	DEP FT1400	0.1	0.1		10/17/12 11:30	TJH
Specific conductance	umhos/cm	200	DEP FT1200	0.1	0.1		10/17/12 11:30	TJH
Dissolved Oxygen	mg/L	0.6	DEP FT1500	0.1	0.1		10/17/12 11:30	TJH
Inorganics								
Ammonia as N	mg/L	0.036 I	EPA 350.1	0.040	0.009		10/25/12 11:50	MMF
Ammonium as NH4	mg/L	0.05	EPA 350.1	0.05	0.01		10/29/12 16:36	MMF
Chloride	mg/L	8.2	EPA 300.0	0.20	0.050		10/18/12 17:38	JAG
Nitrate (as N)	mg/L	6.7	EPA 300.0	0.04	0.01		10/18/12 17:38	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/18/12 17:38	JAG
Total Kjeldahl Nitrogen	mg/L	1.7	EPA 351.2	0.20	0.05	10/22/12 15:15	10/24/12 10:14	MMF
Nitrate+Nitrite (N)	mg/L	6.7	EPA 300.0	0.08	0.02		10/18/12 17:38	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

November 5, 2012
Work Order: 1211969

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**TA1-PZ-16-RS18**						
Matrix		**Groundwater**						
SAL Sample Number		**1211969-27**						
Date/Time Collected		**10/17/12 12:15**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/17/12 14:25**						
Field Parameters								
pH	SU	5.7	DEP FT1100	0.1	0.1		10/17/12 12:15	TJH
Water Temperature	°C	26.3	DEP FT1400	0.1	0.1		10/17/12 12:15	TJH
Specific conductance	umhos/cm	317	DEP FT1200	0.1	0.1		10/17/12 12:15	TJH
Dissolved Oxygen	mg/L	0.1	DEP FT1500	0.1	0.1		10/17/12 12:15	TJH
Inorganics								
Ammonia as N	mg/L	0.019 I	EPA 350.1	0.040	0.009		10/25/12 11:51	MMF
Ammonium as NH4	mg/L	0.02 I	EPA 350.1	0.05	0.01		10/29/12 16:36	MMF
Chloride	mg/L	12	EPA 300.0	0.20	0.050		10/18/12 17:38	JAG
Nitrate (as N)	mg/L	7.0	EPA 300.0	0.04	0.01		10/18/12 17:38	JAG
Nitrite (as N)	mg/L	0.02 I	EPA 300.0	0.04	0.01		10/18/12 17:38	JAG
Total Kjeldahl Nitrogen	mg/L	0.33	EPA 351.2	0.20	0.05	10/22/12 15:15	10/24/12 10:15	MMF
Nitrate+Nitrite (N)	mg/L	7.0	EPA 300.0	0.08	0.02		10/18/12 17:38	JAG

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

November 5, 2012
Work Order: 1211969

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21602 - alkalinity										
Blank (BJ21602-BLK1)					Prepared & Analyzed: 10/16/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
Blank (BJ21602-BLK2)					Prepared & Analyzed: 10/16/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
LCS (BJ21602-BS1)					Prepared & Analyzed: 10/16/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		
LCS (BJ21602-BS2)					Prepared & Analyzed: 10/16/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		
Matrix Spike (BJ21602-MS1)		**Source: 1211978-02**			Prepared & Analyzed: 10/16/12					
Total Alkalinity	190	8.0	2.0	mg/L	120	75	95	80-120		
Matrix Spike (BJ21602-MS2)		**Source: 1211987-01**			Prepared & Analyzed: 10/16/12					
Total Alkalinity	260	8.0	2.0	mg/L	120	140	95	80-120		
Matrix Spike Dup (BJ21602-MSD1)		**Source: 1211978-02**			Prepared & Analyzed: 10/16/12					
Total Alkalinity	190	8.0	2.0	mg/L	120	75	95	80-120	0	26
Matrix Spike Dup (BJ21602-MSD2)		**Source: 1211987-01**			Prepared & Analyzed: 10/16/12					
Total Alkalinity	250	8.0	2.0	mg/L	120	140	86	80-120	4	26
Batch BJ21618 - Ion Chromatography 300.0 Prep										
Blank (BJ21618-BLK1)					Prepared & Analyzed: 10/16/12					
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						

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

November 5, 2012
Work Order: 1211969

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21618 - Ion Chromatography 300.0 Prep										
LCS (BJ21618-BS1)					Prepared & Analyzed: 10/16/12					
Nitrite (as N)	1.37	0.04	0.01	mg/L	1.4		98	85-115		
LCS Dup (BJ21618-BSD1)					Prepared & Analyzed: 10/16/12					
Nitrite (as N)	1.39	0.04	0.01	mg/L	1.4		99	85-115	1	200
Matrix Spike (BJ21618-MS1)		**Source: 1211976-03**			Prepared & Analyzed: 10/16/12					
Nitrite (as N)	1.41	0.04	0.01	mg/L	1.4	ND	101	85-115		
Matrix Spike (BJ21618-MS2)		**Source: 1211978-08**			Prepared & Analyzed: 10/16/12					
Nitrite (as N)	1.42	0.04	0.01	mg/L	1.4	ND	101	85-115		
Batch BJ21631 - Digestion for TP by EPA 365.2/SM4500PE										
Blank (BJ21631-BLK1)					Prepared: 10/16/12 Analyzed: 10/22/12					
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						
LCS (BJ21631-BS1)					Prepared: 10/16/12 Analyzed: 10/22/12					
Phosphorous - Total as P	0.872	0.040	0.010	mg/L	0.80		109	90-110		
Matrix Spike (BJ21631-MS1)		**Source: 1211944-07**			Prepared: 10/16/12 Analyzed: 10/22/12					
Phosphorous - Total as P	1.04	0.040	0.010	mg/L	1.0	0.0811	96	75-125		
Matrix Spike (BJ21631-MS2)		**Source: 1212006-07**			Prepared: 10/16/12 Analyzed: 10/22/12					
Phosphorous - Total as P	1.10	0.040	0.010	mg/L	1.0	0.0961	100	75-125		
Matrix Spike Dup (BJ21631-MSD1)		**Source: 1211944-07**			Prepared: 10/16/12 Analyzed: 10/22/12					
Phosphorous - Total as P	1.10	0.040	0.010	mg/L	1.0	0.0811	102	75-125	6	25

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

November 5, 2012
Work Order: 1211969

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21631 - Digestion for TP by EPA 365.2/SM4500PE										
Matrix Spike Dup (BJ21631-MSD2)		**Source: 1212006-07**			Prepared: 10/16/12 Analyzed: 10/22/12					
Phosphorous - Total as P	1.15	0.040	0.010	mg/L	1.0	0.0961	106	75-125	5	25
Batch BJ21706 - Ion Chromatography 300.0 Prep										
Blank (BJ21706-BLK1)					Prepared & Analyzed: 10/17/12					
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
Chloride	0.050 U	0.20	0.050	mg/L						
LCS (BJ21706-BS1)					Prepared & Analyzed: 10/17/12					
Chloride	3.07	0.20	0.050	mg/L	3.0		102	85-115		
Nitrate (as N)	1.66	0.04	0.01	mg/L	1.7		98	85-115		
LCS Dup (BJ21706-BSD1)					Prepared & Analyzed: 10/17/12					
Chloride	2.77	0.20	0.050	mg/L	3.0		92	85-115	10	200
Nitrate (as N)	1.66	0.04	0.01	mg/L	1.7		98	85-115	0	200
Matrix Spike (BJ21706-MS1)		**Source: 1211971-10**			Prepared & Analyzed: 10/17/12					
Chloride	31.2	0.20	0.050	mg/L	3.0	28.1	103	80-120		
Nitrate (as N)	17.1	0.04	0.01	mg/L	1.7	15.3	106	85-115		
Matrix Spike (BJ21706-MS2)		**Source: 1211971-20**			Prepared & Analyzed: 10/17/12					
Nitrate (as N)	15.0	0.04	0.01	mg/L	1.7	13.5	88	85-115		
Chloride	33.1 +O	0.20	0.050	mg/L	3.0	30.6	83	80-120		
Batch BJ21711 - Ammonia by SEAL										
Blank (BJ21711-BLK1)					Prepared & Analyzed: 10/18/12					
Ammonia as N	0.009 U	0.040	0.009	mg/L						

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

November 5, 2012
Work Order: 1211969

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21711 - Ammonia by SEAL										
LCS (BJ21711-BS1)					Prepared & Analyzed: 10/18/12					
Ammonia as N	0.48	0.040	0.009	mg/L	0.50		96	90-110		
Matrix Spike (BJ21711-MS1)		**Source: 1211887-07**			Prepared & Analyzed: 10/18/12					
Ammonia as N	0.51	0.040	0.009	mg/L	0.50	0.043	94	90-110		
Matrix Spike (BJ21711-MS2)		**Source: 1212006-07**			Prepared & Analyzed: 10/18/12					
Ammonia as N	0.52	0.040	0.009	mg/L	0.50	0.031	98	90-110		
Matrix Spike Dup (BJ21711-MSD1)		**Source: 1211887-07**			Prepared & Analyzed: 10/18/12					
Ammonia as N	0.50	0.040	0.009	mg/L	0.50	0.043	91	90-110	2	10
Matrix Spike Dup (BJ21711-MSD2)		**Source: 1212006-07**			Prepared & Analyzed: 10/18/12					
Ammonia as N	0.52	0.040	0.009	mg/L	0.50	0.031	98	90-110	0.1	10
Batch BJ21815 - Ion Chromatography 300.0 Prep										
Blank (BJ21815-BLK1)					Prepared & Analyzed: 10/18/12					
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 (BJ21815-BS1)					Prepared & Analyzed: 10/18/12					
Nitrate (as N)	1.67	0.04	0.01	mg/L	1.7		98	85-115		
Chloride	2.84	0.20	0.050	mg/L	3.0		95	85-115		
Nitrite (as N)	1.41	0.04	0.01	mg/L	1.4		101	85-115		
LCS Dup (BJ21815-BSD1)					Prepared & Analyzed: 10/18/12					
Nitrate (as N)	1.65	0.04	0.01	mg/L	1.7		97	85-115	1	200
Chloride	2.79	0.20	0.050	mg/L	3.0		93	85-115	2	200
Nitrite (as N)	1.37	0.04	0.01	mg/L	1.4		98	85-115	3	200

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

November 5, 2012
Work Order: 1211969

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21815 - Ion Chromatography 300.0 Prep										
Matrix Spike (BJ21815-MS1)		**Source: 1211976-19**			Prepared & Analyzed: 10/18/12					
Nitrate (as N)	10.4	0.04	0.01	mg/L	1.7	8.64	104	85-115		
Nitrite (as N)	1.34	0.04	0.01	mg/L	1.4	ND	96	85-115		
Chloride	15.9	0.20	0.050	mg/L	3.0	13.0	97	80-120		
Matrix Spike (BJ21815-MS2)		**Source: 1211983-06**			Prepared & Analyzed: 10/18/12					
Nitrate (as N)	11.1	0.04	0.01	mg/L	1.7	9.29	106	85-115		
Chloride	18.9	0.20	0.050	mg/L	3.0	15.7	107	80-120		
Nitrite (as N)	1.39	0.04	0.01	mg/L	1.4	ND	99	85-115		
Batch BJ21915 - COD prep										
Blank (BJ21915-BLK1)					Prepared & Analyzed: 10/17/12					
Chemical Oxygen Demand	10 U	25	10	mg/L						
LCS (BJ21915-BS1)					Prepared & Analyzed: 10/17/12					
Chemical Oxygen Demand	54	25	10	mg/L	50		108	90-110		
Matrix Spike (BJ21915-MS1)		**Source: 1211969-06**			Prepared & Analyzed: 10/17/12					
Chemical Oxygen Demand	67	25	10	mg/L	50	17	100	85-115		
Matrix Spike Dup (BJ21915-MSD1)		**Source: 1211969-06**			Prepared & Analyzed: 10/17/12					
Chemical Oxygen Demand	63	25	10	mg/L	50	17	92	85-115	6	32
Batch BJ21917 - Ion Chromatography 300.0 Prep										
Blank (BJ21917-BLK1)					Prepared & Analyzed: 10/19/12					
Sulfate	0.20 U	0.60	0.20	mg/L						
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						
Fluoride	0.010 U	0.040	0.010	mg/L						
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
Orthophosphate as P	0.010 U	0.040	0.010	mg/L						
Chloride	0.050 U	0.20	0.050	mg/L						

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

November 5, 2012
Work Order: 1211969

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21917 - Ion Chromatography 300.0 Prep										
LCS (BJ21917-BS1)					Prepared & Analyzed: 10/19/12					
Orthophosphate as P	0.894	0.040	0.010	mg/L	0.90		99	85-115		
Nitrite (as N)	1.37	0.04	0.01	mg/L	1.4		98	85-115		
Chloride	2.76	0.20	0.050	mg/L	3.0		92	85-115		
Fluoride	0.900	0.040	0.010	mg/L	0.90		100	85-115		
Nitrate (as N)	1.65	0.04	0.01	mg/L	1.7		97	85-115		
Sulfate	8.64	0.60	0.20	mg/L	9.0		96	85-115		
LCS Dup (BJ21917-BSD1)					Prepared & Analyzed: 10/19/12					
Sulfate	8.73	0.60	0.20	mg/L	9.0		97	85-115	1	200
Fluoride	0.895	0.040	0.010	mg/L	0.90		99	85-115	0.6	200
Nitrite (as N)	1.37	0.04	0.01	mg/L	1.4		98	85-115	0	200
Nitrate (as N)	1.66	0.04	0.01	mg/L	1.7		98	85-115	0.6	200
Chloride	2.75	0.20	0.050	mg/L	3.0		92	85-115	0.4	200
Orthophosphate as P	0.917	0.040	0.010	mg/L	0.90		102	85-115	3	200
Matrix Spike (BJ21917-MS1)		**Source: 1211969-19**			Prepared & Analyzed: 10/19/12					
Nitrite (as N)	1.34	0.04	0.01	mg/L	1.4	ND	96	85-115		
Nitrate (as N)	11.5	0.04	0.01	mg/L	1.7	9.73	104	85-115		
Sulfate	65.5	0.60	0.20	mg/L	9.0	56.7	98	85-115		
Fluoride	0.862	0.040	0.010	mg/L	0.90	ND	96	85-115		
Chloride	17.3	0.20	0.050	mg/L	3.0	14.3	100	80-120		
Orthophosphate as P	0.817	0.040	0.010	mg/L	0.90	ND	91	85-115		
Matrix Spike (BJ21917-MS2)		**Source: 1212257-02**			Prepared & Analyzed: 10/19/12					
Fluoride	1.01	0.040	0.010	mg/L	0.90	0.168	94	85-115		
Nitrate (as N)	4.10	0.04	0.01	mg/L	1.7	2.40	100	85-115		
Orthophosphate as P	2.77	0.040	0.010	mg/L	0.90	1.86	101	85-115		
Nitrite (as N)	1.31	0.04	0.01	mg/L	1.4	ND	94	85-115		
Sulfate	35.5	0.60	0.20	mg/L	9.0	26.7	98	85-115		
Chloride	44.2 +O	0.20	0.050	mg/L	3.0	44.2	0	80-120		

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

November 5, 2012
Work Order: 1211969

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21936 - Digestion for TKN by EPA 351.2										
Blank (BJ21936-BLK1)					Prepared: 10/19/12 Analyzed: 10/23/12					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
LCS (BJ21936-BS1)					Prepared: 10/19/12 Analyzed: 10/23/12					
Total Kjeldahl Nitrogen	2.68	0.20	0.05	mg/L	2.5		106	90-110		
Matrix Spike (BJ21936-MS1)		**Source: 1211969-03**			Prepared: 10/19/12 Analyzed: 10/23/12					
Total Kjeldahl Nitrogen	2.98	0.20	0.05	mg/L	2.5	0.645	92	90-110		
Matrix Spike (BJ21936-MS2)		**Source: 1211969-22**			Prepared: 10/19/12 Analyzed: 10/23/12					
Total Kjeldahl Nitrogen	3.01	0.20	0.05	mg/L	2.5	0.439	102	90-110		
Matrix Spike Dup (BJ21936-MSD1)		**Source: 1211969-03**			Prepared: 10/19/12 Analyzed: 10/23/12					
Total Kjeldahl Nitrogen	2.97	0.20	0.05	mg/L	2.5	0.645	92	90-110	0.3	20
Matrix Spike Dup (BJ21936-MSD2)		**Source: 1211969-22**			Prepared: 10/19/12 Analyzed: 10/23/12					
Total Kjeldahl Nitrogen	3.07	0.20	0.05	mg/L	2.5	0.439	104	90-110	2	20
Batch BJ22005 - alkalinity										
Blank (BJ22005-BLK1)					Prepared & Analyzed: 10/22/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
Blank (BJ22005-BLK2)					Prepared & Analyzed: 10/22/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
LCS (BJ22005-BS1)					Prepared & Analyzed: 10/22/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		

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

November 5, 2012
Work Order: 1211969

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22005 - alkalinity										
LCS (BJ22005-BS2)					Prepared & Analyzed: 10/22/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		
Matrix Spike (BJ22005-MS1)		**Source: 1212290-02**			Prepared & Analyzed: 10/22/12					
Total Alkalinity	190	8.0	2.0	mg/L	120	75	95	80-120		
Matrix Spike (BJ22005-MS2)		**Source: 1211976-16**			Prepared & Analyzed: 10/22/12					
Total Alkalinity	180	8.0	2.0	mg/L	120	65	95	80-120		
Matrix Spike Dup (BJ22005-MSD1)		**Source: 1212290-02**			Prepared & Analyzed: 10/22/12					
Total Alkalinity	190	8.0	2.0	mg/L	120	75	95	80-120	0	26
Matrix Spike Dup (BJ22005-MSD2)		**Source: 1211976-16**			Prepared & Analyzed: 10/22/12					
Total Alkalinity	180	8.0	2.0	mg/L	120	65	95	80-120	0	26
Batch BJ22233 - Ion Chromatography 300.0 Prep										
Blank (BJ22233-BLK1)					Prepared & Analyzed: 10/22/12					
Chloride	0.050 U	0.20	0.050	mg/L						
LCS (BJ22233-BS1)					Prepared & Analyzed: 10/22/12					
Chloride	2.83	0.20	0.050	mg/L	3.0		94	85-115		
LCS Dup (BJ22233-BSD1)					Prepared & Analyzed: 10/22/12					
Chloride	2.83	0.20	0.050	mg/L	3.0		94	85-115	0	200
Matrix Spike (BJ22233-MS1)		**Source: 1212008-02**			Prepared & Analyzed: 10/22/12					
Chloride	110	0.20	0.050	mg/L	30	77.5	108	80-120		

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

November 5, 2012
Work Order: 1211969

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22233 - Ion Chromatography 300.0 Prep										
Matrix Spike (BJ22233-MS2)		**Source: 1212109-04**			Prepared & Analyzed: 10/22/12					
Chloride	583	0.20	0.050	mg/L	300	262	107	80-120		
Batch BJ22243 - Digestion for TKN by EPA 351.2										
Blank (BJ22243-BLK1)					Prepared: 10/22/12 Analyzed: 10/24/12					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
LCS (BJ22243-BS1)					Prepared: 10/22/12 Analyzed: 10/24/12					
Total Kjeldahl Nitrogen	2.32	0.20	0.05	mg/L	2.5		92	90-110		
Matrix Spike (BJ22243-MS1)		**Source: 1212293-01**			Prepared: 10/22/12 Analyzed: 10/24/12					
Total Kjeldahl Nitrogen	2.58	0.20	0.05	mg/L	2.5	ND	102	90-110		
Matrix Spike (BJ22243-MS2)		**Source: 1212310-07**			Prepared: 10/22/12 Analyzed: 10/24/12					
Total Kjeldahl Nitrogen	3.21	0.20	0.05	mg/L	2.5	0.518	106	90-110		
Matrix Spike Dup (BJ22243-MSD1)		**Source: 1212293-01**			Prepared: 10/22/12 Analyzed: 10/24/12					
Total Kjeldahl Nitrogen	2.54	0.20	0.05	mg/L	2.5	ND	100	90-110	2	20
Matrix Spike Dup (BJ22243-MSD2)		**Source: 1212310-07**			Prepared: 10/22/12 Analyzed: 10/24/12					
Total Kjeldahl Nitrogen	3.25	0.20	0.05	mg/L	2.5	0.518	108	90-110	1	20
Batch BJ22250 - Ammonia by SEAL										
Blank (BJ22250-BLK1)					Prepared & Analyzed: 10/23/12					
Ammonia as N	0.009 U	0.040	0.009	mg/L						

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

November 5, 2012
Work Order: 1211969

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22250 - Ammonia by SEAL										
LCS (BJ22250-BS1)					Prepared & Analyzed: 10/23/12					
Ammonia as N	0.48	0.040	0.009	mg/L	0.50		97	90-110		
Matrix Spike (BJ22250-MS1)		**Source: 1212102-07**			Prepared & Analyzed: 10/23/12					
Ammonia as N	0.53	0.040	0.009	mg/L	0.50	0.034	100	90-110		
Matrix Spike (BJ22250-MS2)		**Source: 1212293-01**			Prepared & Analyzed: 10/23/12					
Ammonia as N	0.52	0.040	0.009	mg/L	0.50	ND	103	90-110		
Matrix Spike Dup (BJ22250-MSD1)		**Source: 1212102-07**			Prepared & Analyzed: 10/23/12					
Ammonia as N	0.51	0.040	0.009	mg/L	0.50	0.034	96	90-110	4	10
Matrix Spike Dup (BJ22250-MSD2)		**Source: 1212293-01**			Prepared & Analyzed: 10/23/12					
Ammonia as N	0.49	0.040	0.009	mg/L	0.50	ND	97	90-110	6	10
Batch BJ22319 - COD prep										
Blank (BJ22319-BLK1)					Prepared & Analyzed: 10/23/12					
Chemical Oxygen Demand	10 U	25	10	mg/L						
LCS (BJ22319-BS1)					Prepared & Analyzed: 10/23/12					
Chemical Oxygen Demand	49	25	10	mg/L	50		98	90-110		
Matrix Spike (BJ22319-MS1)		**Source: 1211969-07**			Prepared & Analyzed: 10/23/12					
Chemical Oxygen Demand	56	25	10	mg/L	50	11	90	85-115		
Matrix Spike Dup (BJ22319-MSD1)		**Source: 1211969-07**			Prepared & Analyzed: 10/23/12					
Chemical Oxygen Demand	56	25	10	mg/L	50	11	90	85-115	0	32

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

November 5, 2012
Work Order: 1211969

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22322 - TOC prep										
Blank (BJ22322-BLK1)					Prepared & Analyzed: 10/23/12					
Total Organic Carbon	0.50 U	1.0	0.50	mg/L						
LCS (BJ22322-BS1)					Prepared & Analyzed: 10/23/12					
Total Organic Carbon	9.80	1.0	0.50	mg/L	10		98	90-110		
Matrix Spike (BJ22322-MS1)		**Source: 1211976-12**			Prepared & Analyzed: 10/23/12					
Total Organic Carbon	14.0	1.0	0.50	mg/L	10	3.74	102	85-115		
Matrix Spike Dup (BJ22322-MSD1)		**Source: 1211976-12**			Prepared & Analyzed: 10/23/12					
Total Organic Carbon	13.7	1.0	0.50	mg/L	10	3.74	99	85-115	2	10
Batch BJ22504 - COD prep										
Blank (BJ22504-BLK1)					Prepared & Analyzed: 10/24/12					
Chemical Oxygen Demand	10 U	25	10	mg/L						
LCS (BJ22504-BS1)					Prepared & Analyzed: 10/24/12					
Chemical Oxygen Demand	54	25	10	mg/L	50		108	90-110		
Matrix Spike (BJ22504-MS1)		**Source: 1212355-02**			Prepared & Analyzed: 10/24/12					
Chemical Oxygen Demand	72	25	10	mg/L	50	20	104	85-115		
Matrix Spike Dup (BJ22504-MSD1)		**Source: 1212355-02**			Prepared & Analyzed: 10/24/12					
Chemical Oxygen Demand	65	25	10	mg/L	50	20	90	85-115	10	32
Batch BJ22507 - Ammonia by SEAL										
Blank (BJ22507-BLK1)					Prepared & Analyzed: 10/25/12					
Ammonia as N	0.009 U	0.040	0.009	mg/L						

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

November 5, 2012
Work Order: 1211969

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22507 - Ammonia by SEAL										
LCS (BJ22507-BS1)					Prepared & Analyzed: 10/25/12					
Ammonia as N	0.48	0.040	0.009	mg/L	0.50		96	90-110		
Matrix Spike (BJ22507-MS1)		**Source: 1211969-04**			Prepared & Analyzed: 10/25/12					
Ammonia as N	0.50	0.040	0.009	mg/L	0.50	0.010	97	90-110		
Matrix Spike (BJ22507-MS2)		**Source: 1211969-27**			Prepared & Analyzed: 10/25/12					
Ammonia as N	0.51	0.040	0.009	mg/L	0.50	0.019	98	90-110		
Matrix Spike Dup (BJ22507-MSD1)		**Source: 1211969-04**			Prepared & Analyzed: 10/25/12					
Ammonia as N	0.50	0.040	0.009	mg/L	0.50	0.010	98	90-110	1	10
Matrix Spike Dup (BJ22507-MSD2)		**Source: 1211969-27**			Prepared & Analyzed: 10/25/12					
Ammonia as N	0.50	0.040	0.009	mg/L	0.50	0.019	97	90-110	1	10
Batch BJ22515 - Digestion for TP by EPA 365.2/SM4500PE										
Blank (BJ22515-BLK1)					Prepared: 10/25/12 Analyzed: 10/29/12					
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						
LCS (BJ22515-BS1)					Prepared: 10/25/12 Analyzed: 10/29/12					
Phosphorous - Total as P	0.766	0.040	0.010	mg/L	0.80		96	90-110		
Matrix Spike (BJ22515-MS1)		**Source: 1211969-06**			Prepared: 10/25/12 Analyzed: 10/29/12					
Phosphorous - Total as P	1.02	0.040	0.010	mg/L	1.0	0.0532	97	75-125		
Matrix Spike (BJ22515-MS2)		**Source: 1211971-05**			Prepared: 10/25/12 Analyzed: 10/29/12					
Phosphorous - Total as P	1.67	0.040	0.010	mg/L	1.0	0.754	91	75-125		

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

November 5, 2012
Work Order: 1211969

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22515 - Digestion for TP by EPA 365.2/SM4500PE										
Matrix Spike Dup (BJ22515-MSD1)		**Source: 1211969-06**			Prepared: 10/25/12 Analyzed: 10/29/12					
Phosphorous - Total as P	0.971	0.040	0.010	mg/L	1.0	0.0532	92	75-125	5	25
Matrix Spike Dup (BJ22515-MSD2)		**Source: 1211971-05**			Prepared: 10/25/12 Analyzed: 10/29/12					
Phosphorous - Total as P	1.68	0.040	0.010	mg/L	1.0	0.754	93	75-125	0.8	25

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

November 5, 2012
Work Order: 1211969

Inorganic, Dissolved - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22323 - DOC prep										
Blank (BJ22323-BLK1)					Prepared & Analyzed: 10/23/12					
Dissolved Organic Carbon	0.50 U	1.0	0.50	mg/L						
LCS (BJ22323-BS1)					Prepared & Analyzed: 10/23/12					
Dissolved Organic Carbon	10.6	1.0	0.50	mg/L	10		106	90-110		
Matrix Spike (BJ22323-MS1)		**Source: 1211976-12**			Prepared & Analyzed: 10/23/12					
Dissolved Organic Carbon	13.2	1.0	0.50	mg/L	10	3.30	99	85-125		
Matrix Spike Dup (BJ22323-MSD1)		**Source: 1211976-12**			Prepared & Analyzed: 10/23/12					
Dissolved Organic Carbon	13.9	1.0	0.50	mg/L	10	3.30	106	85-125	5	25

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

November 5, 2012
Work Order: 1211969

Metals - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21825 - Metals Preparation for EPA Method 200.7										
Blank (BJ21825-BLK1)					Prepared: 10/22/12 Analyzed: 10/24/12					
Manganese	0.0010 U	0.010	0.0010	mg/L						
Potassium	0.010 U	0.050	0.010	mg/L						
Magnesium	0.020 U	0.50	0.020	mg/L						
Sodium	0.13 U	0.50	0.13	mg/L						
Calcium	0.042 U	0.50	0.042	mg/L						
Boron	0.050 U	0.10	0.050	mg/L						
Iron	0.020 U	0.10	0.020	mg/L						
LCS (BJ21825-BS1)					Prepared: 10/22/12 Analyzed: 10/23/12					
Sodium	22	0.50	0.13	mg/L	20		110	85-115		
Manganese	0.41	0.010	0.0010	mg/L	0.40		104	85-115		
Magnesium	20	0.50	0.020	mg/L	20		101	85-115		
Iron	9.1	0.10	0.020	mg/L	8.0		114	85-115		
Potassium	20	0.050	0.010	mg/L	20		102	85-115		
Calcium	20	0.50	0.042	mg/L	20		101	85-115		
Boron	0.43	0.10	0.050	mg/L	0.40		107	85-115		
Matrix Spike (BJ21825-MS1)		**Source: 1212109-07**			Prepared: 10/22/12 Analyzed: 10/23/12					
Calcium	56	0.50	0.042	mg/L	20	37	94	70-130		
Sodium	290	0.50	0.13	mg/L	20	270	91	70-130		
Manganese	0.41	0.010	0.0010	mg/L	0.40	0.0075	101	70-130		
Iron	8.2	0.10	0.020	mg/L	8.0	0.053	102	70-130		
Boron	0.48	0.10	0.050	mg/L	0.40	ND	121	70-130		
Magnesium	27	0.50	0.020	mg/L	20	7.5	96	70-130		
Potassium	99	0.050	0.010	mg/L	20	80	97	70-130		
Matrix Spike (BJ21825-MS2)		**Source: 1212214-01**			Prepared: 10/22/12 Analyzed: 10/23/12					
Magnesium	57	0.50	0.020	mg/L	20	35	110	70-130		
Potassium	42	0.050	0.010	mg/L	20	20	108	70-130		
Sodium	530	5.0	1.3	mg/L	20	360	890	70-130		
Iron	8.8	0.10	0.020	mg/L	8.0	0.037	109	70-130		
Boron	0.74	0.10	0.050	mg/L	0.40	0.27	117	70-130		
Manganese	0.42	0.010	0.0010	mg/L	0.40	0.0016	106	70-130		
Calcium	95	0.50	0.042	mg/L	20	72	114	70-130		

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

November 5, 2012
Work Order: 1211969

Metals - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21825 - Metals Preparation for EPA Method 200.7										
Matrix Spike Dup (BJ21825-MSD1)		**Source: 1212109-07**			Prepared: 10/22/12 Analyzed: 10/23/12					
Potassium	110	0.050	0.010	mg/L	20	80	139	70-130	8	30
Sodium	300	0.50	0.13	mg/L	20	270	143	70-130	3	30
Boron	0.48	0.10	0.050	mg/L	0.40	ND	121	70-130	0.1	30
Manganese	0.41	0.010	0.0010	mg/L	0.40	0.0075	101	70-130	0.01	30
Calcium	57	0.50	0.042	mg/L	20	37	100	70-130	2	30
Magnesium	27	0.50	0.020	mg/L	20	7.5	98	70-130	2	30
Iron	8.3	0.10	0.020	mg/L	8.0	0.053	103	70-130	0.9	30
Matrix Spike Dup (BJ21825-MSD2)		**Source: 1212214-01**			Prepared: 10/22/12 Analyzed: 10/23/12					
Boron	0.73	0.10	0.050	mg/L	0.40	0.27	114	70-130	2	30
Manganese	0.42	0.010	0.0010	mg/L	0.40	0.0016	104	70-130	2	30
Iron	8.6	0.10	0.020	mg/L	8.0	0.037	107	70-130	2	30
Calcium	93	0.50	0.042	mg/L	20	72	104	70-130	2	30
Magnesium	56	0.50	0.020	mg/L	20	35	104	70-130	2	30
Sodium	520	5.0	1.3	mg/L	20	360	820	70-130	3	30
Potassium	41	0.050	0.010	mg/L	20	20	104	70-130	2	30

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

November 5, 2012
Work Order: 1211969

* 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

1211969

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: S&GW Test Facility SE #3 (TA1)

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	250mL P, H_2SO_4 TKN, NH_4	1LP, Cool NOx, Cl	250mL P, H_2SO_4 TKN, NH_4, COD, TP	1LP, Cool NOx, Cl, Alkalinity	1LP, Cool NOx, Cl, Alkalinity, F, OP, SO_4	250mLaG, Cool DOC	40mLaV, HCl TOC	250mL P, HNO_3 B, Ca, Fe, Mg, Mn, K, Na					Field pH	Field Temperature	Field Conductivity	Field DO
01	TA1-PAN-12-N not sampled			GW		X	1	1														
02	TA1-PZ-11-EF2 not sampled			GW		X	1	1														
03	TA1-LY-24-C	10/5/12	1405	GW		X	1	1											6.1	33.1	781	6.3
04	TA1-LY-12-S		1415	GW		X	1	1											6.7	31.9	866	6.4
05	TA1-LY-24-S		1420	GW		X			1	1									6.2	32.7	734	5.8
06	TA1-LY-42-S		1435	GW		X			1	1									5.6	30.9	816	5.5
07	TA1-PZ-11-J4	10/18/12	1127	GW		X			1	1												
08	TA1-PZ-11-K4	↓	1135	GW		X			1	1												
09	TA1-PZ-11-L2 not sampled			GW		X			1		1	1	2	1								
10	TA1-PZ-11-L2 DUP ↓			GW		X			1		1	1	2	1								
11	TA1-PZ-11-L3	10/18/12	1355	GW		X			1	1												
12	TA1-PZ-11-L3 DUP	↓	1355	GW		X			1	1												

Relinquished:	Date/Time:	Received:	Date/Time:
Containers Prepared/ Relinquished: J. Chambers	10-12-12 10:00		1000 101212
Relinquished:	1530 101412	Received: Mudmeth	Date/Time: 1530 10/16/12
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

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

Instructions / Remarks:

NW 10/19/12

1211969

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

1211969

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: S&GW Test Facility SE #3 (TA1)

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	250mL P, H_2SO_4 TKN, NH_4	1LP, Cool NOx, Cl	250mL P, H_2SO_4 TKN, NH_4, COD, TP	1LP, Cool NOx, Cl, Alkalinity	1LP, Cool NOx, Cl, Alkalinity, F, OP, SO_4	250mLaG, Cool DOC	40mLaV, HCl TOC	250mL P, HNO_3 B, Ca, Fe, Mg, Mn, K, Na					Field pH	Field Temperature	Field Conductivity	Field DO
13	TA1-PZ-11-L4 not sampled			GW		X			1	1												
14	TA1-PZ-11-L5	10/15/12	1218	GW		X			1	1												
15	TA1-PZ-09-N3		1243	GW		X			1		1	1	2	1								
16	TA1-PZ-09-N3 DUP		1243	GW		X			1		1	1	2	1								
17	TA1-PZ-16-N3		1335	GW		X	1	1														
18	TA1-PZ-09-O7		1025	GW		X			1	1												
19	TA1-PZ-16-O7		1059	GW		X			1	1												
20	TA1-PZ-09-M9		0915	GW		X	1	1														
21	TA1-PZ-16-M9		0950	GW		X	1	1														
22	TA1-PZ-09-I7		0810	GW		X	1	1														
23	TA1-PZ-16-I7		0850	GW		X	1	1														
24	TA1-PZ-09-RS16	10/17/12	1240	GW		X	1	1														

Relinquished:	Date/Time:	Received:	Date/Time:
Containers Prepared/ Relinquished: J. Chambers	10-12-12 11:10		1110 10/12/12
Relinquished:	1425 10/17/12	K Andrewsch	1425 10/16/12
Relinquished:			
Relinquished:			
Relinquished:			

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

Instructions / Remarks:

Field pH: 6.1 Field Temperature: 26.4 Field Conductivity: 18.2 Field DO: 0.55

10/18/12

1211969

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

1211969

Client Name: Hazen and Sawyer
Contact / Phone:
Project Name / Location: S&GW Test Facility SE #3 (TA1)
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	250mL P, H_2SO_4 TKN, NH_4	1LP, Cool NOx, Cl	250mL P, H_2SO_4 TKN, NH_4, COD, TP	1LP, Cool NOx, Cl, Alkalinity	1LP, Cool NOx, Cl, Alkalinity, F, OP, SO_4	250mLaG, Cool DOC	40mLaV, HCl TOC	250mL P, HNO_3 B, Ca, Fe, Mg, Mn, K, Na					Field pH	Field Temperature	Field Conductivity	Field DO
25	TA1-PZ-16-RS16	10/7/12	1315	GW		X	1	1											5.9	26.4	322.7	0.13
26	TA1-PZ-09-RS18		1130	GW		X	1	1											5.4	24.5	700.5	0.55
27	TA1-PZ-16-RS18		1215	GW		X	1	1											5.7	26.3	317.4	0.14

Containers Prepared/ Relinquished:	Date/Time:	Received:	Date/Time:
J. Chambers	10-12-12 11:10		1110 10/12/12
Relinquished:	Date/Time: 1425 10/17/12	Received: K Nudmark	Date/Time: 10/17/12 1425
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

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

Instructions / Remarks:

KW 10/19/12

1211969

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	10/18/12	SAL Project #	1211969	Project Name	S&GW Test Facility SE #3
Well Number	TA1-PAN-12-N	Sample ID	01	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)		WELL CAPACITY (gal/ft)		Screen Interval (Feet)	UNK	To	UNK	Static Depth to Water (Feet)		PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)		REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)				TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	
Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)											
WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =											
ONE WELL VOLUME			1/4 WELL VOLUME			3 WELL VOLUMES			5 WELL VOLUMES		
EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME											
PUMP VOLUME			TUBING LEGNTH			FLOW CELL VOLUME			EQUIPMENT VOLUME		
INITIAL TUBING LEGNTH IN WELL (FEET)			FINAL TUBING LEGNTH IN WELL (FEET)			PURGE TIME START		PURGE TIME END		TOTAL PURGED	
INST. ID					SAL-SAM-63-____	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)
No Water											

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	Dry									

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	10/15/12 14:05pm	SAL Project #	1211969	Project Name	S&GW Test Facility SE #3
Well Number	TA1-LY-24-C	Sample ID	03	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)		WELL CAPACITY (gal/ft)		Screen Interval (Feet)	UNK To UNK			Static Depth to Water (Feet)		PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)		REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)				TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	
Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)											
WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =											
ONE WELL VOLUME			1/4 WELL VOLUME			3 WELL VOLUMES			5 WELL VOLUMES		
EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME											
PUMP VOLUME			TUBING LEGNTH			FLOW CELL VOLUME			EQUIPMENT VOLUME		
INITIAL TUBING LEGNTH IN WELL (FEET)			FINAL TUBING LEGNTH IN WELL (FEET)			PURGE TIME START		PURGE TIME END		TOTAL PURGED	
INST. ID					SAL-SAM-63-____	SAL-SAM - 65-_____	SAL-SAM-63-_____	SAL-SAM-55-__	SAL-SAM-0____		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
14:05pm	500mL				6.1	33.1	781	6.3		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)		HJS				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:		Contact:	
				Phone:	
Date Sampled	10/15/12 14:15pm	SAL Project #	1211969	Project Name	S&GW Test Facility SE #3
Well Number	TA1-LY-12-S	Sample ID	04	GPS LAT	
				GPS LONG	

PURGING DATA

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

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

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

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

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

PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME		EQUIPMENT VOLUME	

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

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
14:15	700mL				6.7	31.9°C	866	6.4		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)		H&S				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:		Contact:	
				Phone:	
Date Sampled	10/15/12 14:20 pm	SAL Project #	1211969	Project Name	S&GW Test Facility SE #3
Well Number	TA1-LY-24-S	Sample ID	05	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)		WELL CAPACITY (gal/ft)		Screen Interval (Feet)	UNK	To	UNK	Static Depth to Water (Feet)		PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)		REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)				TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	
Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)											
WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =											
ONE WELL VOLUME			1/4 WELL VOLUME			3 WELL VOLUMES			5 WELL VOLUMES		
EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME											
PUMP VOLUME			TUBING LEGNTH			FLOW CELL VOLUME			EQUIPMENT VOLUME		
INITIAL TUBING LEGNTH IN WELL (FEET)			FINAL TUBING LEGNTH IN WELL (FEET)			PURGE TIME START		PURGE TIME END		TOTAL PURGED	
INST. ID					SAL-SAM-63-____	SAL-SAM - 65-____	SAL-SAM-63-____	SAL-SAM-55-__	SAL-SAM-0____		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
14:20pm	800mL				6.2	32.7	734	5.8		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)	HJS					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:		Contact:	
				Phone:	
Date Sampled	10/15/12 14:35pm	SAL Project #	1211969	Project Name	S&GW Test Facility SE #3
Well Number	TA1-LY-42-S	Sample ID	06	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)		WELL CAPACITY (gal/ft)		Screen Interval (Feet)	UNK	To	UNK	Static Depth to Water (Feet)		PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)		REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)				TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	
Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)											
WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =											
ONE WELL VOLUME			1/4 WELL VOLUME			3 WELL VOLUMES			5 WELL VOLUMES		
EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME											
PUMP VOLUME			TUBING LEGNTH			FLOW CELL VOLUME			EQUIPMENT VOLUME		
INITIAL TUBING LEGNTH IN WELL (FEET)			FINAL TUBING LEGNTH IN WELL (FEET)			PURGE TIME START		PURGE TIME END		TOTAL PURGED	
INST. ID					SAL-SAM-63-____	SAL-SAM - 65-_____	SAL-SAM-63-_____	SAL-SAM-55-__	SAL-SAM-0_____		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
14:35pm	1100mL				5.6	30.9	816	5.5		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)	HdS					SAMPLER(S) SIGNATURES:	[illegible]		
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT			SAMPLE TUBING LEGNTH IN WELL (FEET)				SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED		SAMPLING ENDED		FIELD CLEANED	Y N	CLEANING STEPS			
FIELD FILTERED?	Y N	FILTER SIZE (µm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?	Y N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Clear sunny 80s								
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	10/18/12	SAL Project #	121969	Project Name	S&GW Test Facility SE #3
Well Number	TA1-PZ-11-J4	Sample ID	-07	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1"	WELL CAPACITY (gal/ft)	.04	Screen Interval (Feet)	UNK	To	UNK	Static Depth to Water (Feet)	8.24	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	14.84	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	.2640	1/4 WELL VOLUME		3 WELL VOLUMES	.7920	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	1127	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)
1115	.3	.3	.1	8.24	4.79	28.4	231.1	3.21	85.9	Cloudy	
1118	.3	.6	.1		4.72	28.0	231.7	2.60	15.7		
1121	.3	.9	.1		4.69	27.8	232.2	1.77	11.3	Clear	
1124	.3	1.2	.1		4.68	27.6	232.8	1.39	7.62		
1127	.3	1.5	.1		4.67	27.6	233.1	1.09	5.05	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:	[signature] IG		
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT			SAMPLE TUBING LEGNTH IN WELL (FEET)				SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED	1130	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	Sunny 5mph E 85°F								
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	10/18/12	SAL Project #	121969	Project Name	S&GW Test Facility SE #3
Well Number	TA1-PZ-11-K4	Sample ID	-08	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1"	WELL CAPACITY (gal/ft)	.04	Screen Interval (Feet)	UNK	To	UNK	Static Depth to Water (Feet)	8.24	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	14.84	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	.2640	1/4 WELL VOLUME		3 WELL VOLUMES	.7920	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	1140	PURGE TIME END	1155	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)
1143	.3	~~.6~~ .3	.1	8.24	4.69	27.8	231.8	1.85	189	Cloudy	
1146	.3	.6	.1		4.68	27.8	231.5	1.69	55.8		
1149	.3	.9	.1		4.68	27.8	231.0	1.46	13.9	Clear	
1152	.3	1.2	.1		4.68	27.8	231.5	1.40	10.2		
1155	.3	1.5	.1		4.67	27.8	230.8	1.32	6.50	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:	J. Yll- JG		
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT			SAMPLE TUBING LEGNTH IN WELL (FEET)				SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED	1155	SAMPLING ENDED	1200	FIELD CLEANED	Y N	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Sunny 5mph E 85°F								
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	10/18/12	SAL Project #	1211969	Project Name	S&GW Test Facility SE #3
Well Number	TA1-PZ-11-L3	Sample ID	-11	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)		WELL CAPACITY (gal/ft)		Screen Interval (Feet)	UNK To UNK	Static Depth to Water (Feet)	8.30	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	14.81	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	.2604	1/4 WELL VOLUME		3 WELL VOLUMES	.7812	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	1340	PURGE TIME END	1355
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)
1343	.3	.3	.1	8.30	4.88	27.8	417.8	2.78	53.5	Cloudy	
1346	.3	.6	.1		4.86	27.5	417.8	2.46	62.2		
1349	.3	.9	.1		4.84	27.6	408.5	2.03	95.0	Cloudy	
1352	.3	1.2	.1		4.83	27.6	406.3	2.07	20.5		
1355	.3	1.5	.1		4.83	27.7	405.9	2.01	15.2	Slightly 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:	J. Hill - IG		
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT	SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	1355	SAMPLING ENDED	1400	FIELD CLEANED	Y N	CLEANING STEPS	
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A
SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A						
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED					
WEATHER CONDITIONS	Sunny S 5mph 88°F						
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	10/18/12	SAL Project #	1211969	Project Name	S&GW Test Facility SE #3
Well Number	TA1-PZ-11-L3-DUP	Sample ID	-12	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)	8.30	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	14.81	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	.2604	1/4 WELL VOLUME			3 WELL VOLUMES	.7812		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)
1343	.3	.3	.1	8.30	4.88	27.8	412.8	2.78	53.5	Cloudy	
1346	.3	.6	.1		4.86	27.5	417.8	2.46	62.2		
1349	.3	.9	.1		4.84	27.6	408.5	2.03	95	Cloudy	
1352	.3	1.2	.1		4.83	27.6	406.3	2.07	20.5		
1355	.3	1.5	.1		4.83	27.7	405.9	2.01	15.2	Slightly 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:	[signature] - IG		
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	1400	SAMPLING ENDED	1405	FIELD CLEANED	Y N	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Sunny S 5mph 88°F								
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	10/18/12	SAL Project #	1211969	Project Name	S&GW Test Facility SE #3
Well Number	TA1-PZ-11-L5	Sample ID	-14	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1"	WELL CAPACITY (gal/ft)	.04	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	8.26	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	14.85	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	.2636	1/4 WELL VOLUME		3 WELL VOLUMES	.7908	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	1218	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)
1206	.3	.3	.1	8.26	4.81	27.9	248	2.03	66.5	Slightly Cloudy	
1209	.3	.6	.1		4.85	27.9	250.6	1.88	44.2		
1212	.3	.9	.1		4.87	27.8	252.2	1.67	12.3	Clear	
1215	.3	1.2	.1		4.88	27.8	253.4	1.47	10.7		
1218	.3	1.5	.1								

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL					SAMPLER(S) SIGNATURES:	J. Hl IG		
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	1220	SAMPLING ENDED	1225	FIELD CLEANED	Y N	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Sunny SE 5mph 88°F								
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	10/18/12	SAL Project #	1211969	Project Name	S&GW Test Facility SE #3
Well Number	TA1-PZ-09-N3	Sample ID	-15	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1"	WELL CAPACITY (gal/ft)	.04	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	5.16	PURGE PUMP CODE: PP GP IBP
TOTAL WELL DEPTH (Feet)	9.89	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	.1892	1/4 WELL VOLUME		3 WELL VOLUMES	.5676	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		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)
1231	.3	.3	.1	5.16	5.97	28.4	584	1.72	OOR	Cloudy	
1234	.3	.6	.1		6.01	28.4	589	1.32	OOR		
1237	.3	.9	.1		6.04	28.3	600	1.12	OOR	Cloudy Brown	
1240	.3	1.2	.1		6.27	28.9	623	2.55	597		
1243	.3	1.5	.1		6.32	28.6	665	2.91	292	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:	[signature] IG		
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	1250	FIELD CLEANED	Y N	CLEANING STEPS			
FIELD FILTERED?	Y N	FILTER SIZE (µm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?	Y N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Sunny SE 5mph 88°F								
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	10/18/12	SAL Project #	121969	Project Name	S&GW Test Facility SE #3
Well Number	TA1-PZ-09-N3-DUP	Sample ID	-16	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1"	WELL CAPACITY (gal/ft)	.04	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	5.16	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	9.89	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	.1892	1/4 WELL VOLUME			3 WELL VOLUMES	.5676		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)
1231	.3	.3	.1	5.16	5.97	28.4	584	1.72	OOR	Cloudy	
1234	.3	.6	.1		6.01	28.4	589	1.32	OOR		
1237	.3	.9	.1		6.04	28.3	600	1.12	OOR	Cloudy Brown	
1240	.3	1.2	.1		6.27	28.9	623	2.55	597		
1243	.3	1.5	.1		6.32	28.6	665	2.91	292	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)						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	1250	SAMPLING ENDED	1255	FIELD CLEANED	Y N	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Sunny SE 5mph 88°F								
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	10/16/2012	SAL Project #	1211969	Project Name	S&GW Test Facility SE #3
Well Number	TA1-PZ-16-N3	Sample ID	-17	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1"	WELL CAPACITY (gal/ft)	.04	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	5.18	PURGE PUMP CODE: PP GP IBP
TOTAL WELL DEPTH (Feet)	17.25	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	.4828	1/4 WELL VOLUME		3 WELL VOLUMES	1.4484	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	1310	PURGE TIME END	1335
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)
1315	.5	.5	.1	5.18	5.40	27.0	288.9	.21	OOR	Brown	
1320	.5	1.0	.1		5.33	26.9	288.4	.17	232		
1325	.5	1.5	.1		5.29	26.9	287.7	.15	78.9	Cloudy	
1330	.5	2.0	.1		5.26	27.0	287.2	.15	43.7		
1335	.5	2.5	.1		5.25	27.0	287.1	.15	35.7	Slightly 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:	J. Gill - IG		
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	1335	SAMPLING ENDED	1340	FIELD CLEANED	Y N	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Sunny 88°F 5mph S-SE								
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	10/18/12	SAL Project #	121969	Project Name	S&GW Test Facility SE #3
Well Number	TA1-PZ-09-O7	Sample ID	-18	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1"	WELL CAPACITY (gal/ft)	.04	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	4.84	PURGE PUMP CODE: PP GP IBP
TOTAL WELL DEPTH (Feet)	9.91	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)

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

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

ONE WELL VOLUME	.2028	1/4 WELL VOLUME		3 WELL VOLUMES	.6084	5 WELL VOLUMES	

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

PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME		EQUIPMENT VOLUME	

INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START	1010	PURGE TIME END	1025	TOTAL PURGED	
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)
1013	.3	.3	.1	4.84	5.46	27.1	265.7	3.13	OOR	Cloudy Brown	
1016	.3	.6	.1		5.45	27.2	274.5	1.72	OOR		
1019	.3	.9	.1		5.44	27.2	276.3	1.46	OOR	Cloudy Brown	
1022	.3	1.2	.1		5.51	27.1	280.5	1.04	913		
1025	.3	1.5	.1		5.56	26.9	281.6	.93	266	Cloudy Slightly	

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:	J. Hill IG	
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT			SAMPLE TUBING LEGNTH IN WELL (FEET)		SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED	1025	SAMPLING ENDED	1030	FIELD CLEANED	Y N	CLEANING STEPS	
FIELD FILTERED?	Y N	FILTER SIZE (µm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A
SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A						
PRESERVATION CHECKED IN FIELD?	Y N N/A	LIST PRESERVATIVES ADDED					
WEATHER CONDITIONS	Sunny 85°F						
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	10/18/12	SAL Project #	1211969	Project Name	S&GW Test Facility SE #3
Well Number	TA1-PZ-16-O7	Sample ID	-19	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1"	WELL CAPACITY (gal/ft)	.04	Screen Interval (Feet)	UNK	To	UNK	Static Depth to Water (Feet)	5.07	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	17.30	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	.4784	1/4 WELL VOLUME		3 WELL VOLUMES	1.4352	5 WELL VOLUMES	

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

PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME		EQUIPMENT VOLUME	

INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START	1034	PURGE TIME END	1059	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)
1039	.5	.5	.1	5.07	5.31	26.7	330.7	1.02	225	Cloudy	
1044	.5	1.0	.1		5.25	26.7	325.0	.34	98.2		
1049	.5	1.5	.1		5.25	26.7	323.7	.31	17.6	Clear	
1054	.5	2.0	.1		5.23	26.6	321.8	.24	4.74		
1059	.5	2.5	.1		5.23	26.7	319.4	.21	3.48	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:	[signature] IG		
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	1100	SAMPLING ENDED	1105	FIELD CLEANED	Y N	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Sunny 3mph E 85°F								
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	10/18/2012	SAL Project #	1211969	Project Name	S&GW Test Facility SE #3
Well Number	TA1-PZ-09-M9	Sample ID	-20	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1"	WELL CAPACITY (gal/ft)	.04	Screen Interval (Feet)	UNK To UNK	Static Depth to Water (Feet)	5.29	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	9.89	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	.1840	1/4 WELL VOLUME		3 WELL VOLUMES	.5520	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	0900	PURGE TIME END	0915
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)
0903	.3	.3	.1	5.29	5.98	25.6	248.5	4.16	OOR	Brown	
0906	.3	.6	.1		5.98	26.1	246.7	3.42	OOR		
0909	.3	.9	.1		5.98	26.4	244.8	3.11	820	Cloudy Brown	
0912	.3	1.2	.1		5.97	26.5	243.3	2.69	758		
0915	.3	1.5	.1		5.96	26.5	242.1	2.53	519	Cloudy Brown	

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:	J. Hill IG		
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT	SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	0915	SAMPLING ENDED	0920	FIELD CLEANED	Y N	CLEANING STEPS	
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A
SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A						
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED					
WEATHER CONDITIONS	Sunny 3mph NE 78°F						
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	10/18/12	SAL Project #	1211969	Project Name	S&GW Test Facility SE #3
Well Number	TA1-PZ-16-M9	Sample ID	-21	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1"	WELL CAPACITY (gal/ft)	.04	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	5.35	PURGE PUMP CODE: PP GP IBP
TOTAL WELL DEPTH (Feet)	17.32	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	.4788	1/4 WELL VOLUME		3 WELL VOLUMES	1.4364	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	0925	PURGE TIME END	0945	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)
0930	.5	.5	.1	5.35	5.52	26.5	290.7	1.40	41.3	Cloudy Slightly	
0935	.5	1.0	.1	~~5.31~~ IG	5.31	26.5	310.6	.75	5.21		
0940	.5	1.5	.1	IG ~~5.26~~	5.26	26.5	313.2	.58	3.72	Clear	
0945	.5	2.0	.1		5.24	26.5	313.4	.48	2.23		
0950	.5	2.5	.1								

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL					SAMPLER(S) SIGNATURES:	[signature] - IG		
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT			SAMPLE TUBING LEGNTH IN WELL (FEET)				SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED	0945	SAMPLING ENDED	0950	FIELD CLEANED	Y N	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Sunny 80°F								
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	10/18/12	SAL Project #	1211969	Project Name	S&GW Test Facility SE #3
Well Number	TA1-PZ-09-I7	Sample ID	-22	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1"	WELL CAPACITY (gal/ft)	.04	Screen Interval (Feet)	UNK	To	UNK	Static Depth to Water (Feet)	4.88	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	9.91	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)				TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	

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

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

ONE WELL VOLUME	.2012	1/4 WELL VOLUME		3 WELL VOLUMES	.6036	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	0755	PURGE TIME END	0810	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)
0758	.3	.3	.1		5.31	24.6	217.9	4.25	434	Brown	
0801	.3	.6	.1		5.36	24.4	214.9	4.16	237		
0804	.3	.9	.1		5.42	24.9	213.7	3.91	83.3	Cloudy	
0807	.3	1.2	.1		5.47	25.5	210.7	3.75	42.7		
0810	.3	1.5	.1		5.54	25.7	208.6	3.53	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:	J. O'Neill IG		
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT			SAMPLE TUBING LEGNTH IN WELL (FEET)				SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED	0810	SAMPLING ENDED	815	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	Partly Sunny 3mph NE 70°F								
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	10/18/2012	SAL Project #	1211969	Project Name	S&GW Test Facility SE #3
Well Number	TA1-PZ-16-I7	Sample ID	-23	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1"	WELL CAPACITY (gal/ft)	.04	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	4.95	PURGE PUMP CODE: PP GP IBP
TOTAL WELL DEPTH (Feet)	17.17	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	.4888	1/4 WELL VOLUME		3 WELL VOLUMES	1.4664		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	0825	PURGE TIME END	0845	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)
0830	.5	.5	.1	4.95	5.33	25.8	259.5	1.00	22.7	Fairly Clear	
0835	.5	1.0	.1		5.21	26.1	309.3	.57	18.5		
0840	.5	1.5	.1		5.21	26.1	310.5	.37	10.7	Clear	
0845	.5	2.0	.1		5.20	26.1	310.8	.34	3.62		
0850	.5	2.5	.1								

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL					SAMPLER(S) SIGNATURES:	J. Kell. IG		
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT			SAMPLE TUBING LEGNTH IN WELL (FEET)				SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED	0845	SAMPLING ENDED	0850	FIELD CLEANED	Y N	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Sunny 5mph NE 75°F								
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	10/17/12	SAL Project #	1211969	Project Name	S&GW Test Facility SE #3
Well Number	TA1-PZ-09-RS16	Sample ID	24	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1"	WELL CAPACITY (gal/ft)	.04	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	4.51	PURGE PUMP CODE: PP GP IBP
TOTAL WELL DEPTH (Feet)	9.92	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	.2164	1/4 WELL VOLUME		3 WELL VOLUMES	.6492	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	1225	PURGE TIME END	1240	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)
1228	.3	.3	.1	4.51	6.21	26.5	159.6	1.32	276	Brown	
1231	.3	.6	.1		6.10	26.6	171.5	1.17	172		
1234	.3	.9	.1		6.08	26.6	181.3	.99	36.5	Slightly Cloudy	
1237	.3	1.2	.1		6.07	26.6	184.6	.62	67.9		
1240	.3	1.5	.1		6.06	26.6	189.2	.58	124	Slightly 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:	[illegible] IG		
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	1240	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	Cloudy 3mph NW 80°F								
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	10/17/12	SAL Project #	1211969	Project Name	S&GW Test Facility SE #3
Well Number	TA1-PZ-16-RS16	Sample ID	25	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1"	WELL CAPACITY (gal/ft)	.04	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	4.59	PURGE PUMP CODE: PP GP IBP
TOTAL WELL DEPTH (Feet)	17.33	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	.5096	1/4 WELL VOLUME		3 WELL VOLUMES	1.5288		5 WELL VOLUMES		

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

PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME			EQUIPMENT VOLUME		
INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START	1250	PURGE TIME END	1315	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)
1255	.5	.5	.1	4.59	5.69	26.5	315.5	.35	633	Cloudy Brown	
1300	.5	1.0	.1		5.69	26.4	317.3	.18	352		
1305	.5	1.5	.1		5.75	26.4	319.2	.15	125	Cloudy	
1310	.5	2.0	.1		5.82	26.4	321.2	.13	79.3		
1315	.5	2.5	.1		5.88	26.4	322.7	.13	70.1	Cloudy	Sulfur

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:	J. [illegible] - IG		
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT			SAMPLE TUBING LEGNTH IN WELL (FEET)				SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED	1315	SAMPLING ENDED	1320	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 N 3mph 85°F								
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	10/17/12	SAL Project #	1211969	Project Name	S&GW Test Facility SE #3
Well Number	TA1-PZ-09-RS18	Sample ID	26	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1"	WELL CAPACITY (gal/ft)	.04	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	5.10	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	9.91	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	
Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)										
WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =										
ONE WELL VOLUME	.1924	1/4 WELL VOLUME			3 WELL VOLUMES	.5772		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	1115	PURGE TIME END	1130	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)
1118	.3	.3	.1		5.96	26.4	210.8	1.93	52.9	Slightly Cloudy	
1121	.3	.6	.1		5.83	26.4	208.8	1.12	44.7		
1124	.3	.9	.1		5.82	26.4	204.3	.89	19.4	Clear	
1127	.3	1.2	.1		5.82	26.5	201	.66	16.5		
1130	.3	1.5	.1		5.82	26.5	200.5	.55	12.5	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:	J. Hall - FG			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	1130	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	Cloudy 85°F								
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	10/17/12	SAL Project #	1211969	Project Name	S&GW Test Facility SE #3
Well Number	TA1-PZ-16-RS18	Sample ID	27	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1"	WELL CAPACITY (gal/ft)	.04	Screen Interval (Feet)	UNK	To	UNK	Static Depth to Water (Feet)	5.12	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	17.18	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	.4824	1/4 WELL VOLUME		3 WELL VOLUMES	1.4472	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	1150	PURGE TIME END	1215	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)
1155	.5	.5	.1	5.12	5.65	26.3	299.8	.28	263	Cloudy Brown	
1200	.5	1.0	.1		5.63	26.2	308.6	.18	199		
1205	.5	1.5	.1		5.64	26.3	314.4	.17	175	Cloudy	Sulfur
1210	.5	2.0	.1		5.66	26.3	316.0	.15	89.8		
1215	.5	2.5	.1		5.72	26.3	317.4	.14	56.1	Slightly Cloudy	Sulfur

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	1215	SAMPLING ENDED	1220	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°F								
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

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

November 2, 2012
Work Order: 1212355

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**TA1-PZ-11-EF2**						
Matrix		**Groundwater**						
SAL Sample Number		**1212355-01**						
Date/Time Collected		**10/23/12 10:05**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/23/12 16:45**						
Field Parameters								
pH	SU	4.4	DEP FT1100	0.1	0.1		10/23/12 10:05	1
Water Temperature	°C	26.6	DEP FT1400	0.1	0.1		10/23/12 10:05	1
Specific conductance	umhos/cm	225	DEP FT1200	0.1	0.1		10/23/12 10:05	1
Dissolved Oxygen	mg/L	1.3	DEP FT1500	0.1	0.1		10/23/12 10:05	1
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/30/12 10:56	1
Ammonium as NH4	mg/L	0.01 U	EPA 350.1	0.05	0.01		10/31/12 14:47	1
Chloride	mg/L	11	EPA 300.0	0.20	0.050		10/24/12 17:40	1
Nitrate (as N)	mg/L	5.4	EPA 300.0	0.04	0.01		10/24/12 17:40	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/24/12 17:40	1
Total Kjeldahl Nitrogen	mg/L	1.3	EPA 351.2	0.20	0.05	10/26/12 16:02	10/30/12 10:20	1
Nitrate+Nitrite (N)	mg/L	5.4	EPA 300.0	0.08	0.02		10/24/12 17:40	1
Sample Description		**TA1-PZ-11-L2**						
Matrix		**Groundwater**						
SAL Sample Number		**1212355-02**						
Date/Time Collected		**10/23/12 10:55**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/23/12 16:45**						
Field Parameters								
pH	SU	4.5	DEP FT1100	0.1	0.1		10/23/12 10:55	1
Water Temperature	°C	27.4	DEP FT1400	0.1	0.1		10/23/12 10:55	1
Specific conductance	umhos/cm	713	DEP FT1200	0.1	0.1		10/23/12 10:55	1
Dissolved Oxygen	mg/L	2.0	DEP FT1500	0.1	0.1		10/23/12 10:55	1
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/30/12 10:58	1
Ammonium as NH4	mg/L	0.01 U	EPA 350.1	0.05	0.01		10/31/12 14:47	1
Chemical Oxygen Demand	mg/L	20 I	EPA 410.4	25	10		10/24/12 12:30	1
Chloride	mg/L	55	EPA 300.0	0.20	0.050		10/24/12 17:40	1
Fluoride	mg/L	0.079	EPA 300.0	0.040	0.010		10/24/12 17:40	1
Nitrate (as N)	mg/L	42	EPA 300.0	0.04	0.01		10/24/12 17:40	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/24/12 17:40	1
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		10/24/12 17:40	1
Phosphorous - Total as P	mg/L	0.080	SM 4500P-E	0.040	0.010	10/25/12 10:27	10/30/12 11:04	1
Sulfate	mg/L	47	EPA 300.0	0.60	0.20		10/24/12 17:40	1
Total Alkalinity	mg/L	2.0 U	SM 2320B	8.0	2.0		10/29/12 09:13	1

Florida Certification Number: E84129
NELAP Accredited

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

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

November 2, 2012
Work Order: 1212355

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**TA1-PZ-11-L2**						
Matrix		**Groundwater**						
SAL Sample Number		**1212355-02**						
Date/Time Collected		**10/23/12 10:55**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/23/12 16:45**						
Total Kjeldahl Nitrogen	mg/L	2.1	EPA 351.2	0.20	0.05	10/26/12 16:02	10/30/12 11:04	1
Total Organic Carbon	mg/L	4.2	SM 5310B	1.0	0.50		10/25/12 14:47	1
Nitrate+Nitrite (N)	mg/L	42	EPA 300.0	0.08	0.02		10/24/12 17:40	1
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	3.6	SM 5310B	1.0	0.50		10/25/12 14:47	1
Metals								
Boron	mg/L	0.11	EPA 200.7	0.10	0.050	10/24/12 08:59	10/25/12 13:23	1
Calcium	mg/L	42	EPA 200.7	0.50	0.042	10/24/12 08:59	10/24/12 15:29	1
Iron	mg/L	0.023 I	EPA 200.7	0.10	0.020	10/24/12 08:59	10/25/12 13:23	1
Magnesium	mg/L	19	EPA 200.7	0.50	0.020	10/24/12 08:59	10/24/12 15:29	1
Manganese	mg/L	0.019	EPA 200.7	0.010	0.0010	10/24/12 08:59	10/24/12 15:29	1
Potassium	mg/L	13	EPA 200.7	0.050	0.010	10/24/12 08:59	10/24/12 15:29	1
Sodium	mg/L	44	EPA 200.7	0.50	0.13	10/24/12 08:59	10/24/12 15:29	1
Sample Description		**TA1-PZ-11-L2 DUP**						
Matrix		**Groundwater**						
SAL Sample Number		**1212355-03**						
Date/Time Collected		**10/23/12 11:00**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/23/12 16:45**						
Field Parameters								
pH	SU	4.5	DEP FT1100	0.1	0.1		10/23/12 11:00	1
Water Temperature	°C	27.4	DEP FT1400	0.1	0.1		10/23/12 11:00	1
Specific conductance	umhos/cm	713	DEP FT1200	0.1	0.1		10/23/12 11:00	1
Dissolved Oxygen	mg/L	2.0	DEP FT1500	0.1	0.1		10/23/12 11:00	1
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/30/12 11:00	1
Ammonium as NH4	mg/L	0.01 U	EPA 350.1	0.05	0.01		10/31/12 14:47	1
Chemical Oxygen Demand	mg/L	20 I	EPA 410.4	25	10		10/25/12 10:00	1
Chloride	mg/L	54	EPA 300.0	0.20	0.050		10/24/12 17:40	1
Fluoride	mg/L	0.078	EPA 300.0	0.040	0.010		10/24/12 17:40	1
Nitrate (as N)	mg/L	41	EPA 300.0	0.04	0.01		10/24/12 17:40	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/24/12 17:40	1
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		10/24/12 17:40	1
Phosphorous - Total as P	mg/L	0.081	SM 4500P-E	0.040	0.010	10/25/12 10:27	10/30/12 11:05	1
Sulfate	mg/L	46	EPA 300.0	0.60	0.20		10/24/12 17:40	1
Total Alkalinity	mg/L	2.0 U	SM 2320B	8.0	2.0		10/29/12 09:13	1

Florida Certification Number: E84129
NELAP Accredited

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

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

November 2, 2012
Work Order: 1212355

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**TA1-PZ-11-L2 DUP**						
Matrix		**Groundwater**						
SAL Sample Number		**1212355-03**						
Date/Time Collected		**10/23/12 11:00**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/23/12 16:45**						
Total Kjeldahl Nitrogen	mg/L	2.0	EPA 351.2	0.20	0.05	10/26/12 16:02	10/30/12 11:05	1
Total Organic Carbon	mg/L	3.9	SM 5310B	1.0	0.50		10/25/12 14:47	1
Nitrate+Nitrite (N)	mg/L	41	EPA 300.0	0.08	0.02		10/24/12 17:40	1
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	3.2	SM 5310B	1.0	0.50		10/25/12 14:47	1
Metals								
Boron	mg/L	0.11	EPA 200.7	0.10	0.050	10/24/12 08:59	10/25/12 13:26	1
Calcium	mg/L	41	EPA 200.7	0.50	0.042	10/24/12 08:59	10/24/12 15:32	1
Iron	mg/L	0.022 I	EPA 200.7	0.10	0.020	10/24/12 08:59	10/25/12 13:26	1
Magnesium	mg/L	19	EPA 200.7	0.50	0.020	10/24/12 08:59	10/24/12 15:32	1
Manganese	mg/L	0.019	EPA 200.7	0.010	0.0010	10/24/12 08:59	10/24/12 15:32	1
Potassium	mg/L	12	EPA 200.7	0.050	0.010	10/24/12 08:59	10/24/12 15:32	1
Sodium	mg/L	43	EPA 200.7	0.50	0.13	10/24/12 08:59	10/24/12 15:32	1
Sample Description		**TA1-PZ-11-L4**						
Matrix		**Groundwater**						
SAL Sample Number		**1212355-04**						
Date/Time Collected		**10/23/12 10:35**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/23/12 16:45**						
Field Parameters								
pH	SU	4.8	DEP FT1100	0.1	0.1		10/23/12 10:35	1
Water Temperature	°C	26.9	DEP FT1400	0.1	0.1		10/23/12 10:35	1
Specific conductance	umhos/cm	252	DEP FT1200	0.1	0.1		10/23/12 10:35	1
Dissolved Oxygen	mg/L	1.0	DEP FT1500	0.1	0.1		10/23/12 10:35	1
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/30/12 11:10	1
Ammonium as NH4	mg/L	0.01 U	EPA 350.1	0.05	0.01		10/31/12 14:47	1
Chemical Oxygen Demand	mg/L	17 I	EPA 410.4	25	10	10/25/12 10:00	10/25/12 12:45	1
Chloride	mg/L	12	EPA 300.0	0.20	0.050		10/24/12 17:40	1
Nitrate (as N)	mg/L	5.6	EPA 300.0	0.04	0.01		10/24/12 17:40	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/24/12 17:40	1
Phosphorous - Total as P	mg/L	0.37	SM 4500P-E	0.040	0.010	10/25/12 10:27	10/30/12 11:07	1
Total Alkalinity	mg/L	3.2 I	SM 2320B	8.0	2.0		10/29/12 09:13	1
Total Kjeldahl Nitrogen	mg/L	2.7	EPA 351.2	0.20	0.05	10/26/12 16:02	10/30/12 10:25	1
Nitrate+Nitrite (N)	mg/L	5.6	EPA 300.0	0.08	0.02		10/24/12 17:40	1

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

November 2, 2012
Work Order: 1212355

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22422 - Ion Chromatography 300.0 Prep										
Blank (BJ22422-BLK1)					Prepared & Analyzed: 10/24/12					
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						
Sulfate	0.20 U	0.60	0.20	mg/L						
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						
Fluoride	0.010 U	0.040	0.010	mg/L						
LCS (BJ22422-BS1)					Prepared & Analyzed: 10/24/12					
Orthophosphate as P	0.863	0.040	0.010	mg/L	0.90		96	85-115		
Nitrite (as N)	1.35	0.04	0.01	mg/L	1.4		96	85-115		
Fluoride	0.873	0.040	0.010	mg/L	0.90		97	85-115		
Chloride	2.75	0.20	0.050	mg/L	3.0		92	85-115		
Sulfate	8.65	0.60	0.20	mg/L	9.0		96	85-115		
Nitrate (as N)	1.65	0.04	0.01	mg/L	1.7		97	85-115		
LCS Dup (BJ22422-BSD1)					Prepared & Analyzed: 10/24/12					
Fluoride	0.892	0.040	0.010	mg/L	0.90		99	85-115	2	200
Sulfate	8.68	0.60	0.20	mg/L	9.0		96	85-115	0.3	200
Nitrate (as N)	1.65	0.04	0.01	mg/L	1.7		97	85-115	0	200
Orthophosphate as P	0.890	0.040	0.010	mg/L	0.90		99	85-115	3	200
Chloride	2.83	0.20	0.050	mg/L	3.0		94	85-115	3	200
Nitrite (as N)	1.39	0.04	0.01	mg/L	1.4		99	85-115	3	200
Matrix Spike (BJ22422-MS1)		**Source: 1212355-03**			Prepared & Analyzed: 10/24/12					
Orthophosphate as P	0.843	0.040	0.010	mg/L	0.90	ND	94	85-115		
Chloride	39.9 +O	0.20	0.050	mg/L	3.0	39.1	27	80-120		
Fluoride	0.917	0.040	0.010	mg/L	0.90	0.0780	93	85-115		
Nitrite (as N)	1.41	0.04	0.01	mg/L	1.4	ND	101	85-115		
Sulfate	56.0	0.60	0.20	mg/L	9.0	46.5	106	85-115		
Nitrate (as N)	26.3 +O	0.04	0.01	mg/L	1.7	26.0	18	85-115		

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

November 2, 2012
Work Order: 1212355

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22422 - Ion Chromatography 300.0 Prep										
Matrix Spike (BJ22422-MS2)		**Source: 1212425-05**			Prepared & Analyzed: 10/24/12					
Chloride	20.2	0.20	0.050	mg/L	3.0	17.7	83	80-120		
Orthophosphate as P	4.30	0.040	0.010	mg/L	0.90	3.48	91	85-115		
Sulfate	27.7	0.60	0.20	mg/L	9.0	19.4	92	85-115		
Nitrate (as N)	1.66	0.04	0.01	mg/L	1.7	ND	98	85-115		
Nitrite (as N)	1.37	0.04	0.01	mg/L	1.4	ND	98	85-115		
Fluoride	3.61	0.040	0.010	mg/L	0.90	2.66	106	85-115		
Batch BJ22504 - COD prep										
Blank (BJ22504-BLK1)					Prepared & Analyzed: 10/24/12					
Chemical Oxygen Demand	10 U	25	10	mg/L						
LCS (BJ22504-BS1)					Prepared & Analyzed: 10/24/12					
Chemical Oxygen Demand	54	25	10	mg/L	50		108	90-110		
Matrix Spike (BJ22504-MS1)		**Source: 1212355-02**			Prepared & Analyzed: 10/24/12					
Chemical Oxygen Demand	72	25	10	mg/L	50	20	104	85-115		
Matrix Spike Dup (BJ22504-MSD1)		**Source: 1212355-02**			Prepared & Analyzed: 10/24/12					
Chemical Oxygen Demand	65	25	10	mg/L	50	20	90	85-115	10	32
Batch BJ22516 - Digestion for TP by EPA 365.2/SM4500PE										
Blank (BJ22516-BLK1)					Prepared: 10/25/12 Analyzed: 10/30/12					
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						

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

November 2, 2012
Work Order: 1212355

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22516 - Digestion for TP by EPA 365.2/SM4500PE										
LCS (BJ22516-BS1)					Prepared: 10/25/12 Analyzed: 10/30/12					
Phosphorous - Total as P	0.793	0.040	0.010	mg/L	0.80		99	90-110		
Matrix Spike (BJ22516-MS1)		**Source: 1212352-01**			Prepared: 10/25/12 Analyzed: 10/30/12					
Phosphorous - Total as P	1.01	0.040	0.010	mg/L	1.0	0.0442	96	75-125		
Matrix Spike (BJ22516-MS2)		**Source: 1212475-01**			Prepared: 10/25/12 Analyzed: 10/30/12					
Phosphorous - Total as P	1.20	0.040	0.010	mg/L	1.0	0.187	102	75-125		
Matrix Spike Dup (BJ22516-MSD1)		**Source: 1212352-01**			Prepared: 10/25/12 Analyzed: 10/30/12					
Phosphorous - Total as P	1.03	0.040	0.010	mg/L	1.0	0.0442	99	75-125	2	25
Matrix Spike Dup (BJ22516-MSD2)		**Source: 1212475-01**			Prepared: 10/25/12 Analyzed: 10/30/12					
Phosphorous - Total as P	1.20	0.040	0.010	mg/L	1.0	0.187	102	75-125	0.2	25
Batch BJ22517 - Ion Chromatography 300.0 Prep										
Blank (BJ22517-BLK1)					Prepared & Analyzed: 10/25/12					
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
Chloride	0.050 U	0.20	0.050	mg/L						
LCS (BJ22517-BS1)					Prepared & Analyzed: 10/25/12					
Nitrate (as N)	1.68	0.04	0.01	mg/L	1.7		99	85-115		
Chloride	2.85	0.20	0.050	mg/L	3.0		95	85-115		
LCS Dup (BJ22517-BSD1)					Prepared & Analyzed: 10/25/12					
Nitrate (as N)	1.67	0.04	0.01	mg/L	1.7		98	85-115	0.6	200
Chloride	2.87	0.20	0.050	mg/L	3.0		96	85-115	0.7	200

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

November 2, 2012
Work Order: 1212355

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22517 - Ion Chromatography 300.0 Prep										
Matrix Spike (BJ22517-MS1)		**Source: 1212486-02**			Prepared & Analyzed: 10/25/12					
Chloride	17.6	0.20	0.050	mg/L	3.0	14.8	93	80-120		
Nitrate (as N)	14.3	0.04	0.01	mg/L	1.7	12.8	88	85-115		
Matrix Spike (BJ22517-MS2)		**Source: 1212359-05**			Prepared & Analyzed: 10/25/12					
Chloride	10.8	0.20	0.050	mg/L	3.0	7.53	109	80-120		
Nitrate (as N)	1.67	0.04	0.01	mg/L	1.7	ND	98	85-115		
Batch BJ22526 - TOC prep										
Blank (BJ22526-BLK1)					Prepared & Analyzed: 10/25/12					
Total Organic Carbon	0.50 U	1.0	0.50	mg/L						
LCS (BJ22526-BS1)					Prepared & Analyzed: 10/25/12					
Total Organic Carbon	10.2	1.0	0.50	mg/L	10		102	90-110		
Matrix Spike (BJ22526-MS1)		**Source: 1212435-04**			Prepared & Analyzed: 10/25/12					
Total Organic Carbon	17.3	1.0	0.50	mg/L	10	6.64	107	85-115		
Matrix Spike Dup (BJ22526-MSD1)		**Source: 1212435-04**			Prepared & Analyzed: 10/25/12					
Total Organic Carbon	15.8	1.0	0.50	mg/L	10	6.64	92	85-115	9	10
Batch BJ22542 - COD prep										
Blank (BJ22542-BLK1)					Prepared & Analyzed: 10/25/12					
Chemical Oxygen Demand	10 U	25	10	mg/L						

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

November 2, 2012
Work Order: 1212355

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22542 - COD prep										
LCS (BJ22542-BS1)					Prepared & Analyzed: 10/25/12					
Chemical Oxygen Demand	54	25	10	mg/L	50		108	90-110		
Matrix Spike (BJ22542-MS1)		**Source: 1212355-04**			Prepared & Analyzed: 10/25/12					
Chemical Oxygen Demand	74	25	10	mg/L	50	17	114	85-115		
Matrix Spike Dup (BJ22542-MSD1)		**Source: 1212355-04**			Prepared & Analyzed: 10/25/12					
Chemical Oxygen Demand	69	25	10	mg/L	50	17	104	85-115	7	32
Batch BJ22645 - Digestion for TKN by EPA 351.2										
Blank (BJ22645-BLK1)					Prepared: 10/26/12 Analyzed: 10/30/12					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
LCS (BJ22645-BS1)					Prepared: 10/26/12 Analyzed: 10/30/12					
Total Kjeldahl Nitrogen	2.71	0.20	0.05	mg/L	2.5		107	90-110		
Matrix Spike (BJ22645-MS1)		**Source: 1211985-03**			Prepared: 10/26/12 Analyzed: 10/30/12					
Total Kjeldahl Nitrogen	3.88	0.20	0.05	mg/L	2.5	1.41	97	90-110		
Matrix Spike (BJ22645-MS2)		**Source: 1212356-06**			Prepared: 10/26/12 Analyzed: 10/30/12					
Total Kjeldahl Nitrogen	3.95	0.20	0.05	mg/L	2.5	1.61	92	90-110		
Matrix Spike Dup (BJ22645-MSD1)		**Source: 1211985-03**			Prepared: 10/26/12 Analyzed: 10/30/12					
Total Kjeldahl Nitrogen	3.86	0.20	0.05	mg/L	2.5	1.41	97	90-110	0.6	20
Matrix Spike Dup (BJ22645-MSD2)		**Source: 1212356-06**			Prepared: 10/26/12 Analyzed: 10/30/12					
Total Kjeldahl Nitrogen	3.97	0.20	0.05	mg/L	2.5	1.61	93	90-110	0.4	20

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

November 2, 2012
Work Order: 1212355

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ23002 - Ammonia by SEAL										
Blank (BJ23002-BLK1)					Prepared & Analyzed: 10/30/12					
Ammonia as N	0.009 U	0.040	0.009	mg/L						
LCS (BJ23002-BS1)					Prepared & Analyzed: 10/30/12					
Ammonia as N	0.53	0.040	0.009	mg/L	0.50		105	90-110		
Matrix Spike (BJ23002-MS1)		**Source: 1212352-02**			Prepared & Analyzed: 10/30/12					
Ammonia as N	0.53	0.040	0.009	mg/L	0.50	0.056	96	90-110		
Matrix Spike (BJ23002-MS2)		**Source: 1212381-07**			Prepared & Analyzed: 10/30/12					
Ammonia as N	0.53	0.040	0.009	mg/L	0.50	0.063	93	90-110		
Matrix Spike Dup (BJ23002-MSD1)		**Source: 1212352-02**			Prepared & Analyzed: 10/30/12					
Ammonia as N	0.55	0.040	0.009	mg/L	0.50	0.056	98	90-110	2	10
Matrix Spike Dup (BJ23002-MSD2)		**Source: 1212381-07**			Prepared & Analyzed: 10/30/12					
Ammonia as N	0.53	0.040	0.009	mg/L	0.50	0.063	94	90-110	1	10
Batch BJ23101 - alkalinity										
Blank (BJ23101-BLK1)					Prepared & Analyzed: 10/29/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
Blank (BJ23101-BLK2)					Prepared & Analyzed: 10/29/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
LCS (BJ23101-BS1)					Prepared & Analyzed: 10/29/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		

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

November 2, 2012
Work Order: 1212355

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ23101 - alkalinity										
LCS (BJ23101-BS2)					Prepared & Analyzed: 10/29/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		
Matrix Spike (BJ23101-MS1)		**Source: 1211968-05**			Prepared & Analyzed: 10/29/12					
Total Alkalinity	270	8.0	2.0	mg/L	120	150	95	80-120		
Matrix Spike (BJ23101-MS2)		**Source: 1212585-01**			Prepared & Analyzed: 10/29/12					
Total Alkalinity	280	8.0	2.0	mg/L	120	160	95	80-120		
Matrix Spike Dup (BJ23101-MSD1)		**Source: 1211968-05**			Prepared & Analyzed: 10/29/12					
Total Alkalinity	270	8.0	2.0	mg/L	120	150	95	80-120	0	26
Matrix Spike Dup (BJ23101-MSD2)		**Source: 1212585-01**			Prepared & Analyzed: 10/29/12					
Total Alkalinity	270	8.0	2.0	mg/L	120	160	86	80-120	4	26

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

November 2, 2012
Work Order: 1212355

Inorganic, Dissolved - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22527 -										
Blank (BJ22527-BLK1)					Prepared & Analyzed: 10/25/12					
Dissolved Organic Carbon	0.50 U	1.0	0.50	mg/L						
LCS (BJ22527-BS1)					Prepared & Analyzed: 10/25/12					
Dissolved Organic Carbon	10.5	1.0	0.50	mg/L	10		105	90-110		
Matrix Spike (BJ22527-MS1)		**Source: 1212355-03**			Prepared & Analyzed: 10/25/12					
Dissolved Organic Carbon	14.1	1.0	0.50	mg/L	10	3.20	109	85-125		
Matrix Spike Dup (BJ22527-MSD1)		**Source: 1212355-03**			Prepared & Analyzed: 10/25/12					
Dissolved Organic Carbon	14.3	1.0	0.50	mg/L	10	3.20	111	85-125	2	25

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

November 2, 2012
Work Order: 1212355

Metals - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22409 - Metals Preparation for EPA Method 200.7										
Blank (BJ22409-BLK1)					Prepared: 10/24/12 Analyzed: 10/25/12					
Iron	0.020 U	0.10	0.020	mg/L						
Potassium	0.010 U	0.050	0.010	mg/L						
Calcium	0.042 U	0.50	0.042	mg/L						
Magnesium	0.020 U	0.50	0.020	mg/L						
Manganese	0.0010 U	0.010	0.0010	mg/L						
Boron	0.050 U	0.10	0.050	mg/L						
Sodium	0.13 U	0.50	0.13	mg/L						
LCS (BJ22409-BS1)					Prepared & Analyzed: 10/24/12					
Manganese	0.41	0.010	0.0010	mg/L	0.40		102	85-115		
Boron	0.35	0.10	0.050	mg/L	0.40		87	85-115		
Calcium	20	0.50	0.042	mg/L	20		101	85-115		
Magnesium	20	0.50	0.020	mg/L	20		100	85-115		
Iron	8.3	0.10	0.020	mg/L	8.0		104	85-115		
Potassium	19	0.050	0.010	mg/L	20		94	85-115		
Sodium	20	0.50	0.13	mg/L	20		99	85-115		
Matrix Spike (BJ22409-MS1)		**Source: 1212352-02**			Prepared & Analyzed: 10/24/12					
Boron	0.38	0.10	0.050	mg/L	0.40	ND	95	70-130		
Calcium	47	0.50	0.042	mg/L	20	26	105	70-130		
Iron	8.3	0.10	0.020	mg/L	8.0	ND	104	70-130		
Sodium	36	0.50	0.13	mg/L	20	16	103	70-130		
Potassium	29	0.050	0.010	mg/L	20	8.1	103	70-130		
Magnesium	30	0.50	0.020	mg/L	20	9.4	104	70-130		
Manganese	0.48	0.010	0.0010	mg/L	0.40	0.077	101	70-130		
Matrix Spike (BJ22409-MS2)		**Source: 1212392-03**			Prepared & Analyzed: 10/24/12					
Boron	0.54	0.10	0.050	mg/L	0.40	0.094	110	70-130		
Iron	29	0.10	0.020	mg/L	8.0	20	104	70-130		
Potassium	37	0.050	0.010	mg/L	20	15	107	70-130		
Calcium	110	0.50	0.042	mg/L	20	92	101	70-130		
Magnesium	73	0.50	0.020	mg/L	20	53	104	70-130		
Sodium	)00,000,000 +O	0.50	0.13	mg/L	20	00000000	0	70-130		
Manganese	)00,000,000 +O	0.010	0.0010	mg/L	0.40	00000000	0	70-130		

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

November 2, 2012
Work Order: 1212355

Metals - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22409 - Metals Preparation for EPA Method 200.7										
Matrix Spike Dup (BJ22409-MSD1)		**Source: 1212352-02**			Prepared & Analyzed: 10/24/12					
Magnesium	30	0.50	0.020	mg/L	20	9.4	104	70-130	0.03	30
Potassium	28	0.050	0.010	mg/L	20	8.1	101	70-130	1	30
Sodium	36	0.50	0.13	mg/L	20	16	104	70-130	0.6	30
Manganese	0.49	0.010	0.0010	mg/L	0.40	0.077	103	70-130	2	30
Boron	0.40	0.10	0.050	mg/L	0.40	ND	101	70-130	6	30
Iron	8.4	0.10	0.020	mg/L	8.0	ND	106	70-130	1	30
Calcium	47	0.50	0.042	mg/L	20	26	105	70-130	0.03	30
Matrix Spike Dup (BJ22409-MSD2)		**Source: 1212392-03**			Prepared & Analyzed: 10/24/12					
Manganese	)00,000,000 +O	0.010	0.0010	mg/L	0.40	00000000	0	70-130	0	30
Sodium	)00,000,000 +O	0.50	0.13	mg/L	20	00000000	0	70-130	0	30
Potassium	34	0.050	0.010	mg/L	20	15	92	70-130	8	30
Calcium	110	0.50	0.042	mg/L	20	92	89	70-130	2	30
Magnesium	71	0.50	0.020	mg/L	20	53	92	70-130	3	30
Iron	28	0.10	0.020	mg/L	8.0	20	93	70-130	3	30
Boron	0.53	0.10	0.050	mg/L	0.40	0.094	109	70-130	1	30

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

November 2, 2012
Work Order: 1212355

* 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.

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

Questions regarding this report should be directed to :

Kathryn Nordmark
Telephone (813) 855-1844 FAX (813) 855-2218
Kathryn@southernanalyticallabs.com

or to Client Services (clientservices@southernanalyticallabs.com).

1212355

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: S&GW Test Facility SE #3 (TA1)

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	250mL P, H_2SO_4 TKN, NH_4	1LP, Cool NOx, Cl	250mL P, H_2SO_4 TKN, NH_4, COD, TP	1LP, Cool NOx, Cl, Alkalinity	1LP, Cool NOx, Cl, Alkalinity, F, OP, SO_4	250mLaG, Cool DOC	40mLaV, HCl TOC	250mL P, HNO_3 B, Ca, Fe, Mg, Mn, K, Na					Field pH	Field Temperature	Field Conductivity	Field DO
																			4.45	26.6	225.1	1.26
01	TA1-PZ-11-EF2	10/23/12	10:05	GW		X	1	1														
02	TA1-PZ-11-L2	10/23/12	1055	GW		X			1		1	1	2	1					4.52	27.4	713	2.04
03	TA1-PZ-11-L2 DUP	10/23/12	1100	GW		X			1		1	1	2	1					4.52	27.4	713	2.04

Containers Prepared/ Relinquished:	Date/Time:	Received:	Date/Time:
D. Chambers	10-22-12 12:10		10-23-12 0710
J. Hill	10-23-12 1645		1645 10-23-12
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

Seal intact? Y N N/A

Samples intact upon arrival? Y N N/A

Received on ice? Temp_____ Y N N/A

Proper preservatives indicated? Y N N/A

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

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

Proper containers used? Y N N/A

Instructions / Remarks:

1212355

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

Chain of Custody

1212355

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: S&GW Test Facility SE #3 (TA1)

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	250mL P, H_2SO_4 TKN, NH_4	1LP, Cool NOx, Cl	250mL P, H_2SO_4 TKN, NH_4, COD, TP	1LP, Cool NOx, Cl, Alkalinity	1LP, Cool NOx, Cl, Alkalinity, F, OP, SO_4	250mLaG, Cool DOC	40mLaV, HCl TOC	250mL P, HNO_3 B, Ca, Fe, Mg, Mn, K, Na					Field pH	Field Temperature	Field Conductivity	Field DO
04	TA1-PZ-11-L4	10/23/12	1035	GW		X			1	1									4.81	26.9	752.3	1.04

Containers Prepared/ Relinquished:	Date/Time:	Received:	Date/Time:
J. Chambers	10-23-12 12:15		10/23/12 0710
Relinquished:	Date/Time:	Received:	Date/Time:
	10-23-12 1645		1645 10-23-12
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

Seal intact? Y N N/A

Samples intact upon arrival? Y N N/A

Received on ice? Temp_____ Y N N/A

Proper preservatives indicated? Y N N/A

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

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

Proper containers used? Y N N/A

Instructions / Remarks:

1212355

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	10/23/12	SAL Project #	1212355	Project Name	S&GW Test Facility SE #3
Well Number	TA1-PZ-11-EF2	Sample ID	01	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1"	WELL CAPACITY (gal/ft)	.04	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	8.45	PURGE PUMP CODE: PP GP IBP
TOTAL WELL DEPTH (Feet)	14.83	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	.2552	1/4 WELL VOLUME		3 WELL VOLUMES	.7656	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	0950	PURGE TIME END	1005	TOTAL PURGED	
INST. ID				SAL-SAM-~~55~~ 0108	SAL-SAM-~~65~~ 0108	SAL-SAM-~~65~~ 0108	SAL-SAM-~~55~~ 0108	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)
0953	.3	.3	.1	8.45	4.50	25.6	226.8	2.19	137	Cloudy	
0956	.3	.6	.1		4.45	26.4	220.0	1.67	26.0		
0959	.3	.9	.1		4.45	26.5	218.3	1.40	49.7	Cloudy	
1002	.3	1.2	.1		4.45	26.6	214.0	1.24	34.1		
1005	.3	1.5	.1		4.45	26.6	225.1	1.26	24.5	Slightly 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:	J. [illegible] - IL		
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT	SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	1005	SAMPLING ENDED	1010	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 70°F 10 mph NE						
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	10/23/12	SAL Project #	1212355	Project Name	S&GW Test Facility SE #3
Well Number	TA1-PZ-11-L2	Sample ID	02	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1"	WELL CAPACITY (gal/ft)	0.04	Screen Interval (Feet)	UNK	To	UNK	Static Depth to Water (Feet)	8.55	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	.2508	1/4 WELL VOLUME		3 WELL VOLUMES	0.7524	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	1040	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)
1043	.3	.3	.1	8.55	4.55	27.4	670	2.81	81.2	Cloudy Brown	
1046	.3	.6	.1		4.53	27.3	695	2.59	74.6		
1049	.3	.9	.1		4.53	27.3	704	2.30	20.7	Clear	
1052	.3	1.2	.1		4.53	27.3	710	2.47	19.8		
1055	.3	1.5	.1		4.52	27.4	713	2.04	16.0	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:	[illegible]			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	1055	SAMPLING ENDED	1100	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	5-10 mph NE Sunny 80°F								
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	10/23/12	SAL Project #	1212355	Project Name	S&GW Test Facility SE #3
Well Number	TA1-PZ-11-L2-DUP	Sample ID	03	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1"	WELL CAPACITY (gal/ft)	.04	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	8.55	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	.2508	1/4 WELL VOLUME		3 WELL VOLUMES	.7524	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)
1043	.3	.3	.1	8.55	4.55	27.4	670	2.81	81.2	Cloudy Brown	
1046	.3	.6	.1		4.53	27.3	695	2.59	74.6		
1049	.3	.9	.1		4.53	27.3	704	2.30	20.7	Clear	
1052	.3	1.2	.1		4.53	27.3	710	2.47	18.8		
1055	.3	1.5	.1		4.52	27.4	713	2.04	16.0	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:	[signature] IG			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT			SAMPLE TUBING LEGNTH IN WELL (FEET)		SAMPLE PUMP FLOW RATE (mL/min)			
SAMPLING INITIATED	1100	SAMPLING ENDED	1105	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	5-10 mph NE Sunny 80°F								
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	6/23/12	SAL Project #	1212355	Project Name	S&GW Test Facility SE #3
Well Number	TA1-PZ-11-L4	Sample ID	04	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1"	WELL CAPACITY (gal/ft)	0.04	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	8.55	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	0.2508	1/4 WELL VOLUME		3 WELL VOLUMES	0.7524	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	10:17	PURGE TIME END	1032	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)
10:20	0.3	0.3	.1	8.55	4.67	26.9	246.5	1.87	25.5	Slightly Cloudy	
10:23	0.3	0.6	.1		4.75	26.9	252.7	1.56	210		
10:26	0.3	0.9	.1		4.76	26.9	254.6	1.25	230	Cloudy	
10:29	0.3	1.2	.1		4.80	26.9	261.9	1.00	61.7		
10:32	0.3	1.5	.1		4.81	26.9	252.3	1.04	29.3	Slightly 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:	[signature] JG		
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	1035	SAMPLING ENDED	1040	FIELD CLEANED	Y N	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Sunny 5mph N 80°F								
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

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

November 2, 2012
Work Order: 1211971

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**TA2-PZ-10-EF2**						
Matrix		**Groundwater**						
SAL Sample Number		**1211971-02**						
Date/Time Collected		**10/16/12 08:10**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/16/12 15:30**						
Field Parameters								
pH	SU	5.2	DEP FT1100	0.1	0.1		10/16/12 08:10	1
Water Temperature	°C	25.8	DEP FT1400	0.1	0.1		10/16/12 08:10	1
Specific conductance	umhos/cm	189	DEP FT1200	0.1	0.1		10/16/12 08:10	1
Dissolved Oxygen	mg/L	3.3	DEP FT1500	0.1	0.1		10/16/12 08:10	1
Inorganics								
Ammonia as N	mg/L	0.013 I	EPA 350.1	0.040	0.009		10/25/12 13:43	1
Ammonium as NH4	mg/L	0.02	EPA 350.1	0.01	0.005	10/25/12 16:01	10/25/12 16:05	1
Chemical Oxygen Demand	mg/L	26	EPA 410.4	25	10	10/17/12 09:25	10/17/12 13:00	1
Chloride	mg/L	8.0	EPA 300.0	0.20	0.050		10/17/12 17:07	1
Fluoride	mg/L	0.054	EPA 300.0	0.040	0.010		10/17/12 17:07	1
Nitrate (as N)	mg/L	3.1	EPA 300.0	0.04	0.01		10/17/12 17:07	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/17/12 17:07	1
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		10/17/12 17:07	1
Phosphorous - Total as P	mg/L	0.11	SM 4500P-E	0.040	0.010	10/25/12 10:24	10/29/12 12:28	1
Sulfate	mg/L	37	EPA 300.0	0.60	0.20		10/17/12 17:07	1
Total Alkalinity	mg/L	2.1 I	SM 2320B	8.0	2.0		10/22/12 09:45	1
Total Kjeldahl Nitrogen	mg/L	1.6	EPA 351.2	0.20	0.05	10/22/12 15:19	10/24/12 14:18	1
Total Organic Carbon	mg/L	9.0	SM 5310B	1.0	0.50		10/17/12 12:43	1
Nitrate+Nitrite (N)	mg/L	3.1	EPA 300.0	0.08	0.02		10/17/12 17:07	1
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	8.4	SM 5310B	1.0	0.50		10/17/12 15:14	1
Metals								
Boron	mg/L	0.065 I	EPA 200.7	0.10	0.050	10/18/12 12:11	10/19/12 11:10	1
Calcium	mg/L	14	EPA 200.7	0.50	0.042	10/18/12 12:11	10/19/12 11:10	1
Iron	mg/L	0.049 I	EPA 200.7	0.10	0.020	10/18/12 12:11	10/19/12 11:10	1
Magnesium	mg/L	3.4	EPA 200.7	0.50	0.020	10/18/12 12:11	10/19/12 11:10	1
Manganese	mg/L	0.025	EPA 200.7	0.010	0.0010	10/18/12 12:11	10/19/12 11:10	1
Potassium	mg/L	4.0	EPA 200.7	0.050	0.010	10/18/12 12:11	10/19/12 11:10	1
Sodium	mg/L	11	EPA 200.7	0.50	0.13	10/18/12 12:11	10/19/12 11:10	1

Sample Description	**TA2-LY-24-C**
Matrix	**Groundwater**
SAL Sample Number	**1211971-03**
Date/Time Collected	**10/15/12 11:50**
Collected by	**Josephine Edeback-Hirst**
Date/Time Received	**10/16/12 15:30**

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

November 2, 2012
Work Order: 1211971

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**TA2-LY-24-C**						
Matrix		**Groundwater**						
SAL Sample Number		**1211971-03**						
Date/Time Collected		**10/15/12 11:50**						
Collected by		**Josephine Edeback-Hirst**						
Date/Time Received		**10/16/12 15:30**						
Field Parameters								
pH	SU	6.6	DEP FT1100	0.1	0.1	10/29/12 11:21	10/15/12 11:50	1
Water Temperature	°C	30.1	DEP FT1400	0.1	0.1	10/29/12 11:21	10/15/12 11:50	1
Specific conductance	umhos/cm	509	DEP FT1200	0.1	0.1	10/29/12 11:21	10/15/12 11:50	1
Dissolved Oxygen	mg/L	6.0	DEP FT1500	0.1	0.1	10/29/12 11:21	10/15/12 11:50	1
Inorganics								
Ammonia as N	mg/L	0.029 I	EPA 350.1	0.040	0.009		10/25/12 13:45	1
Ammonium as NH4	mg/L	0.04	EPA 350.1	0.01	0.005	10/25/12 16:01	10/25/12 16:05	1
Chloride	mg/L	33	EPA 300.0	0.20	0.050		10/23/12 17:20	1
Nitrate (as N)	mg/L	15	EPA 300.0	0.04	0.01		10/16/12 16:49	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/16/12 16:49	1
Total Kjeldahl Nitrogen	mg/L	1.7	EPA 351.2	0.20	0.05	10/22/12 15:19	10/24/12 15:55	1
Nitrate+Nitrite (N)	mg/L	15	EPA 300.0	0.08	0.02		10/16/12 16:49	1
Sample Description		**TA2-LY-12-S**						
Matrix		**Groundwater**						
SAL Sample Number		**1211971-04**						
Date/Time Collected		**10/15/12 12:00**						
Collected by		**Josephine Edeback-Hirst**						
Date/Time Received		**10/16/12 15:30**						
Field Parameters								
pH	SU	6.8	DEP FT1100	0.1	0.1	10/29/12 11:21	10/15/12 12:00	1
Water Temperature	°C	29.5	DEP FT1400	0.1	0.1	10/29/12 11:21	10/15/12 12:00	1
Specific conductance	umhos/cm	616	DEP FT1200	0.1	0.1	10/29/12 11:21	10/15/12 12:00	1
Dissolved Oxygen	mg/L	6.6	DEP FT1500	0.1	0.1	10/29/12 11:21	10/15/12 12:00	1
Inorganics								
Ammonia as N	mg/L	0.013 I	EPA 350.1	0.040	0.009		10/25/12 13:47	1
Ammonium as NH4	mg/L	0.02	EPA 350.1	0.01	0.005	10/25/12 16:01	10/25/12 16:05	1
Chloride	mg/L	45	EPA 300.0	0.20	0.050		10/23/12 17:20	1
Nitrate (as N)	mg/L	17	EPA 300.0	0.04	0.01		10/16/12 16:49	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/16/12 16:49	1
Total Kjeldahl Nitrogen	mg/L	2.3	EPA 351.2	0.20	0.05	10/22/12 15:19	10/24/12 14:21	1
Nitrate+Nitrite (N)	mg/L	17	EPA 300.0	0.08	0.02		10/16/12 16:49	1

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

November 2, 2012
Work Order: 1211971

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**TA2-LY-24-S**						
Matrix		**Groundwater**						
SAL Sample Number		**1211971-05**						
Date/Time Collected		**10/15/12 12:10**						
Collected by		**Josephine Edeback-Hirst**						
Date/Time Received		**10/16/12 15:30**						
Field Parameters								
pH	SU	6.4	DEP FT1100	0.1	0.1	10/29/12 11:21	10/15/12 12:10	1
Water Temperature	°C	29.9	DEP FT1400	0.1	0.1	10/29/12 11:21	10/15/12 12:10	1
Specific conductance	umhos/cm	510	DEP FT1200	0.1	0.1	10/29/12 11:21	10/15/12 12:10	1
Dissolved Oxygen	mg/L	4.7	DEP FT1500	0.1	0.1	10/29/12 11:21	10/15/12 12:10	1
Inorganics								
Ammonia as N	mg/L	0.032 I	EPA 350.1	0.040	0.009		10/25/12 13:50	1
Ammonium as NH4	mg/L	0.04	EPA 350.1	0.01	0.005	10/25/12 16:01	10/25/12 16:05	1
Chemical Oxygen Demand	mg/L	75	EPA 410.4	25	10		10/19/12 12:00	1
Chloride	mg/L	37	EPA 300.0	0.20	0.050		10/23/12 17:20	1
Nitrate (as N)	mg/L	17	EPA 300.0	0.04	0.01		10/16/12 16:49	1
Nitrite (as N)	mg/L	0.08	EPA 300.0	0.04	0.01		10/16/12 16:49	1
Phosphorous - Total as P	mg/L	0.75	SM 4500P-E	0.040	0.010	10/25/12 10:24	10/29/12 12:29	1
Total Alkalinity	mg/L	65	SM 2320B	8.0	2.0		10/16/12 08:00	1
Total Kjeldahl Nitrogen	mg/L	2.1	EPA 351.2	0.20	0.05	10/22/12 15:19	10/24/12 15:57	1
Nitrate+Nitrite (N)	mg/L	17	EPA 300.0	0.08	0.02		10/16/12 16:49	1
Sample Description		**TA2-LY-42-S**						
Matrix		**Groundwater**						
SAL Sample Number		**1211971-06**						
Date/Time Collected		**10/15/12 12:40**						
Collected by		**Josephine Edeback-Hirst**						
Date/Time Received		**10/16/12 15:30**						
Field Parameters								
pH	SU	5.7	DEP FT1100	0.1	0.1	10/29/12 11:21	10/15/12 12:40	1
Water Temperature	°C	28.5	DEP FT1400	0.1	0.1	10/29/12 11:21	10/15/12 12:40	1
Specific conductance	umhos/cm	433	DEP FT1200	0.1	0.1	10/29/12 11:21	10/15/12 12:40	1
Dissolved Oxygen	mg/L	4.5	DEP FT1500	0.1	0.1	10/29/12 11:21	10/15/12 12:40	1
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/25/12 13:52	1
Ammonium as NH4	mg/L	0.01	EPA 350.1	0.01	0.005	10/25/12 16:01	10/25/12 16:05	1
Chemical Oxygen Demand	mg/L	38	EPA 410.4	25	10	10/17/12 09:25	10/17/12 13:00	1
Chloride	mg/L	37	EPA 300.0	0.20	0.050		10/23/12 17:20	1
Fluoride	mg/L	0.010 U	EPA 300.0	0.040	0.010		10/16/12 16:49	1
Nitrate (as N)	mg/L	9.9	EPA 300.0	0.04	0.01		10/16/12 16:49	1
Nitrite (as N)	mg/L	0.38	EPA 300.0	0.04	0.01		10/16/12 16:49	1
Orthophosphate as P	mg/L	0.10	EPA 300.0	0.040	0.010		10/16/12 16:49	1

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

November 2, 2012
Work Order: 1211971

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**TA2-LY-42-S**						
Matrix		**Groundwater**						
SAL Sample Number		**1211971-06**						
Date/Time Collected		**10/15/12 12:40**						
Collected by		**Josephine Edeback-Hirst**						
Date/Time Received		**10/16/12 15:30**						
Phosphorous - Total as P	mg/L	0.25	SM 4500P-E	0.040	0.010	10/25/12 10:24	10/29/12 12:30	1
Sulfate	mg/L	52	EPA 300.0	0.60	0.20		10/16/12 16:49	1
Total Alkalinity	mg/L	22	SM 2320B	8.0	2.0		10/16/12 08:00	1
Total Kjeldahl Nitrogen	mg/L	2.5	EPA 351.2	0.20	0.05	10/22/12 15:19	10/24/12 14:25	1
Nitrate+Nitrite (N)	mg/L	10	EPA 300.0	0.08	0.02		10/16/12 16:49	1
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	13	SM 5310B	1.0	0.50		10/17/12 10:41	1
Metals								
Boron	mg/L	0.18	EPA 200.7	0.10	0.050	10/18/12 12:11	10/19/12 11:27	1
Calcium	mg/L	26	EPA 200.7	0.50	0.042	10/18/12 12:11	10/19/12 11:27	1
Iron	mg/L	0.036 I	EPA 200.7	0.10	0.020	10/18/12 12:11	10/19/12 11:27	1
Magnesium	mg/L	8.3	EPA 200.7	0.50	0.020	10/18/12 12:11	10/19/12 11:27	1
Manganese	mg/L	0.012	EPA 200.7	0.010	0.0010	10/18/12 12:11	10/19/12 11:27	1
Potassium	mg/L	8.4	EPA 200.7	0.050	0.010	10/18/12 12:11	10/19/12 11:27	1
Sodium	mg/L	37	EPA 200.7	0.50	0.13	10/18/12 12:11	10/19/12 11:27	1
Sample Description		**TA2-PZ-10-H5**						
Matrix		**Groundwater**						
SAL Sample Number		**1211971-07**						
Date/Time Collected		**10/16/12 08:50**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/16/12 15:30**						
Field Parameters								
pH	SU	4.9	DEP FT1100	0.1	0.1		10/16/12 08:50	1
Water Temperature	°C	26.0	DEP FT1400	0.1	0.1		10/16/12 08:50	1
Specific conductance	umhos/cm	306	DEP FT1200	0.1	0.1		10/16/12 08:50	1
Dissolved Oxygen	mg/L	1.7	DEP FT1500	0.1	0.1		10/16/12 08:50	1
Inorganics								
Ammonia as N	mg/L	0.019 I	EPA 350.1	0.040	0.009		10/25/12 13:54	1
Ammonium as NH4	mg/L	0.02	EPA 350.1	0.01	0.005	10/25/12 16:01	10/25/12 16:05	1
Chemical Oxygen Demand	mg/L	24 I	EPA 410.4	25	10		10/22/12 10:30	1
Chloride	mg/L	15	EPA 300.0	0.20	0.050		10/17/12 17:07	1
Nitrate (as N)	mg/L	10	EPA 300.0	0.04	0.01		10/17/12 17:07	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/17/12 17:07	1
Phosphorous - Total as P	mg/L	0.24	SM 4500P-E	0.040	0.010	10/25/12 10:24	10/29/12 12:31	1
Total Alkalinity	mg/L	2.0 U	SM 2320B	8.0	2.0		10/22/12 10:55	1
Total Kjeldahl Nitrogen	mg/L	1.9	EPA 351.2	0.20	0.05	10/22/12 15:19	10/24/12 14:26	1

Florida Certification Number: 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

November 2, 2012
Work Order: 1211971

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**TA2-PZ-10-H5**						
Matrix		**Groundwater**						
SAL Sample Number		**1211971-07**						
Date/Time Collected		**10/16/12 08:50**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/16/12 15:30**						
Nitrate+Nitrite (N)	mg/L	10	EPA 300.0	0.08	0.02		10/17/12 17:07	1
Sample Description		**TA2-PZ-10-J5**						
Matrix		**Groundwater**						
SAL Sample Number		**1211971-08**						
Date/Time Collected		**10/16/12 10:40**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/16/12 15:30**						
Field Parameters								
pH	SU	5.1	DEP FT1100	0.1	0.1		10/16/12 10:40	1
Water Temperature	°C	26.9	DEP FT1400	0.1	0.1		10/16/12 10:40	1
Specific conductance	umhos/cm	365	DEP FT1200	0.1	0.1		10/16/12 10:40	1
Dissolved Oxygen	mg/L	2.9	DEP FT1500	0.1	0.1		10/16/12 10:40	1
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/25/12 13:56	1
Ammonium as NH4	mg/L	0.005 U	EPA 350.1	0.01	0.005	10/25/12 16:01	10/25/12 16:05	1
Chemical Oxygen Demand	mg/L	13 I	EPA 410.4	25	10		10/19/12 12:00	1
Chloride	mg/L	23	EPA 300.0	0.20	0.050		10/17/12 17:07	1
Nitrate (as N)	mg/L	14	EPA 300.0	0.04	0.01		10/17/12 17:07	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/17/12 17:07	1
Phosphorous - Total as P	mg/L	0.039 I	SM 4500P-E	0.040	0.010	10/25/12 10:24	10/29/12 12:32	1
Total Alkalinity	mg/L	2.1 I	SM 2320B	8.0	2.0		10/22/12 10:55	1
Total Kjeldahl Nitrogen	mg/L	1.0	EPA 351.2	0.20	0.05	10/22/12 15:19	10/24/12 14:28	1
Nitrate+Nitrite (N)	mg/L	14	EPA 300.0	0.08	0.02		10/17/12 17:07	1
Sample Description		**TA2-PZ-10-J5 DUP**						
Matrix		**Groundwater**						
SAL Sample Number		**1211971-09**						
Date/Time Collected		**10/16/12 10:45**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/16/12 15:30**						
Field Parameters								
pH	SU	5.1	DEP FT1100	0.1	0.1		10/16/12 10:45	1
Water Temperature	°C	26.9	DEP FT1400	0.1	0.1		10/16/12 10:45	1
Specific conductance	umhos/cm	365	DEP FT1200	0.1	0.1		10/16/12 10:45	1
Dissolved Oxygen	mg/L	2.9	DEP FT1500	0.1	0.1		10/16/12 10:45	1

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

November 2, 2012
Work Order: 1211971

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**TA2-PZ-10-J5 DUP**						
Matrix		**Groundwater**						
SAL Sample Number		**1211971-09**						
Date/Time Collected		**10/16/12 10:45**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/16/12 15:30**						
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/25/12 13:58	1
Ammonium as NH4	mg/L	0.005 U	EPA 350.1	0.01	0.005	10/25/12 16:01	10/25/12 16:05	1
Chemical Oxygen Demand	mg/L	13 I	EPA 410.4	25	10	10/17/12 09:25	10/17/12 13:00	1
Chloride	mg/L	23	EPA 300.0	0.20	0.050		10/17/12 17:07	1
Nitrate (as N)	mg/L	14	EPA 300.0	0.04	0.01		10/17/12 17:07	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/17/12 17:07	1
Phosphorous - Total as P	mg/L	0.041	SM 4500P-E	0.040	0.010	10/25/12 10:24	10/29/12 12:33	1
Total Alkalinity	mg/L	2.1 I	SM 2320B	8.0	2.0		10/22/12 10:55	1
Total Kjeldahl Nitrogen	mg/L	1.2	EPA 351.2	0.20	0.05	10/22/12 15:19	10/24/12 14:30	1
Nitrate+Nitrite (N)	mg/L	14	EPA 300.0	0.08	0.02		10/17/12 17:07	1
Sample Description		**TA2-PZ-10-K5**						
Matrix		**Groundwater**						
SAL Sample Number		**1211971-10**						
Date/Time Collected		**10/16/12 12:20**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/16/12 15:30**						
Field Parameters								
pH	SU	5.0	DEP FT1100	0.1	0.1		10/16/12 12:20	1
Water Temperature	°C	27.8	DEP FT1400	0.1	0.1		10/16/12 12:20	1
Specific conductance	umhos/cm	442	DEP FT1200	0.1	0.1		10/16/12 12:20	1
Dissolved Oxygen	mg/L	3.3	DEP FT1500	0.1	0.1		10/16/12 12:20	1
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/25/12 14:00	1
Ammonium as NH4	mg/L	0.005 U	EPA 350.1	0.01	0.005	10/25/12 16:01	10/25/12 16:05	1
Chemical Oxygen Demand	mg/L	11 I	EPA 410.4	25	10		10/19/12 12:00	1
Chloride	mg/L	28	EPA 300.0	0.20	0.050		10/17/12 17:07	1
Nitrate (as N)	mg/L	15	EPA 300.0	0.04	0.01		10/17/12 17:07	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/17/12 17:07	1
Phosphorous - Total as P	mg/L	0.048	SM 4500P-E	0.040	0.010	10/25/12 10:24	10/29/12 12:34	1
Total Alkalinity	mg/L	2.0 U	SM 2320B	8.0	2.0		10/22/12 10:55	1
Total Kjeldahl Nitrogen	mg/L	1.5	EPA 351.2	0.20	0.05	10/22/12 15:19	10/24/12 14:31	1
Nitrate+Nitrite (N)	mg/L	15	EPA 300.0	0.08	0.02		10/17/12 17:07	1

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

November 2, 2012
Work Order: 1211971

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**TA2-PZ-10-L2**						
Matrix		**Groundwater**						
SAL Sample Number		**1211971-11**						
Date/Time Collected		**10/16/12 09:55**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/16/12 15:30**						
Field Parameters								
pH	SU	4.4	DEP FT1100	0.1	0.1		10/16/12 09:55	1
Water Temperature	°C	26.7	DEP FT1400	0.1	0.1		10/16/12 09:55	1
Specific conductance	umhos/cm	264	DEP FT1200	0.1	0.1		10/16/12 09:55	1
Dissolved Oxygen	mg/L	1.0	DEP FT1500	0.1	0.1		10/16/12 09:55	1
Inorganics								
Ammonia as N	mg/L	0.014 I	EPA 350.1	0.040	0.009		10/25/12 14:02	1
Ammonium as NH4	mg/L	0.02	EPA 350.1	0.01	0.005	10/25/12 16:01	10/25/12 16:05	1
Chemical Oxygen Demand	mg/L	15 I	EPA 410.4	25	10		10/19/12 12:00	1
Chloride	mg/L	9.8	EPA 300.0	0.20	0.050		10/17/12 17:07	1
Nitrate (as N)	mg/L	6.2	EPA 300.0	0.04	0.01		10/17/12 17:07	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/17/12 17:07	1
Phosphorous - Total as P	mg/L	0.26	SM 4500P-E	0.040	0.010	10/25/12 10:24	10/29/12 12:35	1
Total Alkalinity	mg/L	2.0 U	SM 2320B	8.0	2.0		10/22/12 10:55	1
Total Kjeldahl Nitrogen	mg/L	1.4	EPA 351.2	0.20	0.05	10/22/12 15:19	10/24/12 14:33	1
Nitrate+Nitrite (N)	mg/L	6.2	EPA 300.0	0.08	0.02		10/17/12 17:07	1
Sample Description		**TA2-PZ-10-L3**						
Matrix		**Groundwater**						
SAL Sample Number		**1211971-12**						
Date/Time Collected		**10/16/12 10:10**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/16/12 15:30**						
Field Parameters								
pH	SU	4.4	DEP FT1100	0.1	0.1		10/16/12 10:10	1
Water Temperature	°C	26.7	DEP FT1400	0.1	0.1		10/16/12 10:10	1
Specific conductance	umhos/cm	300	DEP FT1200	0.1	0.1		10/16/12 10:10	1
Dissolved Oxygen	mg/L	1.4	DEP FT1500	0.1	0.1		10/16/12 10:10	1
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/25/12 14:12	1
Ammonium as NH4	mg/L	0.005 U	EPA 350.1	0.01	0.005	10/25/12 16:01	10/25/12 16:05	1
Chemical Oxygen Demand	mg/L	15 I	EPA 410.4	25	10		10/19/12 12:00	1
Chloride	mg/L	17	EPA 300.0	0.20	0.050		10/17/12 17:07	1
Nitrate (as N)	mg/L	8.8	EPA 300.0	0.04	0.01		10/17/12 17:07	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/17/12 17:07	1
Phosphorous - Total as P	mg/L	0.23	SM 4500P-E	0.040	0.010	10/25/12 10:21	10/26/12 10:53	1
Total Alkalinity	mg/L	2.0 U	SM 2320B	8.0	2.0		10/22/12 10:55	1

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

November 2, 2012
Work Order: 1211971

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**TA2-PZ-10-L3**						
Matrix		**Groundwater**						
SAL Sample Number		**1211971-12**						
Date/Time Collected		**10/16/12 10:10**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/16/12 15:30**						
Total Kjeldahl Nitrogen	mg/L	1.6	EPA 351.2	0.20	0.05	10/22/12 15:19	10/24/12 14:43	1
Nitrate+Nitrite (N)	mg/L	8.8	EPA 300.0	0.08	0.02		10/17/12 17:07	1
Sample Description		**TA2-PZ-10-L4**						
Matrix		**Groundwater**						
SAL Sample Number		**1211971-13**						
Date/Time Collected		**10/16/12 11:09**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/16/12 15:30**						
Field Parameters								
pH	SU	4.6	DEP FT1100	0.1	0.1		10/16/12 11:09	1
Water Temperature	°C	27.2	DEP FT1400	0.1	0.1		10/16/12 11:09	1
Specific conductance	umhos/cm	450	DEP FT1200	0.1	0.1		10/16/12 11:09	1
Dissolved Oxygen	mg/L	2.4	DEP FT1500	0.1	0.1		10/16/12 11:09	1
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/25/12 14:14	1
Ammonium as NH4	mg/L	0.005 U	EPA 350.1	0.01	0.005	10/25/12 16:01	10/25/12 16:05	1
Chemical Oxygen Demand	mg/L	13 I	EPA 410.4	25	10		10/19/12 12:00	1
Chloride	mg/L	33	EPA 300.0	0.20	0.050	10/17/12 17:07	10/23/12 17:20	1
Fluoride	mg/L	0.087	EPA 300.0	0.040	0.010		10/17/12 17:07	1
Nitrate (as N)	mg/L	15	EPA 300.0	0.04	0.01		10/17/12 17:07	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/17/12 17:07	1
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		10/17/12 17:07	1
Phosphorous - Total as P	mg/L	0.044	SM 4500P-E	0.040	0.010	10/25/12 10:21	10/26/12 10:55	1
Sulfate	mg/L	60	EPA 300.0	0.60	0.20		10/17/12 17:07	1
Total Alkalinity	mg/L	2.0 U	SM 2320B	8.0	2.0		10/22/12 10:55	1
Total Kjeldahl Nitrogen	mg/L	1.6	EPA 351.2	0.20	0.05	10/22/12 15:19	10/24/12 14:45	1
Total Organic Carbon	mg/L	4.0	SM 5310B	1.0	0.50		10/17/12 12:43	1
Nitrate+Nitrite (N)	mg/L	15	EPA 300.0	0.08	0.02		10/17/12 17:07	1
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	3.7	SM 5310B	1.0	0.50		10/17/12 15:14	1
Metals								
Boron	mg/L	0.12	EPA 200.7	0.10	0.050	10/18/12 12:11	10/19/12 11:37	1
Calcium	mg/L	27	EPA 200.7	0.50	0.042	10/18/12 12:11	10/19/12 11:37	1
Iron	mg/L	0.038 I	EPA 200.7	0.10	0.020	10/18/12 12:11	10/19/12 11:37	1
Magnesium	mg/L	7.5	EPA 200.7	0.50	0.020	10/18/12 12:11	10/19/12 11:37	1
Manganese	mg/L	0.021	EPA 200.7	0.010	0.0010	10/18/12 12:11	10/19/12 11:37	1

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

November 2, 2012
Work Order: 1211971

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**TA2-PZ-10-L4**						
Matrix		**Groundwater**						
SAL Sample Number		**1211971-13**						
Date/Time Collected		**10/16/12 11:09**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/16/12 15:30**						
Potassium	mg/L	10	EPA 200.7	0.050	0.010	10/18/12 12:11	10/19/12 11:37	1
Sodium	mg/L	36	EPA 200.7	0.50	0.13	10/18/12 12:11	10/19/12 11:37	1
Sample Description		**TA2-PZ-10-L5**						
Matrix		**Groundwater**						
SAL Sample Number		**1211971-14**						
Date/Time Collected		**10/16/12 11:34**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/16/12 15:30**						
Field Parameters								
pH	SU	4.4	DEP FT1100	0.1	0.1		10/16/12 11:34	1
Water Temperature	°C	27.2	DEP FT1400	0.1	0.1		10/16/12 11:34	1
Specific conductance	umhos/cm	410	DEP FT1200	0.1	0.1		10/16/12 11:34	1
Dissolved Oxygen	mg/L	1.5	DEP FT1500	0.1	0.1		10/16/12 11:34	1
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/25/12 14:16	1
Ammonium as NH4	mg/L	0.005 U	EPA 350.1	0.01	0.005	10/25/12 16:01	10/25/12 16:05	1
Chemical Oxygen Demand	mg/L	15 I	EPA 410.4	25	10		10/19/12 12:00	1
Chloride	mg/L	30	EPA 300.0	0.20	0.050		10/17/12 17:07	1
Nitrate (as N)	mg/L	12	EPA 300.0	0.04	0.01		10/17/12 17:07	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/17/12 17:07	1
Phosphorous - Total as P	mg/L	0.080	SM 4500P-E	0.040	0.010	10/25/12 10:21	10/26/12 10:56	1
Total Alkalinity	mg/L	2.0 U	SM 2320B	8.0	2.0		10/22/12 10:55	1
Total Kjeldahl Nitrogen	mg/L	1.8	EPA 351.2	0.20	0.05	10/24/12 15:56	10/26/12 09:30	1
Nitrate+Nitrite (N)	mg/L	12	EPA 300.0	0.08	0.02		10/17/12 17:07	1
Sample Description		**TA2-PZ-10-L5 DUP**						
Matrix		**Groundwater**						
SAL Sample Number		**1211971-15**						
Date/Time Collected		**10/16/12 11:39**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/16/12 15:30**						
Field Parameters								
pH	SU	4.4	DEP FT1100	0.1	0.1		10/16/12 11:39	1
Water Temperature	°C	27.2	DEP FT1400	0.1	0.1		10/16/12 11:39	1
Specific conductance	umhos/cm	410	DEP FT1200	0.1	0.1		10/16/12 11:39	1

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

November 2, 2012
Work Order: 1211971

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**TA2-PZ-10-L5 DUP**						
Matrix		**Groundwater**						
SAL Sample Number		**1211971-15**						
Date/Time Collected		**10/16/12 11:39**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/16/12 15:30**						
Dissolved Oxygen	mg/L	1.5	DEP FT1500	0.1	0.1		10/16/12 11:39	1
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/25/12 14:18	1
Ammonium as NH4	mg/L	0.005 U	EPA 350.1	0.01	0.005	10/25/12 16:01	10/25/12 16:05	1
Chemical Oxygen Demand	mg/L	17 I	EPA 410.4	25	10		10/19/12 12:00	1
Chloride	mg/L	29	EPA 300.0	0.20	0.050		10/17/12 17:07	1
Nitrate (as N)	mg/L	12	EPA 300.0	0.04	0.01		10/17/12 17:07	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/17/12 17:07	1
Phosphorous - Total as P	mg/L	0.075	SM 4500P-E	0.040	0.010	10/25/12 10:21	10/26/12 10:57	1
Total Alkalinity	mg/L	2.0 U	SM 2320B	8.0	2.0		10/22/12 10:55	1
Total Kjeldahl Nitrogen	mg/L	1.9	EPA 351.2	0.20	0.05	10/24/12 15:56	10/26/12 09:32	1
Nitrate+Nitrite (N)	mg/L	12	EPA 300.0	0.08	0.02		10/17/12 17:07	1
Sample Description		**TA2-PZ-10-L6**						
Matrix		**Groundwater**						
SAL Sample Number		**1211971-16**						
Date/Time Collected		**10/16/12 12:03**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/16/12 15:30**						
Field Parameters								
pH	SU	4.6	DEP FT1100	0.1	0.1		10/16/12 12:03	1
Water Temperature	°C	27.0	DEP FT1400	0.1	0.1		10/16/12 12:03	1
Specific conductance	umhos/cm	437	DEP FT1200	0.1	0.1		10/16/12 12:03	1
Dissolved Oxygen	mg/L	1.4	DEP FT1500	0.1	0.1		10/16/12 12:03	1
Inorganics								
Ammonia as N	mg/L	0.034 I	EPA 350.1	0.040	0.009		10/25/12 14:20	1
Ammonium as NH4	mg/L	0.04	EPA 350.1	0.01	0.005	10/25/12 16:01	10/25/12 16:05	1
Chemical Oxygen Demand	mg/L	42	EPA 410.4	25	10		10/19/12 12:00	1
Chloride	mg/L	34	EPA 300.0	0.20	0.050	10/17/12 17:07	10/23/12 17:20	1
Nitrate (as N)	mg/L	12	EPA 300.0	0.04	0.01		10/17/12 17:07	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/17/12 17:07	1
Phosphorous - Total as P	mg/L	0.69	SM 4500P-E	0.040	0.010	10/25/12 10:21	10/26/12 10:58	1
Total Alkalinity	mg/L	2.0 U	SM 2320B	8.0	2.0		10/22/12 10:55	1
Total Kjeldahl Nitrogen	mg/L	2.8	EPA 351.2	0.20	0.05	10/22/12 15:19	10/24/12 14:46	1
Nitrate+Nitrite (N)	mg/L	12	EPA 300.0	0.08	0.02		10/17/12 17:07	1

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

November 2, 2012
Work Order: 1211971

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**TA2-PZ-09-M4**						
Matrix		**Groundwater**						
SAL Sample Number		**1211971-17**						
Date/Time Collected		**10/16/12 10:55**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/16/12 15:30**						
Field Parameters								
pH	SU	5.3	DEP FT1100	0.1	0.1		10/16/12 10:55	1
Water Temperature	°C	27.1	DEP FT1400	0.1	0.1		10/16/12 10:55	1
Specific conductance	umhos/cm	373	DEP FT1200	0.1	0.1		10/16/12 10:55	1
Dissolved Oxygen	mg/L	1.0	DEP FT1500	0.1	0.1		10/16/12 10:55	1
Inorganics								
Ammonia as N	mg/L	0.064	EPA 350.1	0.040	0.009		10/25/12 14:22	1
Ammonium as NH4	mg/L	0.08	EPA 350.1	0.01	0.005	10/25/12 16:01	10/25/12 16:05	1
Chemical Oxygen Demand	mg/L	49	EPA 410.4	25	10		10/19/12 12:00	1
Chloride	mg/L	25	EPA 300.0	0.20	0.050		10/17/12 17:07	1
Fluoride	mg/L	0.027 I	EPA 300.0	0.040	0.010		10/17/12 17:07	1
Nitrate (as N)	mg/L	11	EPA 300.0	0.04	0.01		10/17/12 17:07	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/17/12 17:07	1
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		10/17/12 17:07	1
Phosphorous - Total as P	mg/L	2.8	SM 4500P-E	0.20	0.050	10/25/12 10:21	10/26/12 11:39	5
Sulfate	mg/L	57	EPA 300.0	0.60	0.20		10/17/12 17:07	1
Total Alkalinity	mg/L	8.4	SM 2320B	8.0	2.0		10/22/12 10:55	1
Total Kjeldahl Nitrogen	mg/L	2.3	EPA 351.2	0.20	0.05	10/24/12 15:56	10/26/12 09:34	1
Total Organic Carbon	mg/L	3.1	SM 5310B	1.0	0.50		10/17/12 12:43	1
Nitrate+Nitrite (N)	mg/L	11	EPA 300.0	0.08	0.02		10/17/12 17:07	1
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	2.5	SM 5310B	1.0	0.50		10/17/12 15:14	1
Metals								
Boron	mg/L	0.076 I	EPA 200.7	0.10	0.050	10/18/12 12:11	10/19/12 11:40	1
Calcium	mg/L	30	EPA 200.7	0.50	0.042	10/18/12 12:11	10/19/12 11:40	1
Iron	mg/L	0.037 I	EPA 200.7	0.10	0.020	10/18/12 12:11	10/19/12 11:40	1
Magnesium	mg/L	7.0	EPA 200.7	0.50	0.020	10/18/12 12:11	10/19/12 11:40	1
Manganese	mg/L	0.075	EPA 200.7	0.010	0.0010	10/18/12 12:11	10/19/12 11:40	1
Potassium	mg/L	9.1	EPA 200.7	0.050	0.010	10/18/12 12:11	10/19/12 11:40	1
Sodium	mg/L	24	EPA 200.7	0.50	0.13	10/18/12 12:11	10/19/12 11:40	1

Sample Description	**TA2-PZ-16-M4**
Matrix	**Groundwater**
SAL Sample Number	**1211971-18**
Date/Time Collected	**10/16/12 10:52**
Collected by	**Sean Schmidt**
Date/Time Received	**10/16/12 15:30**

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

November 2, 2012
Work Order: 1211971

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**TA2-PZ-16-M4**						
Matrix		**Groundwater**						
SAL Sample Number		**1211971-18**						
Date/Time Collected		**10/16/12 10:52**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/16/12 15:30**						
Field Parameters								
pH	SU	5.3	DEP FT1100	0.1	0.1		10/16/12 10:52	1
Water Temperature	°C	26.5	DEP FT1400	0.1	0.1		10/16/12 10:52	1
Specific conductance	umhos/cm	212	DEP FT1200	0.1	0.1		10/16/12 10:52	1
Dissolved Oxygen	mg/L	0.3	DEP FT1500	0.1	0.1		10/16/12 10:52	1
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/25/12 14:24	1
Ammonium as NH4	mg/L	0.005 U	EPA 350.1	0.01	0.005	10/25/12 16:01	10/25/12 16:05	1
Chloride	mg/L	6.2	EPA 300.0	0.20	0.050		10/17/12 17:07	1
Nitrate (as N)	mg/L	1.9	EPA 300.0	0.04	0.01		10/17/12 17:07	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/17/12 17:07	1
Total Kjeldahl Nitrogen	mg/L	0.55	EPA 351.2	0.20	0.05	10/24/12 15:56	10/26/12 09:35	1
Nitrate+Nitrite (N)	mg/L	1.9	EPA 300.0	0.08	0.02		10/17/12 17:07	1

Sample Description		**TA2-PZ-09-N7**						
Matrix		**Groundwater**						
SAL Sample Number		**1211971-19**						
Date/Time Collected		**10/16/12 09:20**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/16/12 15:30**						
Field Parameters								
pH	SU	5.5	DEP FT1100	0.1	0.1		10/16/12 09:20	1
Water Temperature	°C	26.6	DEP FT1400	0.1	0.1		10/16/12 09:20	1
Specific conductance	umhos/cm	429	DEP FT1200	0.1	0.1		10/16/12 09:20	1
Dissolved Oxygen	mg/L	0.4	DEP FT1500	0.1	0.1		10/16/12 09:20	1
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/25/12 14:26	1
Ammonium as NH4	mg/L	0.01	EPA 350.1	0.01	0.005	10/25/12 16:01	10/25/12 16:05	1
Chemical Oxygen Demand	mg/L	15 I	EPA 410.4	25	10		10/19/12 12:00	1
Chloride	mg/L	30	EPA 300.0	0.20	0.050	10/17/12 17:07	10/23/12 17:20	1
Nitrate (as N)	mg/L	13	EPA 300.0	0.04	0.01		10/17/12 17:07	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/17/12 17:07	1
Phosphorous - Total as P	mg/L	0.95	SM 4500P-E	0.040	0.010	10/25/12 10:21	10/26/12 13:35	1
Total Alkalinity	mg/L	9.4	SM 2320B	8.0	2.0		10/22/12 10:55	1
Total Kjeldahl Nitrogen	mg/L	1.4	EPA 351.2	0.20	0.05	10/24/12 15:56	10/26/12 10:45	1
Nitrate+Nitrite (N)	mg/L	13	EPA 300.0	0.08	0.02		10/17/12 17:07	1

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

November 2, 2012
Work Order: 1211971

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**TA2-PZ-09-N7 DUP**						
Matrix		**Groundwater**						
SAL Sample Number		**1211971-20**						
Date/Time Collected		**10/16/12 09:25**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/16/12 15:30**						
Field Parameters								
pH	SU	5.5	DEP FT1100	0.1	0.1		10/16/12 09:25	1
Water Temperature	°C	26.6	DEP FT1400	0.1	0.1		10/16/12 09:25	1
Specific conductance	umhos/cm	429	DEP FT1200	0.1	0.1		10/16/12 09:25	1
Dissolved Oxygen	mg/L	0.4	DEP FT1500	0.1	0.1		10/16/12 09:25	1
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/25/12 14:28	1
Ammonium as NH4	mg/L	0.005 U	EPA 350.1	0.01	0.005	10/25/12 16:01	10/25/12 16:05	1
Chemical Oxygen Demand	mg/L	13 I	EPA 410.4	25	10		10/19/12 12:00	1
Chloride	mg/L	31	EPA 300.0	0.20	0.050		10/25/12 02:27	1
Nitrate (as N)	mg/L	14	EPA 300.0	0.04	0.01		10/17/12 17:07	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/17/12 17:07	1
Phosphorous - Total as P	mg/L	0.97	SM 4500P-E	0.040	0.010	10/25/12 10:21	10/26/12 13:36	1
Total Alkalinity	mg/L	10	SM 2320B	8.0	2.0		10/22/12 10:55	1
Total Kjeldahl Nitrogen	mg/L	1.3	EPA 351.2	0.20	0.05	10/24/12 15:56	10/26/12 10:47	1
Nitrate+Nitrite (N)	mg/L	14	EPA 300.0	0.08	0.02		10/17/12 17:07	1
Sample Description		**TA2-PZ-16-N7**						
Matrix		**Groundwater**						
SAL Sample Number		**1211971-21**						
Date/Time Collected		**10/16/12 09:36**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/16/12 15:30**						
Field Parameters								
pH	SU	5.3	DEP FT1100	0.1	0.1		10/16/12 09:36	1
Water Temperature	°C	26.2	DEP FT1400	0.1	0.1		10/16/12 09:36	1
Specific conductance	umhos/cm	212	DEP FT1200	0.1	0.1		10/16/12 09:36	1
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		10/16/12 09:36	1
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/25/12 14:30	1
Ammonium as NH4	mg/L	0.005 U	EPA 350.1	0.01	0.005	10/25/12 16:01	10/25/12 16:05	1
Chloride	mg/L	5.6	EPA 300.0	0.20	0.050		10/18/12 01:54	1
Nitrate (as N)	mg/L	1.4	EPA 300.0	0.04	0.01		10/18/12 01:54	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/18/12 01:54	1
Total Kjeldahl Nitrogen	mg/L	0.22	EPA 351.2	0.20	0.05	10/24/12 15:56	10/26/12 09:40	1
Nitrate+Nitrite (N)	mg/L	1.4	EPA 300.0	0.08	0.02		10/18/12 01:54	1

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

November 2, 2012
Work Order: 1211971

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**TA2-PZ-09-I7**						
Matrix		**Groundwater**						
SAL Sample Number		**1211971-22**						
Date/Time Collected		**10/16/12 09:30**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/16/12 15:30**						
Field Parameters								
pH	SU	5.8	DEP FT1100	0.1	0.1		10/16/12 09:30	1
Water Temperature	°C	26.4	DEP FT1400	0.1	0.1		10/16/12 09:30	1
Specific conductance	umhos/cm	264	DEP FT1200	0.1	0.1		10/16/12 09:30	1
Dissolved Oxygen	mg/L	0.8	DEP FT1500	0.1	0.1		10/16/12 09:30	1
Inorganics								
Ammonia as N	mg/L	0.062	EPA 350.1	0.040	0.009	10/25/12 14:45	10/29/12 11:56	1
Ammonium as NH4	mg/L	0.08	EPA 350.1	0.01	0.005	10/25/12 16:01	10/25/12 16:05	1
Chloride	mg/L	10	EPA 300.0	0.20	0.050		10/18/12 01:54	1
Nitrate (as N)	mg/L	5.6	EPA 300.0	0.04	0.01		10/18/12 01:54	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/18/12 01:54	1
Total Kjeldahl Nitrogen	mg/L	1.3	EPA 351.2	0.20	0.05	10/24/12 15:56	10/26/12 09:42	1
Nitrate+Nitrite (N)	mg/L	5.6	EPA 300.0	0.08	0.02		10/18/12 01:54	1

Sample Description		**TA2-PZ-16-I7**						
Matrix		**Groundwater**						
SAL Sample Number		**1211971-23**						
Date/Time Collected		**10/16/12 10:15**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/16/12 15:30**						
Field Parameters								
pH	SU	5.7	DEP FT1100	0.1	0.1		10/16/12 10:15	1
Water Temperature	°C	26.4	DEP FT1400	0.1	0.1		10/16/12 10:15	1
Specific conductance	umhos/cm	205	DEP FT1200	0.1	0.1		10/16/12 10:15	1
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		10/16/12 10:15	1
Inorganics								
Ammonia as N	mg/L	0.011 I	EPA 350.1	0.040	0.009		10/25/12 14:47	1
Ammonium as NH4	mg/L	0.01	EPA 350.1	0.01	0.005	10/25/12 16:01	10/25/12 16:05	1
Chloride	mg/L	6.1	EPA 300.0	0.20	0.050		10/18/12 01:54	1
Nitrate (as N)	mg/L	1.9	EPA 300.0	0.04	0.01		10/18/12 01:54	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/18/12 01:54	1
Total Kjeldahl Nitrogen	mg/L	0.25	EPA 351.2	0.20	0.05	10/24/12 15:56	10/26/12 09:44	1
Nitrate+Nitrite (N)	mg/L	1.9	EPA 300.0	0.08	0.02		10/18/12 01:54	1

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

November 2, 2012
Work Order: 1211971

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**TA2-PZ-09-L8**						
Matrix		**Groundwater**						
SAL Sample Number		**1211971-24**						
Date/Time Collected		**10/16/12 11:20**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/16/12 15:30**						
Field Parameters								
pH	SU	6.6	DEP FT1100	0.1	0.1		10/16/12 11:20	1
Water Temperature	°C	27.5	DEP FT1400	0.1	0.1		10/16/12 11:20	1
Specific conductance	umhos/cm	454	DEP FT1200	0.1	0.1		10/16/12 11:20	1
Dissolved Oxygen	mg/L	2.8	DEP FT1500	0.1	0.1		10/16/12 11:20	1
Inorganics								
Ammonia as N	mg/L	0.023 I	EPA 350.1	0.040	0.009		10/25/12 14:49	1
Ammonium as NH4	mg/L	0.03	EPA 350.1	0.01	0.005	10/25/12 16:01	10/25/12 16:05	1
Chloride	mg/L	14	EPA 300.0	0.20	0.050		10/18/12 01:54	1
Nitrate (as N)	mg/L	3.7	EPA 300.0	0.04	0.01		10/18/12 01:54	1
Nitrite (as N)	mg/L	0.04	EPA 300.0	0.04	0.01		10/18/12 01:54	1
Total Kjeldahl Nitrogen	mg/L	1.2	EPA 351.2	0.20	0.05	10/24/12 15:56	10/26/12 09:45	1
Nitrate+Nitrite (N)	mg/L	3.7	EPA 300.0	0.08	0.02		10/18/12 01:54	1

Sample Description		**TA2-PZ-16-L8**						
Matrix		**Groundwater**						
SAL Sample Number		**1211971-25**						
Date/Time Collected		**10/16/12 11:55**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/16/12 15:30**						
Field Parameters								
pH	SU	5.6	DEP FT1100	0.1	0.1		10/16/12 11:55	1
Water Temperature	°C	26.7	DEP FT1400	0.1	0.1		10/16/12 11:55	1
Specific conductance	umhos/cm	208	DEP FT1200	0.1	0.1		10/16/12 11:55	1
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		10/16/12 11:55	1
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/25/12 14:51	1
Ammonium as NH4	mg/L	0.005 U	EPA 350.1	0.01	0.005	10/25/12 16:01	10/25/12 16:05	1
Chloride	mg/L	6.0	EPA 300.0	0.20	0.050		10/18/12 01:54	1
Nitrate (as N)	mg/L	1.8	EPA 300.0	0.04	0.01		10/18/12 01:54	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/18/12 01:54	1
Total Kjeldahl Nitrogen	mg/L	0.49	EPA 351.2	0.20	0.05	10/24/12 15:56	10/26/12 09:54	1
Nitrate+Nitrite (N)	mg/L	1.8	EPA 300.0	0.08	0.02		10/18/12 01:54	1

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

November 2, 2012
Work Order: 1211971

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**TA2-PZ-09-TU19**						
Matrix		**Groundwater**						
SAL Sample Number		**1211971-26**						
Date/Time Collected		**10/16/12 08:35**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/16/12 15:30**						
Field Parameters								
pH	SU	4.7	DEP FT1100	0.1	0.1		10/16/12 08:35	1
Water Temperature	°C	26.3	DEP FT1400	0.1	0.1		10/16/12 08:35	1
Specific conductance	umhos/cm	188	DEP FT1200	0.1	0.1		10/16/12 08:35	1
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		10/16/12 08:35	1
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/25/12 14:53	1
Ammonium as NH4	mg/L	0.01	EPA 350.1	0.01	0.005	10/25/12 16:01	10/25/12 16:05	1
Chloride	mg/L	3.5	EPA 300.0	0.20	0.050		10/18/12 01:54	1
Nitrate (as N)	mg/L	6.6	EPA 300.0	0.04	0.01		10/18/12 01:54	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/18/12 01:54	1
Total Kjeldahl Nitrogen	mg/L	2.3	EPA 351.2	0.20	0.05	10/24/12 15:56	10/26/12 09:56	1
Nitrate+Nitrite (N)	mg/L	6.6	EPA 300.0	0.08	0.02		10/18/12 01:54	1

Sample Description		**TA2-PZ-16-TU19**						
Matrix		**Groundwater**						
SAL Sample Number		**1211971-27**						
Date/Time Collected		**10/16/12 08:54**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/16/12 15:30**						
Field Parameters								
pH	SU	5.3	DEP FT1100	0.1	0.1		10/16/12 08:54	1
Water Temperature	°C	25.9	DEP FT1400	0.1	0.1		10/16/12 08:54	1
Specific conductance	umhos/cm	195	DEP FT1200	0.1	0.1		10/16/12 08:54	1
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		10/16/12 08:54	1
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/25/12 14:55	1
Ammonium as NH4	mg/L	0.005 U	EPA 350.1	0.01	0.005	10/25/12 16:01	10/25/12 16:05	1
Chloride	mg/L	6.1	EPA 300.0	0.20	0.050		10/18/12 01:54	1
Nitrate (as N)	mg/L	2.0	EPA 300.0	0.04	0.01		10/18/12 01:54	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/18/12 01:54	1
Total Kjeldahl Nitrogen	mg/L	0.70	EPA 351.2	0.20	0.05	10/24/12 15:56	10/26/12 09:57	1
Nitrate+Nitrite (N)	mg/L	2.0	EPA 300.0	0.08	0.02		10/18/12 01:54	1

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

November 2, 2012
Work Order: 1211971

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**TA2-PZ-09-TU21**						
Matrix		**Groundwater**						
SAL Sample Number		**1211971-28**						
Date/Time Collected		**10/16/12 07:59**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/16/12 15:30**						
Field Parameters								
pH	SU	4.6	DEP FT1100	0.1	0.1		10/16/12 07:59	1
Water Temperature	°C	26.0	DEP FT1400	0.1	0.1		10/16/12 07:59	1
Specific conductance	umhos/cm	170	DEP FT1200	0.1	0.1		10/16/12 07:59	1
Dissolved Oxygen	mg/L	0.4	DEP FT1500	0.1	0.1		10/16/12 07:59	1
Inorganics								
Ammonia as N	mg/L	0.030 I	EPA 350.1	0.040	0.009		10/25/12 14:57	1
Ammonium as NH4	mg/L	0.04	EPA 350.1	0.01	0.005	10/25/12 16:01	10/25/12 16:05	1
Chloride	mg/L	2.7	EPA 300.0	0.20	0.050		10/18/12 01:54	1
Nitrate (as N)	mg/L	4.4	EPA 300.0	0.04	0.01		10/18/12 01:54	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/18/12 01:54	1
Total Kjeldahl Nitrogen	mg/L	1.6	EPA 351.2	0.20	0.05	10/24/12 15:56	10/26/12 09:59	1
Nitrate+Nitrite (N)	mg/L	4.4	EPA 300.0	0.08	0.02		10/18/12 01:54	1

Sample Description		**TA2-PZ-16-TU21**						
Matrix		**Groundwater**						
SAL Sample Number		**1211971-29**						
Date/Time Collected		**10/16/12 08:14**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/16/12 15:30**						
Field Parameters								
pH	SU	5.2	DEP FT1100	0.1	0.1		10/16/12 08:14	1
Water Temperature	°C	25.9	DEP FT1400	0.1	0.1		10/16/12 08:14	1
Specific conductance	umhos/cm	186	DEP FT1200	0.1	0.1		10/16/12 08:14	1
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		10/16/12 08:14	1
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/25/12 14:59	1
Ammonium as NH4	mg/L	0.005 U	EPA 350.1	0.01	0.005	10/25/12 16:01	10/25/12 16:05	1
Chloride	mg/L	5.0	EPA 300.0	0.20	0.050		10/18/12 01:54	1
Nitrate (as N)	mg/L	1.3	EPA 300.0	0.04	0.01		10/18/12 01:54	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/18/12 01:54	1
Total Kjeldahl Nitrogen	mg/L	0.31	EPA 351.2	0.20	0.05	10/24/12 15:56	10/26/12 10:01	1
Nitrate+Nitrite (N)	mg/L	1.3	EPA 300.0	0.08	0.02		10/18/12 01:54	1

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

November 2, 2012
Work Order: 1211971

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21602 - alkalinity										
Blank (BJ21602-BLK1)					Prepared & Analyzed: 10/16/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
Blank (BJ21602-BLK2)					Prepared & Analyzed: 10/16/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
LCS (BJ21602-BS1)					Prepared & Analyzed: 10/16/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		
LCS (BJ21602-BS2)					Prepared & Analyzed: 10/16/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		
Matrix Spike (BJ21602-MS1)		**Source: 1211978-02**			Prepared & Analyzed: 10/16/12					
Total Alkalinity	190	8.0	2.0	mg/L	120	75	95	80-120		
Matrix Spike (BJ21602-MS2)		**Source: 1211987-01**			Prepared & Analyzed: 10/16/12					
Total Alkalinity	260	8.0	2.0	mg/L	120	140	95	80-120		
Matrix Spike Dup (BJ21602-MSD1)		**Source: 1211978-02**			Prepared & Analyzed: 10/16/12					
Total Alkalinity	190	8.0	2.0	mg/L	120	75	95	80-120	0	26
Matrix Spike Dup (BJ21602-MSD2)		**Source: 1211987-01**			Prepared & Analyzed: 10/16/12					
Total Alkalinity	250	8.0	2.0	mg/L	120	140	86	80-120	4	26
Batch BJ21618 - Ion Chromatography 300.0 Prep										
Blank (BJ21618-BLK1)					Prepared & Analyzed: 10/16/12					
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						
Sulfate	0.20 U	0.60	0.20	mg/L						
Fluoride	0.010 U	0.040	0.010	mg/L						
Orthophosphate as P	0.010 U	0.040	0.010	mg/L						

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

November 2, 2012
Work Order: 1211971

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21618 - Ion Chromatography 300.0 Prep										
LCS (BJ21618-BS1)					Prepared & Analyzed: 10/16/12					
Fluoride	0.893	0.040	0.010	mg/L	0.90		99	85-115		
Nitrite (as N)	1.37	0.04	0.01	mg/L	1.4		98	85-115		
Orthophosphate as P	0.910	0.040	0.010	mg/L	0.90		101	85-115		
Sulfate	8.74	0.60	0.20	mg/L	9.0		97	85-115		
Nitrate (as N)	1.66	0.04	0.01	mg/L	1.7		98	85-115		
LCS Dup (BJ21618-BSD1)					Prepared & Analyzed: 10/16/12					
Fluoride	0.887	0.040	0.010	mg/L	0.90		99	85-115	0.7	200
Sulfate	8.62	0.60	0.20	mg/L	9.0		96	85-115	1	200
Nitrate (as N)	1.65	0.04	0.01	mg/L	1.7		97	85-115	0.6	200
Nitrite (as N)	1.39	0.04	0.01	mg/L	1.4		99	85-115	1	200
Orthophosphate as P	0.893	0.040	0.010	mg/L	0.90		99	85-115	2	200
Matrix Spike (BJ21618-MS1)		**Source: 1211976-03**			Prepared & Analyzed: 10/16/12					
Fluoride	1.21	0.040	0.010	mg/L	0.90	0.356	95	85-115		
Sulfate	84.0	0.60	0.20	mg/L	9.0	75.5	94	85-115		
Nitrate (as N)	8.02	0.04	0.01	mg/L	1.7	6.25	104	85-115		
Nitrite (as N)	1.41	0.04	0.01	mg/L	1.4	ND	101	85-115		
Orthophosphate as P	1.28	0.040	0.010	mg/L	0.90	0.385	99	85-115		
Matrix Spike (BJ21618-MS2)		**Source: 1211978-08**			Prepared & Analyzed: 10/16/12					
Fluoride	1.02	0.040	0.010	mg/L	0.90	0.105	102	85-115		
Orthophosphate as P	0.866	0.040	0.010	mg/L	0.90	ND	96	85-115		
Nitrite (as N)	1.42	0.04	0.01	mg/L	1.4	ND	101	85-115		
Nitrate (as N)	7.38	0.04	0.01	mg/L	1.7	5.47	112	85-115		
Sulfate	42.3	0.60	0.20	mg/L	9.0	32.6	108	85-115		

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

November 2, 2012
Work Order: 1211971

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21706 - Ion Chromatography 300.0 Prep										
Blank (BJ21706-BLK1)					Prepared & Analyzed: 10/17/12					
Orthophosphate as P	0.010 U	0.040	0.010	mg/L						
Fluoride	0.010 U	0.040	0.010	mg/L						
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
Chloride	0.050 U	0.20	0.050	mg/L						
Sulfate	0.20 U	0.60	0.20	mg/L						
LCS (BJ21706-BS1)					Prepared & Analyzed: 10/17/12					
Chloride	3.07	0.20	0.050	mg/L	3.0		102	85-115		
Nitrite (as N)	1.41	0.04	0.01	mg/L	1.4		101	85-115		
Fluoride	0.847	0.040	0.010	mg/L	0.90		94	85-115		
Orthophosphate as P	0.888	0.040	0.010	mg/L	0.90		99	85-115		
Sulfate	8.68	0.60	0.20	mg/L	9.0		96	85-115		
Nitrate (as N)	1.66	0.04	0.01	mg/L	1.7		98	85-115		
LCS Dup (BJ21706-BSD1)					Prepared & Analyzed: 10/17/12					
Nitrate (as N)	1.66	0.04	0.01	mg/L	1.7		98	85-115	0	200
Sulfate	8.69	0.60	0.20	mg/L	9.0		97	85-115	0.1	200
Nitrite (as N)	1.37	0.04	0.01	mg/L	1.4		98	85-115	3	200
Fluoride	0.891	0.040	0.010	mg/L	0.90		99	85-115	5	200
Orthophosphate as P	0.907	0.040	0.010	mg/L	0.90		101	85-115	2	200
Chloride	2.77	0.20	0.050	mg/L	3.0		92	85-115	10	200
Matrix Spike (BJ21706-MS1)		**Source: 1211971-10**			Prepared & Analyzed: 10/17/12					
Nitrate (as N)	17.1	0.04	0.01	mg/L	1.7	15.3	106	85-115		
Chloride	31.2	0.20	0.050	mg/L	3.0	28.1	103	80-120		
Sulfate	64.7	0.60	0.20	mg/L	9.0	55.4	103	85-115		
Nitrite (as N)	1.40	0.04	0.01	mg/L	1.4	ND	100	85-115		
Fluoride	0.934	0.040	0.010	mg/L	0.90	0.0686	96	85-115		
Orthophosphate as P	0.832	0.040	0.010	mg/L	0.90	ND	92	85-115		

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

November 2, 2012
Work Order: 1211971

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21706 - Ion Chromatography 300.0 Prep										
Matrix Spike (BJ21706-MS2)		**Source: 1211971-20**			Prepared & Analyzed: 10/17/12					
Fluoride	0.875	0.040	0.010	mg/L	0.90	0.0121	96	85-115		
Nitrate (as N)	15.0	0.04	0.01	mg/L	1.7	13.5	88	85-115		
Chloride	33.1 +O	0.20	0.050	mg/L	3.0	31.9	40	80-120		
Sulfate	68.6	0.60	0.20	mg/L	9.0	60.5	90	85-115		
Orthophosphate as P	0.944	0.040	0.010	mg/L	0.90	ND	105	85-115		
Nitrite (as N)	1.43	0.04	0.01	mg/L	1.4	ND	102	85-115		
Batch BJ21707 - Ion Chromatography 300.0 Prep										
Blank (BJ21707-BLK1)					Prepared & Analyzed: 10/18/12					
Chloride	0.050 U	0.20	0.050	mg/L						
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
LCS (BJ21707-BS1)					Prepared & Analyzed: 10/18/12					
Nitrate (as N)	1.65	0.04	0.01	mg/L	1.7		97	85-115		
Chloride	2.77	0.20	0.050	mg/L	3.0		92	85-115		
Nitrite (as N)	1.37	0.04	0.01	mg/L	1.4		98	85-115		
LCS Dup (BJ21707-BSD1)					Prepared & Analyzed: 10/18/12					
Nitrite (as N)	1.38	0.04	0.01	mg/L	1.4		99	85-115	0.7	200
Chloride	2.79	0.20	0.050	mg/L	3.0		93	85-115	0.7	200
Nitrate (as N)	1.68	0.04	0.01	mg/L	1.7		99	85-115	2	200
Matrix Spike (BJ21707-MS1)		**Source: 1211976-02**			Prepared & Analyzed: 10/18/12					
Chloride	80.8	0.20	0.050	mg/L	30	49.6	104	80-120		
Nitrate (as N)	52.9	0.04	0.01	mg/L	17	35.2	104	85-115		
Nitrite (as N)	14.5	0.04	0.01	mg/L	14	ND	104	85-115		

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

November 2, 2012
Work Order: 1211971

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21707 - Ion Chromatography 300.0 Prep										
Matrix Spike (BJ21707-MS2)		**Source: 1211983-08**			Prepared & Analyzed: 10/18/12					
Nitrite (as N)	1.44	0.04	0.01	mg/L	1.4	ND	103	85-115		
Nitrate (as N)	6.53	0.04	0.01	mg/L	1.7	4.74	105	85-115		
Chloride	9.39	0.20	0.050	mg/L	3.0	6.38	100	80-120		
Batch BJ21725 - TOC prep										
Blank (BJ21725-BLK1)					Prepared & Analyzed: 10/17/12					
Total Organic Carbon	0.50 U	1.0	0.50	mg/L						
LCS (BJ21725-BS1)					Prepared & Analyzed: 10/17/12					
Total Organic Carbon	9.37	1.0	0.50	mg/L	10		94	90-110		
Matrix Spike (BJ21725-MS1)		**Source: 1211971-17**			Prepared & Analyzed: 10/17/12					
Total Organic Carbon	13.8	1.0	0.50	mg/L	10	3.15	106	85-115		
Matrix Spike Dup (BJ21725-MSD1)		**Source: 1211971-17**			Prepared & Analyzed: 10/17/12					
Total Organic Carbon	13.8	1.0	0.50	mg/L	10	3.15	106	85-115	0.2	10
Batch BJ21915 - COD prep										
Blank (BJ21915-BLK1)					Prepared & Analyzed: 10/17/12					
Chemical Oxygen Demand	10 U	25	10	mg/L						
LCS (BJ21915-BS1)					Prepared & Analyzed: 10/17/12					
Chemical Oxygen Demand	54	25	10	mg/L	50		108	90-110		

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

November 2, 2012
Work Order: 1211971

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21915 - COD prep										
Matrix Spike (BJ21915-MS1)		**Source: 1211969-06**			Prepared & Analyzed: 10/17/12					
Chemical Oxygen Demand	67	25	10	mg/L	50	17	100	85-115		
Matrix Spike Dup (BJ21915-MSD1)		**Source: 1211969-06**			Prepared & Analyzed: 10/17/12					
Chemical Oxygen Demand	63	25	10	mg/L	50	17	92	85-115	6	32
Batch BJ21942 - COD prep										
Blank (BJ21942-BLK1)					Prepared & Analyzed: 10/19/12					
Chemical Oxygen Demand	10 U	25	10	mg/L						
LCS (BJ21942-BS1)					Prepared & Analyzed: 10/19/12					
Chemical Oxygen Demand	51	25	10	mg/L	50		102	90-110		
Matrix Spike (BJ21942-MS1)		**Source: 1211971-08**			Prepared & Analyzed: 10/19/12					
Chemical Oxygen Demand	60	25	10	mg/L	50	13	94	85-115		
Matrix Spike Dup (BJ21942-MSD1)		**Source: 1211971-08**			Prepared & Analyzed: 10/19/12					
Chemical Oxygen Demand	60	25	10	mg/L	50	13	94	85-115	0	32
Batch BJ22005 - alkalinity										
Blank (BJ22005-BLK1)					Prepared & Analyzed: 10/22/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
Blank (BJ22005-BLK2)					Prepared & Analyzed: 10/22/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						

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

November 2, 2012
Work Order: 1211971

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22005 - alkalinity										
LCS (BJ22005-BS1)					Prepared & Analyzed: 10/22/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		
LCS (BJ22005-BS2)					Prepared & Analyzed: 10/22/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		
Matrix Spike (BJ22005-MS1)		**Source: 1212290-02**			Prepared & Analyzed: 10/22/12					
Total Alkalinity	190	8.0	2.0	mg/L	120	75	95	80-120		
Matrix Spike (BJ22005-MS2)		**Source: 1211976-16**			Prepared & Analyzed: 10/22/12					
Total Alkalinity	180	8.0	2.0	mg/L	120	65	95	80-120		
Matrix Spike Dup (BJ22005-MSD1)		**Source: 1212290-02**			Prepared & Analyzed: 10/22/12					
Total Alkalinity	190	8.0	2.0	mg/L	120	75	95	80-120	0	26
Matrix Spike Dup (BJ22005-MSD2)		**Source: 1211976-16**			Prepared & Analyzed: 10/22/12					
Total Alkalinity	180	8.0	2.0	mg/L	120	65	95	80-120	0	26
Batch BJ22228 - alkalinity										
Blank (BJ22228-BLK1)					Prepared & Analyzed: 10/22/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
Blank (BJ22228-BLK2)					Prepared & Analyzed: 10/22/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
LCS (BJ22228-BS1)					Prepared & Analyzed: 10/22/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		

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

November 2, 2012
Work Order: 1211971

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22228 - alkalinity										
LCS (BJ22228-BS2)					Prepared & Analyzed: 10/22/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		
Matrix Spike (BJ22228-MS1)		**Source: 1211981-05**			Prepared & Analyzed: 10/22/12					
Total Alkalinity	250	8.0	2.0	mg/L	120	130	95	80-120		
Matrix Spike (BJ22228-MS2)		**Source: 1212157-01**			Prepared & Analyzed: 10/22/12					
Total Alkalinity	230	8.0	2.0	mg/L	120	110	95	80-120		
Matrix Spike Dup (BJ22228-MSD1)		**Source: 1211981-05**			Prepared & Analyzed: 10/22/12					
Total Alkalinity	250	8.0	2.0	mg/L	120	130	95	80-120	0	26
Matrix Spike Dup (BJ22228-MSD2)		**Source: 1212157-01**			Prepared & Analyzed: 10/22/12					
Total Alkalinity	230	8.0	2.0	mg/L	120	110	95	80-120	0	26
Batch BJ22244 - Digestion for TKN by EPA 351.2										
Blank (BJ22244-BLK1)					Prepared: 10/22/12 Analyzed: 10/24/12					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
LCS (BJ22244-BS1)					Prepared: 10/22/12 Analyzed: 10/24/12					
Total Kjeldahl Nitrogen	2.36	0.20	0.05	mg/L	2.5		93	90-110		
Matrix Spike (BJ22244-MS1)		**Source: 1212318-02**			Prepared: 10/22/12 Analyzed: 10/24/12					
Total Kjeldahl Nitrogen	3.21	0.20	0.05	mg/L	2.5	0.547	105	90-110		
Matrix Spike (BJ22244-MS2)		**Source: 1212338-01**			Prepared: 10/22/12 Analyzed: 10/24/12					
Total Kjeldahl Nitrogen	2.99	0.20	0.05	mg/L	2.5	0.658	92	90-110		

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

November 2, 2012
Work Order: 1211971

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22244 - Digestion for TKN by EPA 351.2										
Matrix Spike Dup (BJ22244-MSD1)		**Source: 1212318-02**			Prepared: 10/22/12 Analyzed: 10/24/12					
Total Kjeldahl Nitrogen	3.10	0.20	0.05	mg/L	2.5	0.547	101	90-110	3	20
Matrix Spike Dup (BJ22244-MSD2)		**Source: 1212338-01**			Prepared: 10/22/12 Analyzed: 10/25/12					
Total Kjeldahl Nitrogen	2.99	0.20	0.05	mg/L	2.5	0.658	92	90-110	0.2	20
Batch BJ22247 - COD prep										
Blank (BJ22247-BLK1)					Prepared & Analyzed: 10/22/12					
Chemical Oxygen Demand	10 U	25	10	mg/L						
LCS (BJ22247-BS1)					Prepared & Analyzed: 10/22/12					
Chemical Oxygen Demand	54	25	10	mg/L	50		108	90-110		
Matrix Spike (BJ22247-MS1)		**Source: 1211976-12**			Prepared & Analyzed: 10/22/12					
Chemical Oxygen Demand	58	25	10	mg/L	50	15	86	85-115		
Matrix Spike Dup (BJ22247-MSD1)		**Source: 1211976-12**			Prepared & Analyzed: 10/22/12					
Chemical Oxygen Demand	58	25	10	mg/L	50	15	86	85-115	0	32
Batch BJ22309 - Ion Chromatography 300.0 Prep										
Blank (BJ22309-BLK1)					Prepared & Analyzed: 10/23/12					
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						

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

November 2, 2012
Work Order: 1211971

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22309 - Ion Chromatography 300.0 Prep										
LCS (BJ22309-BS1)					Prepared & Analyzed: 10/23/12					
Chloride	2.87	0.20	0.050	mg/L	3.0		96	85-115		
Nitrite (as N)	1.40	0.04	0.01	mg/L	1.4		100	85-115		
Nitrate (as N)	1.66	0.04	0.01	mg/L	1.7		98	85-115		
LCS Dup (BJ22309-BSD1)					Prepared & Analyzed: 10/23/12					
Nitrite (as N)	1.40	0.04	0.01	mg/L	1.4		100	85-115	0	200
Nitrate (as N)	1.65	0.04	0.01	mg/L	1.7		97	85-115	0.6	200
Chloride	2.86	0.20	0.050	mg/L	3.0		95	85-115	0.3	200
Matrix Spike (BJ22309-MS1)		**Source: 1212387-03**			Prepared & Analyzed: 10/23/12					
Nitrite (as N)	1.41	0.04	0.01	mg/L	1.4	ND	101	85-115		
Nitrate (as N)	1.72	0.04	0.01	mg/L	1.7	0.0731	97	85-115		
Chloride	10.9	0.20	0.050	mg/L	3.0	7.96	98	80-120		
Matrix Spike (BJ22309-MS2)		**Source: 1211971-19**			Prepared & Analyzed: 10/23/12					
Chloride	61.5	0.20	0.050	mg/L	30	30.2	104	80-120		
Nitrate (as N)	29.8	0.04	0.01	mg/L	17	12.2	104	85-115		
Nitrite (as N)	13.5	0.04	0.01	mg/L	14	ND	96	85-115		
Batch BJ22423 - Ion Chromatography 300.0 Prep										
Blank (BJ22423-BLK1)					Prepared & Analyzed: 10/25/12					
Chloride	0.050 U	0.20	0.050	mg/L						
LCS (BJ22423-BS1)					Prepared & Analyzed: 10/25/12					
Chloride	2.78	0.20	0.050	mg/L	3.0		93	85-115		

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

November 2, 2012
Work Order: 1211971

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22423 - Ion Chromatography 300.0 Prep										
LCS Dup (BJ22423-BSD1)					Prepared & Analyzed: 10/25/12					
Chloride	2.75	0.20	0.050	mg/L	3.0		92	85-115	1	200
Matrix Spike (BJ22423-MS1)		**Source: 1211979-05**			Prepared & Analyzed: 10/25/12					
Chloride	78.1	0.20	0.050	mg/L	30	44.9	111	80-120		
Matrix Spike (BJ22423-MS2)		**Source: 1212359-02**			Prepared & Analyzed: 10/25/12					
Chloride	10.8	0.20	0.050	mg/L	3.0	7.71	103	80-120		
Batch BJ22440 - Digestion for TKN by EPA 351.2										
Blank (BJ22440-BLK1)					Prepared: 10/24/12 Analyzed: 10/26/12					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
LCS (BJ22440-BS1)					Prepared: 10/24/12 Analyzed: 10/26/12					
Total Kjeldahl Nitrogen	2.48	0.20	0.05	mg/L	2.5		98	90-110		
Matrix Spike (BJ22440-MS1)		**Source: 1211971-17**			Prepared: 10/24/12 Analyzed: 10/26/12					
Total Kjeldahl Nitrogen	ed up in ele	0.20	0.05	mg/L	2.5	2.29	90	90-110		
Matrix Spike (BJ22440-MS2)		**Source: 1211976-06**			Prepared: 10/24/12 Analyzed: 10/26/12					
Total Kjeldahl Nitrogen	6.59	0.20	0.05	mg/L	2.5	3.89	107	90-110		
Matrix Spike Dup (BJ22440-MSD1)		**Source: 1211971-17**			Prepared: 10/24/12 Analyzed: 10/26/12					
Total Kjeldahl Nitrogen	4.59	0.20	0.05	mg/L	2.5	2.29	91	90-110	0.7	20
Matrix Spike Dup (BJ22440-MSD2)		**Source: 1211976-06**			Prepared: 10/24/12 Analyzed: 10/26/12					
Total Kjeldahl Nitrogen	6.18	0.20	0.05	mg/L	2.5	3.89	90	90-110	7	20

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

November 2, 2012
Work Order: 1211971

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22514 - Digestion for TP by EPA 365.2/SM4500PE										
Blank (BJ22514-BLK1)					Prepared: 10/25/12 Analyzed: 10/26/12					
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						
LCS (BJ22514-BS1)					Prepared: 10/25/12 Analyzed: 10/26/12					
Phosphorous - Total as P	0.788	0.040	0.010	mg/L	0.80		98	90-110		
Matrix Spike (BJ22514-MS1)		**Source: 1211971-12**			Prepared: 10/25/12 Analyzed: 10/26/12					
Phosphorous - Total as P	1.23	0.040	0.010	mg/L	1.0	0.225	100	75-125		
Matrix Spike (BJ22514-MS2)		**Source: 1211976-05**			Prepared: 10/25/12 Analyzed: 10/26/12					
Phosphorous - Total as P	1.29	0.040	0.010	mg/L	1.0	0.281	101	75-125		
Matrix Spike Dup (BJ22514-MSD1)		**Source: 1211971-12**			Prepared: 10/25/12 Analyzed: 10/26/12					
Phosphorous - Total as P	1.21	0.040	0.010	mg/L	1.0	0.225	99	75-125	1	25
Matrix Spike Dup (BJ22514-MSD2)		**Source: 1211976-05**			Prepared: 10/25/12 Analyzed: 10/26/12					
Phosphorous - Total as P	1.28	0.040	0.010	mg/L	1.0	0.281	100	75-125	0.4	25
Batch BJ22515 - Digestion for TP by EPA 365.2/SM4500PE										
Blank (BJ22515-BLK1)					Prepared: 10/25/12 Analyzed: 10/29/12					
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						
LCS (BJ22515-BS1)					Prepared: 10/25/12 Analyzed: 10/29/12					
Phosphorous - Total as P	0.766	0.040	0.010	mg/L	0.80		96	90-110		
Matrix Spike (BJ22515-MS1)		**Source: 1211969-06**			Prepared: 10/25/12 Analyzed: 10/29/12					
Phosphorous - Total as P	1.02	0.040	0.010	mg/L	1.0	0.0532	97	75-125		

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

November 2, 2012
Work Order: 1211971

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22515 - Digestion for TP by EPA 365.2/SM4500PE										
Matrix Spike (BJ22515-MS2)		**Source: 1211971-05**			Prepared: 10/25/12 Analyzed: 10/29/12					
Phosphorous - Total as P	1.67	0.040	0.010	mg/L	1.0	0.754	91	75-125		
Matrix Spike Dup (BJ22515-MSD1)		**Source: 1211969-06**			Prepared: 10/25/12 Analyzed: 10/29/12					
Phosphorous - Total as P	0.971	0.040	0.010	mg/L	1.0	0.0532	92	75-125	5	25
Matrix Spike Dup (BJ22515-MSD2)		**Source: 1211971-05**			Prepared: 10/25/12 Analyzed: 10/29/12					
Phosphorous - Total as P	1.68	0.040	0.010	mg/L	1.0	0.754	93	75-125	0.8	25
Batch BJ22521 - Ammonia by SEAL										
Blank (BJ22521-BLK1)					Prepared & Analyzed: 10/25/12					
Ammonia as N	0.009 U	0.040	0.009	mg/L						
LCS (BJ22521-BS1)					Prepared & Analyzed: 10/25/12					
Ammonia as N	0.51	0.040	0.009	mg/L	0.50		101	90-110		
Matrix Spike (BJ22521-MS1)		**Source: 1211971-02**			Prepared & Analyzed: 10/25/12					
Ammonia as N	0.47	0.040	0.009	mg/L	0.50	0.013	91	90-110		
Matrix Spike (BJ22521-MS2)		**Source: 1211971-12**			Prepared & Analyzed: 10/25/12					
Ammonia as N	0.50	0.040	0.009	mg/L	0.50	ND	99	90-110		
Matrix Spike Dup (BJ22521-MSD1)		**Source: 1211971-02**			Prepared & Analyzed: 10/25/12					
Ammonia as N	0.48	0.040	0.009	mg/L	0.50	0.013	94	90-110	3	10
Matrix Spike Dup (BJ22521-MSD2)		**Source: 1211971-12**			Prepared & Analyzed: 10/25/12					
Ammonia as N	0.50	0.040	0.009	mg/L	0.50	ND	100	90-110	1	10

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

November 2, 2012
Work Order: 1211971

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22522 - Ammonia by SEAL										
Blank (BJ22522-BLK1)					Prepared & Analyzed: 10/25/12					
Ammonia as N	0.009 U	0.040	0.009	mg/L						
LCS (BJ22522-BS1)					Prepared & Analyzed: 10/25/12					
Ammonia as N	0.51	0.040	0.009	mg/L	0.50		101	90-110		
Matrix Spike (BJ22522-MS1)		**Source: 1211971-22**			Prepared & Analyzed: 10/25/12					
Ammonia as N	0.54	0.040	0.009	mg/L	0.50	0.062	96	90-110		
Matrix Spike (BJ22522-MS2)		**Source: 1211976-16**			Prepared & Analyzed: 10/25/12					
Ammonia as N	0.65	0.040	0.009	mg/L	0.50	0.17	97	90-110		
Matrix Spike Dup (BJ22522-MSD1)		**Source: 1211971-22**			Prepared & Analyzed: 10/25/12					
Ammonia as N	0.55	0.040	0.009	mg/L	0.50	0.062	98	90-110	2	10
Matrix Spike Dup (BJ22522-MSD2)		**Source: 1211976-16**			Prepared & Analyzed: 10/25/12					
Ammonia as N	0.63	0.040	0.009	mg/L	0.50	0.17	93	90-110	3	10

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

November 2, 2012
Work Order: 1211971

Inorganic, Dissolved - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21636 - DOC prep										
Blank (BJ21636-BLK1)					Prepared & Analyzed: 10/17/12					
Dissolved Organic Carbon	0.50 U	1.0	0.50	mg/L						
LCS (BJ21636-BS1)					Prepared & Analyzed: 10/17/12					
Dissolved Organic Carbon	9.22	1.0	0.50	mg/L	10		92	90-110		
Matrix Spike (BJ21636-MS1)		**Source: 1211987-03**			Prepared & Analyzed: 10/17/12					
Dissolved Organic Carbon	9.36	1.0	0.50	mg/L	10	ND	94	85-125		
Matrix Spike Dup (BJ21636-MSD1)		**Source: 1211987-03**			Prepared & Analyzed: 10/17/12					
Dissolved Organic Carbon	8.61	1.0	0.50	mg/L	10	ND	86	85-125	8	25
Batch BJ21726 - DOC prep										
Blank (BJ21726-BLK1)					Prepared & Analyzed: 10/17/12					
Dissolved Organic Carbon	0.50 U	1.0	0.50	mg/L						
LCS (BJ21726-BS1)					Prepared & Analyzed: 10/17/12					
Dissolved Organic Carbon	9.03	1.0	0.50	mg/L	10		90	90-110		
Matrix Spike (BJ21726-MS1)		**Source: 1211971-17**			Prepared & Analyzed: 10/17/12					
Dissolved Organic Carbon	12.0	1.0	0.50	mg/L	10	2.53	94	85-125		
Matrix Spike Dup (BJ21726-MSD1)		**Source: 1211971-17**			Prepared & Analyzed: 10/17/12					
Dissolved Organic Carbon	12.2	1.0	0.50	mg/L	10	2.53	97	85-125	2	25

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

November 2, 2012
Work Order: 1211971

Metals - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21824 - Metals Preparation for EPA Method 200.7										
Blank (BJ21824-BLK1)					Prepared: 10/18/12 Analyzed: 10/19/12					
Boron	0.050 U	0.10	0.050	mg/L						
Calcium	0.042 U	0.50	0.042	mg/L						
Manganese	0.0010 U	0.010	0.0010	mg/L						
Potassium	0.010 U	0.050	0.010	mg/L						
Iron	0.020 U	0.10	0.020	mg/L						
Magnesium	0.020 U	0.50	0.020	mg/L						
Sodium	0.33 I	0.50	0.13	mg/L						
LCS (BJ21824-BS1)					Prepared: 10/18/12 Analyzed: 10/19/12					
Potassium	20	0.050	0.010	mg/L	20		100	85-115		
Sodium	21	0.50	0.13	mg/L	20		106	85-115		
Manganese	0.41	0.010	0.0010	mg/L	0.40		103	85-115		
Magnesium	21	0.50	0.020	mg/L	20		103	85-115		
Calcium	21	0.50	0.042	mg/L	20		104	85-115		
Boron	0.40	0.10	0.050	mg/L	0.40		99	85-115		
Iron	8.5	0.10	0.020	mg/L	8.0		107	85-115		
Matrix Spike (BJ21824-MS1)		**Source: 1211971-02**			Prepared: 10/18/12 Analyzed: 10/19/12					
Sodium	31	0.50	0.13	mg/L	20	11	100	70-130		
Manganese	0.44	0.010	0.0010	mg/L	0.40	0.025	104	70-130		
Magnesium	24	0.50	0.020	mg/L	20	3.4	102	70-130		
Potassium	24	0.050	0.010	mg/L	20	4.0	98	70-130		
Iron	8.6	0.10	0.020	mg/L	8.0	0.049	107	70-130		
Boron	0.54	0.10	0.050	mg/L	0.40	0.065	119	70-130		
Calcium	35	0.50	0.042	mg/L	20	14	102	70-130		
Matrix Spike (BJ21824-MS2)		**Source: 1211971-06**			Prepared: 10/18/12 Analyzed: 10/19/12					
Iron	8.4	0.10	0.020	mg/L	8.0	0.036	105	70-130		
Potassium	27	0.050	0.010	mg/L	20	8.4	94	70-130		
Calcium	46	0.50	0.042	mg/L	20	26	99	70-130		
Sodium	57	0.50	0.13	mg/L	20	37	98	70-130		
Magnesium	29	0.50	0.020	mg/L	20	8.3	101	70-130		
Boron	0.65	0.10	0.050	mg/L	0.40	0.18	118	70-130		
Manganese	0.42	0.010	0.0010	mg/L	0.40	0.012	101	70-130		

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

November 2, 2012
Work Order: 1211971

Metals - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21824 - Metals Preparation for EPA Method 200.7										
Matrix Spike Dup (BJ21824-MSD1)		**Source: 1211971-02**			Prepared: 10/18/12 Analyzed: 10/19/12					
Magnesium	24	0.50	0.020	mg/L	20	3.4	103	70-130	0.8	30
Sodium	32	0.50	0.13	mg/L	20	11	103	70-130	2	30
Boron	0.54	0.10	0.050	mg/L	0.40	0.065	119	70-130	0.5	30
Potassium	24	0.050	0.010	mg/L	20	4.0	98	70-130	0.4	30
Manganese	0.44	0.010	0.0010	mg/L	0.40	0.025	103	70-130	0.4	30
Iron	8.7	0.10	0.020	mg/L	8.0	0.049	108	70-130	1	30
Calcium	35	0.50	0.042	mg/L	20	14	103	70-130	0.3	30
Matrix Spike Dup (BJ21824-MSD2)		**Source: 1211971-06**			Prepared: 10/18/12 Analyzed: 10/19/12					
Manganese	0.42	0.010	0.0010	mg/L	0.40	0.012	101	70-130	0.09	30
Boron	0.68	0.10	0.050	mg/L	0.40	0.18	126	70-130	5	30
Sodium	58	0.50	0.13	mg/L	20	37	103	70-130	2	30
Magnesium	28	0.50	0.020	mg/L	20	8.3	101	70-130	0.2	30
Potassium	28	0.050	0.010	mg/L	20	8.4	96	70-130	2	30
Iron	8.5	0.10	0.020	mg/L	8.0	0.036	105	70-130	0.7	30
Calcium	46	0.50	0.042	mg/L	20	26	98	70-130	0.5	30

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

November 2, 2012
Work Order: 1211971

* 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.

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

Questions regarding this report should be directed to :

Kathryn Nordmark
Telephone (813) 855-1844 FAX (813) 855-2218
Kathryn@southernanalyticallabs.com

or to Client Services (clientservices@southernanalyticallabs.com).

1211971

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: S&GW Test Facility SE #3 (TA2)

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	250mL P, H_2SO_4 TKN, NH_4	1LP, Cool NOx, Cl	250mL P, H_2SO_4 TKN, NH_4, COD, TP	1LP, Cool NOx, Cl, Alkalinity	1LP, Cool NOx, Cl, Alkalinity, F, OP, SO_4	250mLaG, Cool DOC	40mLaV, HCl TOC	250mL P, HNO_3 B, Ca, Fe, Mg, Mn, K, Na					Field pH	Field Temperature	Field Conductivity	Field DO
01	TA2-PAN-12-N not sampled			GW		X	1	1														
02	TA2-PZ-10-EF2	101612	0810	GW		X			1		1	1	2	1					5.2	25.8	189.1	3.34
03	TA2-LY-24-C	101512	1150	GW		X	1	1											6.6	30.1	509	6.0
04	TA2-LY-12-S		1200	GW		X	1	1											6.8	29.5	616	6.6
05	TA2-LY-24-S		1210	GW		X			1	1									6.4	29.9	510	4.7
06	TA2-LY-42-S		1240	GW		X			1		1	1		1					5.7	28.5	433	4.5
07	TA2-PZ-10-H5	101612	0955	GW		X			1	1									4.9	26.0	306.1	1.66
08	TA2-PZ-10-J5		1040	GW		X			1	1									5.06	26.9	364.7	2.94
09	TA2-PZ-10-J5 DUP		1045	GW		X			1	1									5.06	26.9	364.7	2.94
10	TA2-PZ-10-K5		1220	GW		X			1	1									4.99	27.5	441.8	3.34
11	TA2-PZ-10-L2		0955	GW		X			1	1									4.4	26.7	264.5	0.99
12	TA2-PZ-10-L3		1010	GW		X			1	1									4.4	26.7	300.3	1.45

Relinquished:	Date/Time:	Received:	Date/Time:
J. Chambers	10-12-12 11:10		1110 10/12/12
	1530 101612		1530 10-16-12

Seal intact? Y N N/A

Samples intact upon arrival? Y N N/A

Received on ice? Temp____ Y N N/A

Proper preservatives indicated? Y N N/A

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

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

Proper containers used? Y N N/A

Instructions / Remarks:

1211971

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

Chain of Custody

1211971

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: S&GW Test Facility SE #3 (TA2)

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	250mL P, H_2SO_4 TKN, NH_4	1LP, Cool NOx, Cl	250mL P, H_2SO_4 TKN, NH_4, COD, TP	1LP, Cool NOx, Cl, Alkalinity	1LP, Cool NOx, Cl, Alkalinity, F, OP, SO_4	250mLaG, Cool DOC	40mLaV, HCl TOC	250mL P, HNO_3 B, Ca, Fe, Mg, Mn, K, Na					Field pH	Field Temperature	Field Conductivity	Field DO
13	TA2-PZ-10-L4	10/6/12	1109	GW		X			1		1	1	2	1					9.6	27.2	450.5	2.41
14	TA2-PZ-10-L5		1134	GW		X			1	1									4.4	27.2	410.0	1.50
15	TA2-PZ-10-L5 DUP		1139	GW		X			1	1									4.4	27.2	410.0	1.50
16	TA2-PZ-10-L6		1203	GW		X			1	1									4.6	27.0	437.2	1.37
17	TA2-PZ-09-M4		1035	GW		X			1	*	1	1	2	1					5.3	27.1	372.5	1.01
18	TA2-PZ-16-M4		1052	GW		X	1	1											5.3	26.5	212.0	0.34
19	TA2-PZ-09-N7		0920	GW		X			1	1									5.5	26.6	412.3	0.35
20	TA2-PZ-09-N7 DUP		0925	GW		X			1	1									5.5	26.6	429.2	0.35
21	TA2-PZ-16-N7		0936	GW		X	1	1											5.3	26.2	212.3	0.23
22	TA2-PZ-09-I7		0930	GW		X	1	1											5.8	26.4	269.1	0.78
23	TA2-PZ-16-I7		1015	GW		X	1	1											5.7	26.4	205.1	0.18
24	TA2-PZ-09-L8		1130	GW		X	1	1											6.6	26.5	454.5	2.75

Containers Prepared/ Relinquished:	Date/Time:	Received:	Date/Time:
J. Chambers	10-12-12 11:10		1110 10/12/12
Relinquished:	Date/Time: 1530 10/12/12	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

Seal intact? Y N N/A

Samples intact upon arrival? Y N N/A

Received on ice? Temp_____ Y N N/A

Proper preservatives indicated? Y N N/A

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

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

Proper containers used? Y N N/A

Instructions / Remarks:

1211971

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

Chain of Custody

1211971

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: S&GW Test Facility SE #3 (TA2)

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	250mL P, H_2SO_4 TKN, NH_4	1LP, Cool NOx, Cl	250mL P, H_2SO_4 TKN, NH_4, COD, TP	1LP, Cool NOx, Cl, Alkalinity	1LP, Cool NOx, Cl, Alkalinity, F, OP, SO_4	250mLaG, Cool DOC	40mLaV, HCl TOC	250mL P, HNO_3 B, Ca, Fe, Mg, Mn, K, Na					Field pH	Field Temperature	Field Conductivity	Field DO
25	TA2-PZ-16-L8	10/16/12	1155	GW		X	1	1											5.6	26.7	208.2	0.17
26	TA2-PZ-09-TU19		0835	GW		X	1	1											4.7	26.3	187.9	0.20
27	TA2-PZ-16-TU19		0854	GW		X	1	1											5.3	25.9	194.8	0.24
28	TA2-PZ-09-TU21		0759	GW		X	1	1											4.6	26.0	170.5	0.36
29	TA2-PZ-16-TU21		0817	GW		X	1	1											5.2	25.9	185.6	0.25

Containers Prepared/ Relinquished:	Date/Time:	Received:	Date/Time:
J. Chandler	10-12-12 11:18		1110 10/12/12
	1530 10/16/12		1530 10-16-12
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

Seal intact? Y N N/A

Samples intact upon arrival? Y N N/A

Received on ice? Temp_____ Y N N/A

Proper preservatives indicated? Y N N/A

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

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

Proper containers used? Y N N/A

Instructions / Remarks:

1211971

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	10/16/12	SAL Project #	1211971	Project Name	S&GW Test Facility SE #3
Well Number	TA2-PZ-10-EF2	Sample ID	02	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1"	WELL CAPACITY (gal/ft)	.04	Screen Interval (Feet)	UNK	To	UNK	Static Depth to Water (Feet)	8.90	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	.2368	1/4 WELL VOLUME		3 WELL VOLUMES	.7104	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	0800	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)
0803	.3	.3	.1	8.90	5.10	25.4	191.8	3.64	14.7	Slightly cloudy	
0806	.3	.6	.1		5.13	25.4	189.7	3.50	12.9	Clear	
0809	.3	.9	.1		5.15	25.8	189.1	3.34	15.9	clear	
0812	.3	1.2	.1								
0815	.3	1.5	.1								

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL					SAMPLER(S) SIGNATURES:	IG		
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT			SAMPLE TUBING LEGNTH IN WELL (FEET)				SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED	0810	SAMPLING ENDED	0815	FIELD CLEANED	Y N	CLEANING STEPS			
FIELD FILTERED?	Y N	FILTER SIZE (µm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?	Y N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Sunny 80°F								
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	10/15/12 11:50 am	SAL Project #	121971	Project Name	S&GW Test Facility SE #3
Well Number	TA2-LY-24-C	Sample ID	03	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)		WELL CAPACITY (gal/ft)		Screen Interval (Feet)	UNK To UNK			Static Depth to Water (Feet)		PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)		REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)				TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	
Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)											
WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =											
ONE WELL VOLUME			1/4 WELL VOLUME			3 WELL VOLUMES			5 WELL VOLUMES		
EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME											
PUMP VOLUME			TUBING LEGNTH			FLOW CELL VOLUME			EQUIPMENT VOLUME		
INITIAL TUBING LEGNTH IN WELL (FEET)			FINAL TUBING LEGNTH IN WELL (FEET)			PURGE TIME START		PURGE TIME END		TOTAL PURGED	
INST. ID					SAL-SAM-63-____	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)
11:50am					6.6	30.1	509	6.0		yellow	

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

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

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

Reviewed By:		Date:	

Revision Date 09/25/09

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	10/15/12 12:00 pm	SAL Project #	1211971	Project Name	S&GW Test Facility SE #3
Well Number	TA2-LY-12-S	Sample ID	04	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)		WELL CAPACITY (gal/ft)		Screen Interval (Feet)	UNK	To	UNK	Static Depth to Water (Feet)		PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)		REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)				TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	
Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)											
WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =											
ONE WELL VOLUME			1/4 WELL VOLUME			3 WELL VOLUMES			5 WELL VOLUMES		
EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME											
PUMP VOLUME			TUBING LEGNTH			FLOW CELL VOLUME			EQUIPMENT VOLUME		
INITIAL TUBING LEGNTH IN WELL (FEET)			FINAL TUBING LEGNTH IN WELL (FEET)			PURGE TIME START		PURGE TIME END		TOTAL PURGED	
INST. ID					SAL-SAM-63-____	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)
12:00 pm	~800mL				6.8	29.5	616	6.6		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)		HJS				SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)		PP PE NP TL TT		SAMPLE TUBING LEGNTH IN WELL (FEET)				SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED		SAMPLING ENDED		FIELD CLEANED	Y N	CLEANING STEPS			
FIELD FILTERED?	Y N	FILTER SIZE (µm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?		Y N N/A	LIST PRESERVATIVES ADDED						
WEATHER CONDITIONS									
COMMENTS									

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

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

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	10/15/12 12:10 pm	SAL Project #	121197	Project Name	S&GW Test Facility SE #3
Well Number	TA2-LY-24-S	Sample ID	05	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)		WELL CAPACITY (gal/ft)		Screen Interval (Feet)	UNK	To	UNK	Static Depth to Water (Feet)		PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)		REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)				TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	
Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)											
WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =											
ONE WELL VOLUME			1/4 WELL VOLUME			3 WELL VOLUMES			5 WELL VOLUMES		
EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME											
PUMP VOLUME			TUBING LEGNTH			FLOW CELL VOLUME			EQUIPMENT VOLUME		
INITIAL TUBING LEGNTH IN WELL (FEET)			FINAL TUBING LEGNTH IN WELL (FEET)			PURGE TIME START		PURGE TIME END		TOTAL PURGED	
INST. ID					SAL-SAM-63-____	SAL-SAM - 65-____	SAL-SAM-63-____	SAL-SAM-55-__	SAL-SAM-0____		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
12:10					6.4	29.9	510	4.7		yellow	

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)		H&S				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:	1211971	Contact:	
				Phone:	
Date Sampled	10/15/12 12:40 pm	SAL Project #	~~1211978~~	Project Name	S&GW Test Facility SE #3
Well Number	TA2-LY-42-S	Sample ID	06	GPS LAT	
				GPS LONG	

PURGING DATA

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

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

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

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

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

PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME		EQUIPMENT VOLUME	

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

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
12:40 pm	2000mL				5.7	28.5	433	4.5		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)		HSI				SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)		PP PE NP TL TT		SAMPLE TUBING LEGNTH IN WELL (FEET)				SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED		SAMPLING ENDED		FIELD CLEANED	Y N	CLEANING STEPS			
FIELD FILTERED?	Y N	FILTER SIZE (µm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?		Y N N/A	LIST PRESERVATIVES ADDED						
WEATHER CONDITIONS									
COMMENTS									

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

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

Reviewed By:		Date:	

Revision Date 09/25/09

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	10/16/12	SAL Project #	1211971	Project Name	S&GW Test Facility SE #3
Well Number	TA2-PZ-10-H5	Sample ID	07	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1"	WELL CAPACITY (gal/ft)	.04	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	8.82	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	14.84	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	.2408	1/4 WELL VOLUME			3 WELL VOLUMES	.7224		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	833	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)
0836	.3	.3	.1	8.82	4.87	25.5	303.5	1.95	65.5	BROWN	
0839	.3	.6	.1		4.89	26.0	303.2	1.68	55.9		
0842	.3	.9	.1		4.89	26.0	306.2	1.69	27.1	CLEAR	
0845	.3	1.2	.1		4.88	26.0	307.5	1.67	16.2		
0848	.3	1.5	.1		4.87	26.0	306.1	1.66	14.8	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:	J. Hill			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	0850	SAMPLING ENDED	0855	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 N 5 77°F								
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	10/16/12	SAL Project #	1211971	Project Name	S&GW Test Facility SE #3
Well Number	TA2-PZ-10-J5	Sample ID	08	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1"	WELL CAPACITY (gal/ft)	.04	Screen Interval (Feet)	UNK	To	UNK	Static Depth to Water (Feet)	8.89	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	14.83	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	.2376	1/4 WELL VOLUME		3 WELL VOLUMES	.7128	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	1030	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)
1033	.3	.3	.1	8.89	5.10	26.7	347.9	3.16	4.83	Cloudy Slightly	
1036	.3	.6	.1		5.06	26.9	364.7	2.94	3.74		
1039	.3	.9	.1						2.69	Clear	
1042	.3	1.2	.1								
1045	.3	1.5	.1								

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL					SAMPLER(S) SIGNATURES:	J. [illegible] IG		
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	1040	SAMPLING ENDED	1045	FIELD CLEANED	Y N	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	(Y) N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Sunny								
COMMENTS	LAWN CREW working Around wells								

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	10/16/12	SAL Project #	1211971	Project Name	S&GW Test Facility SE #3
Well Number	TA2-PZ-10-J5 DUP	Sample ID	09	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1"	WELL CAPACITY (gal/ft)	.04	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	8.89	PURGE PUMP CODE: PP GP IBP
TOTAL WELL DEPTH (Feet)	14.83	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	.2376	1/4 WELL VOLUME		3 WELL VOLUMES	.7128	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)
1033	.3	.3	.1	8.89	5.10	26.7	347.9	3.16	9.83	Slightly cloudy	
1036	.3	.6	.1		5.06	26.9	364.7	2.94	3.74		
1039	.3	.9	.1		5.06	26.9	366.0	2.75	2.69	Clear	
1042	.3	1.2	.1								
1045	.3	1.5	.1								

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL					SAMPLER(S) SIGNATURES:	[illegible] IG		
TUBING MATERIAL CODE (CIRCLE ONE) 1045	PP PE NP TL TT 1050			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	~~1040~~ 1026	SAMPLING ENDED	~~1045~~ 1045	FIELD CLEANED	Y N	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)	IG	DUPLICATE	(Y) N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Sunny								
COMMENTS	Lawn crew working around wells								

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	10/16/12	SAL Project #	1211971	Project Name	S&GW Test Facility SE #3
Well Number	TA2-PZ-10-K5	Sample ID	10	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1"	WELL CAPACITY (gal/ft)	.04	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	8.85	PURGE PUMP CODE: PP GP IBP
TOTAL WELL DEPTH (Feet)	14.72	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	.2348	1/4 WELL VOLUME		3 WELL VOLUMES	.7044	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		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)
1206	.3	.3	.1	8.85	5.10	27.7	431.5	4.03	98.6	Slightly White	
1209	.3	.6	.1		5.03	27.6	439.6	3.72	77.2		
1212	.3	.9	.1		5.01	27.6	443.2	3.62	27.2	Clear	
1215	.3	1.2	.1		5.00	27.6	443.9	3.46	23.5		
1218	.3	1.5	.1		4.99	27.5	441.8	3.34	10.6	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:	[signature] IG		
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT	SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	1220	SAMPLING ENDED	1225	FIELD CLEANED	Y N	CLEANING STEPS	
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A
SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A						
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED					
WEATHER CONDITIONS	Sunny 85°F N5						
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	10/6/12	SAL Project #	1211971	Project Name	S&GW Test Facility SE #3
Well Number	TA2-PZ-10-L2	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)	8.98	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	14.75	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	0.234	1/4 WELL VOLUME			3 WELL VOLUMES	0.704		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	0945	PURGE TIME END	0954	TOTAL PURGED	0.90
INST. ID					SAL-SAM-63-05	SAL-SAM-65-08	SAL-SAM-63-08	SAL-SAM-55-05	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)
0948	0.30	0.30	0.10	8.99	4.5	26.5	264.0	1.58	9.84	CLEAR	NONE
0951	0.30	0.60	|	|	4.4	26.6	263.8	1.28	10.1	|	|
0954	0.30	0.90	|	|	4.4	26.7	264.5	0.99	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	0955	SAMPLING ENDED	0956	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	10/6/12	SAL Project #	1211971	Project Name	S&GW Test Facility SE #3
Well Number	TA2-PZ-10-L3	Sample ID	12	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)	8.90	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	14.75	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	0.234	1/4 WELL VOLUME		3 WELL VOLUMES	0.702	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	1000	PURGE TIME END	1009	TOTAL PURGED	0.90
INST. ID				SAL-SAM-63-05	SAL-SAM-65-05	SAL-SAM-63-05	SAL-SAM-55-05	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)
1003	0.30	0.30	0.10	8.98	4.4	26.7	279.8	2.14	6.24	CLEAR	NONE
1006	0.30	0.60	/	/	4.4	26.7	294.2	1.48	5.87	/	/
1009	0.30	0.90	/	/	4.4	26.7	300.3	1.45	2.89	/	/

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	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, 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	10/6/12	SAL Project #	121971	Project Name	S&GW Test Facility SE #2
Well Number	TA2-PZ-10-L4	Sample ID	13	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)	8.70	PURGE PUMP CODE (PP) GP IBP
TOTAL WELL DEPTH (Feet)	14.70	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	0.24	1/4 WELL VOLUME		3 WELL VOLUMES	0.72	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	1059	PURGE TIME END	1108	TOTAL PURGED	0.90		
INST. ID				SAL-SAM-63-08	SAL-SAM-65-08	SAL-SAM-63-08	SAL-SAM-55-08	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)
1102	0.30	0.30	0.10	8.92	4.8	27.2	477.7	2.82	11.2	CLEAR	NONE
1105	0.30	0.60	/	/	4.6	27.2	456.6	2.67	9.87	/	/
1108	0.30	0.90	/	/	4.6	27.2	450.5	2.41	3.42	/	/

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	1109	SAMPLING ENDED	1110	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	10/6/12	SAL Project #	1211971	Project Name	S&GW Test Facility SE #3
Well Number	TA2-PZ-10-L5	Sample ID	14	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)	8.90	PURGE PUMP CODE (PP) GP IBP
TOTAL WELL DEPTH (Feet)	14.72	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	0.698	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	1133	TOTAL PURGED	1.20
INST. ID					SAL-SAM-63-08	SAL-SAM-65-08	SAL-SAM-63-08	SAL-SAM-55-08	SAL-SAM-01		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
1124	0.30	0.30	0.10	8.97	4.4	27.3	406.3	2.04	32.8	CLOUDY	NONE
1127	0.30	0.60			4.4	27.2	408.9	2.04	17.2	CLEAR	
1130	0.30	0.90			4.4	27.2	409.6	2.02	11.6		
1133	0.30	1.20			4.4	27.2	410.0	1.50	8.41		

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, 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	10/16/12	SAL Project #	1211971	Project Name	S&GW Test Facility SE #3
Well Number	TA2-PZ-10-L5 DUP	Sample ID	15	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)	8.90	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	14.72	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	0.698	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	1133	TOTAL PURGED	1.20
INST. ID				SAL-SAM-63-08	SAL-SAM-65-08	SAL-SAM-63-08	SAL-SAM-55-08	SAL-SAM-01	

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
1124	0.30	0.30	0.10	8.97	4.4	27.3	406.3	2.04	32.8	CLOUDY	NONE
1127	0.30	0.60			4.4	27.2	408.9	2.04	17.2	CLEAR	
1130	0.30	0.90			4.4	27.2	409.6	2.02	11.6		
1133	0.30	1.20			4.4	27.2	410.0	1.50	8.41		

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	1139	SAMPLING ENDED	1140	FIELD CLEANED	Y N	CLEANING STEPS	
FIELD FILTERED?	Y N	FILTER SIZE (µm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A
SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A						
PRESERVATION CHECKED IN FIELD?	Y N N/A	LIST PRESERVATIVES ADDED					
WEATHER CONDITIONS	Clear, 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	10/6/12	SAL Project #	1211971	Project Name	S&GW Test Facility SE #3
Well Number	TA2-PZ-10-L6	Sample ID	16	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)	8.87	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	14.75	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	0.238	1/4 WELL VOLUME		3 WELL VOLUMES	0.714	5 WELL VOLUMES	

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

PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME		EQUIPMENT VOLUME	

INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START	1147	PURGE TIME END	1202	TOTAL PURGED	1.50
INST. ID	X	X	X	X	SAL-SAM-63-08	SAL-SAM-65-08	SAL-SAM-63-05	SAL-SAM-55-08	SAL-SAM-01

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
1150	0.30	0.30	0.10	8.93	4.5	27.2	438.6	2.44	MAX	BROWN	NONE
1153	0.30	0.60			4.5	27.2	439.8	1.57	286	CLOUDY	
1156	0.30	0.90			4.5	27.1	439.9	1.32	68.8		
1159	0.30	1.20			4.5	27.0	439.3	1.24	43.2		
1202	0.30	1.50			4.6	27.0	437.2	1.37	42.5		

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	1203	SAMPLING ENDED	1204	FIELD CLEANED	Y (N)	CLEANING STEPS	
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)
SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)						
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED					
WEATHER CONDITIONS	Clean, 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	10/6/12	SAL Project #	1211971	Project Name	S&GW Test Facility SE #3
Well Number	TA2-PZ-09-M4	Sample ID	17	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)	4.72	PURGE PUMP CODE (PP) GP IBP
TOTAL WELL DEPTH (Feet)	9.85	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)

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

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

ONE WELL VOLUME	0.205	1/4 WELL VOLUME		3 WELL VOLUMES	0.615	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	1019	PURGE TIME END		TOTAL PURGED	
INST. ID	X	X	X	X	SAL-SAM-63-08	SAL-SAM-65-08	SAL-SAM-63-08	SAL-SAM-55-08	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)
1022	0.30	0.30	0.10	4.88	5.5	27.1	390.8	1.75	MAX	BROWN	NONE
1025	0.30	0.60	|	|	5.4	27.1	380.8	1.25	|	|	|
1028	0.30	0.90	|	|	5.3	27.1	377.4	1.15	|	|	|
1031	0.30	1.20	|	|	5.3	27.2	373.5	1.00	516	|	|
1034	0.30	1.50	|	|	5.3	27.1	372.7	1.01	402	|	|

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL			SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP (TL) TT		SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED	1035	SAMPLING ENDED	1036	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		SAL Project #	1211971	Project Name	S&GW Test Facility SE #3
Well Number	TA2-PZ-16-M4	Sample ID	18	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)	4.77	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	17.25	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	0.499	1/4 WELL VOLUME	0.124	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	1040	PURGE TIME END	1051	TOTAL PURGED	1.10
INST. ID					SAL-SAM-63-08	SAL-SAM-65-08	SAL-SAM-63-08	SAL-SAM-55-08	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)
1045	0.50	0.50	0.10	4.90	5.4	26.6	213.4	0.50	12.8	CLEAR	NONE
1048	0.30	0.80	/	/	5.3	26.6	212.3	0.43	11.7	/	/
1051	0.30	1.10	/	/	5.3	26.5	212.0	0.34	10.3	/	/

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	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, 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	101612	SAL Project #	1211971	Project Name	S&GW Test Facility SE #3
Well Number	TA2-PZ-09-N7	Sample ID	19	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)	4.17	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	9.85	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)		TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	

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

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

ONE WELL VOLUME	0.227	1/4 WELL VOLUME		3 WELL VOLUMES	0.681	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	0904	PURGE TIME END	0919	TOTAL PURGED	1.50

INST. ID					SAL-SAM-63-08	SAL-SAM-65-08	SAL-SAM-63-08	SAL-SAM-55-08	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	~~0.0~~ 0.30	0.30	0.10	4.28	5.4	26.4	393.2	1.04	MAX	BROWN	NONE
0910	0.30	0.60			5.4	26.4	411.5	0.63			
0913	0.30	0.90			5.4	26.5	425.4	0.47	731		
0916	0.30	1.20			5.4	26.5	429.9	0.34	451		
0919	0.30	1.50			5.5	26.6	429.2	0.35	75.7	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	0920	SAMPLING ENDED	0921	FIELD CLEANED	Y (N)	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (μm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Clear, 76°								
COMMENTS									

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

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

Reviewed By: Date:

Revision Date 09/25/09

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	10/6/12	SAL Project #	1211971	Project Name	S&GW Test Facility SE #3
Well Number	TA2-PZ-09-N7-DUP	Sample ID	20	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)	4.17	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	9.85	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)				TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	

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

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

ONE WELL VOLUME	0.227	1/4 WELL VOLUME		3 WELL VOLUMES	0.681	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	0904	PURGE TIME END	0919	TOTAL PURGED	1.50
INST. ID					SAL-SAM-63-08	SAL-SAM-65-08	SAL-SAM-63-08	SAL-SAM-55-08	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	0.30	0.30	0.10	4.28	5.4	26.4	393.2	1.04	MAX	BROWN	NONE
0910	0.30	0.60			5.4	26.4	411.5	0.63			
0913	0.30	0.90			5.4	26.5	425.4	0.47	731		
0916	0.30	1.20			5.4	26.5	429.9	0.34	451		
0919	0.30	1.50			5.5	26.6	429.2	0.35	75.7	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	0925	SAMPLING ENDED	0926	FIELD CLEANED	Y N	CLEANING STEPS			
FIELD FILTERED?	Y N	FILTER SIZE (µm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?	Y N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Clear, 76°								
COMMENTS									

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

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

Reviewed By: Date:

Revision Date 09/25/09

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	10/6/12	SAL Project #	121971	Project Name	S&GW Test Facility SE #3
Well Number	TA2-PZ-16-N7	Sample ID	21	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)	4.62	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	17.25	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	0.505	1/4 WELL VOLUME	0.126	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	0926	PURGE TIME END	0935	TOTAL PURGED	1.10
INST. ID					SAL-SAM-63-08	SAL-SAM-65-08	SAL-SAM-63-08	SAL-SAM-55-08	SAL-SAM-01		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
0931	0.50	0.50	0.10	4.81	5.4	26.2	226.4	0.77	3.02	CLEAR	NONE
0934	0.30	0.80	/	/	5.3	26.2	217.6	0.28	2.30	/	/
0935	0.30	1.10	/	/	5.3	26.2	212.3	0.23	2.09	/	/

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL				SAMPLER(S) SIGNATURES:				
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP (TL) TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	0936	SAMPLING ENDED	0937	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		SAL Project #	1211971	Project Name	S&GW Test Facility SE #3
Well Number	TA2-PZ-09-I7	Sample ID	22	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1"	WELL CAPACITY (gal/ft)	.04	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	4.20	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	9.89	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	.2276	1/4 WELL VOLUME		3 WELL VOLUMES	.6828	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	0900	PURGE TIME END	0925	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)
0913	.3	.3	.1	4.20	5.45	25.3	275	1.44	00R	Brown	
0916	.3	.6	.1		5.70	26.0	272.3	1.00	391		
0919	.3	.9	.1		5.75	26.2	269.4	.96	255	Cloudy	
0922	.3	1.2	.1		5.77	26.3	266.2	.85	174		
0925	.3	1.5	.1		5.77	26.4	264.1	.78	533	Cloudy Brown	

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:	J. [illegible] IG			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT			SAMPLE TUBING LEGNTH IN WELL (FEET)		SAMPLE PUMP FLOW RATE (mL/min)			
SAMPLING INITIATED	0930	SAMPLING ENDED	0935	FIELD CLEANED	Y N	CLEANING STEPS			
FIELD FILTERED?	Y N	FILTER SIZE (µm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?	Y N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Sunny 80°F NS								
COMMENTS	LAWN MAINTENANCE CREW								

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	10/16/12	SAL Project #	1211971	Project Name	S&GW Test Facility SE #3
Well Number	TA2-PZ-16-I7	Sample ID	23	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)	4.68	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	17.30	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	.5048	1/4 WELL VOLUME			3 WELL VOLUMES	1.5144		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	0945	PURGE TIME END	1010	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)
0950	.5	.5	.1	4.68	5.64	26.3	216.5	.30	448	Cloudy	
0955	.5	1.0	.1		5.64	26.4	212.7	.27	120		
1000	.5	1.5	.1		5.63	26.4	209.7	.23	88.6	Slightly Cloudy	
1005	.5	2.0	.1		5.64	26.4	205.8	.21	13.6		
1010	.5	2.5	.1		5.68	26.4	205.1	.18	12.1	Clear	

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL					SAMPLER(S) SIGNATURES:	J. Kell IG		
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	1015	SAMPLING ENDED	1020	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:		Contact:	
				Phone:	
Date Sampled	10/16/12	SAL Project #	1211971	Project Name	S&GW Test Facility SE #3
Well Number	TA2-PZ-09-L8	Sample ID	24	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)	4.46	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	9.90	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	.2176	1/4 WELL VOLUME		3 WELL VOLUMES	.6528	5 WELL VOLUMES	

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

PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME		EQUIPMENT VOLUME	

INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START	1105	PURGE TIME END		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)
1108	.3*	.3	.1	4.46	6.52	27.6	484	2.38	578	Cloudy Brown	
1111	.3	.6	.1		6.57	27.3	466	1.07	336		
1114	.3	.9	.1		6.61	27.4	462	1.18	OOR		
1117	.3	1.2	.1		6.63	27.5	456	1.87	889		
1120	.3	1.5	.1		6.64	27.5	454.5	2.75	709		

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:	J. [illegible] IG		
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT		SAMPLE TUBING LEGNTH IN WELL (FEET)		SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	1120	SAMPLING ENDED	1130	FIELD CLEANED	Y N	CLEANING STEPS	
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A
SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A						
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED					
WEATHER CONDITIONS	Sunny 80°F						
COMMENTS	Well is drawing down - air bubbles affecting D.O.						

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	10/16/12	SAL Project #	1211971	Project Name	S&GW Test Facility SE #3
Well Number	TA2-PZ-16-L8	Sample ID	25	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1"	WELL CAPACITY (gal/ft)	.04	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	4.47	PURGE PUMP CODE: PP GP IBP
TOTAL WELL DEPTH (Feet)	17.33	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	.5144	1/4 WELL VOLUME		3 WELL VOLUMES	1.5432	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	1130	PURGE TIME END	1155	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)
1135	.5	.5	.1	4.47	5.77	25.9	221.5	.35	154	Cloudy	
1140	.5	1.0	.1		5.68	26.7	214.4	.23	122		
1145	.5	1.5	.1		5.64	26.7	209.3	.19	33.4	Clear	
1150	.5	2.0	.1		5.63	26.7	208.3	.18	17.8		
1155	.5	2.5	.1		5.63	26.7	208.2	.17	11.9	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:	[illegible] IG		
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	1155	SAMPLING ENDED	1200	FIELD CLEANED	Y N	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N N/A	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Sunny N 10 85°F								
COMMENTS	LAWN CREW still cutting								

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	101612	SAL Project #	1211971	Project Name	S&GW Test Facility SE #3
Well Number	TA2-PZ-09-TU19	Sample ID	26	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)	4.74	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	9.85	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)				TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	

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

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

ONE WELL VOLUME	0.204	1/4 WELL VOLUME		3 WELL VOLUMES	0.613	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	0819	PURGE TIME END	0834	TOTAL PURGED	1.50

INST. ID					SAL-SAM-63-08	SAL-SAM-65-08	SAL-SAM-63-08	SAL-SAM-55-08	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)
0822	0.30	0.30	0.10	4.84	5.4	25.8	156.4	1.57	MAX	Brown CLOUDY	NONE
0825	0.30	0.60	|	|	5.0	26.0	168.2	0.64	|	|	|
0828	0.30	0.90	|	|	4.7	26.2	183.6	0.27	515	|	|
0831	0.30	1.20	|	|	4.7	26.3	187.2	0.23	250	Beige	|
0834	0.30	1.50	|	|	4.7	26.3	187.9	0.20	106	|	|

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	0835	SAMPLING ENDED	0836	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, 75°						
COMMENTS							

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

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

Reviewed By: Date:

Revision Date 09/25/09

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	10/6/12	SAL Project #	1211971	Project Name	S&GW Test Facility SE #3
Well Number	TA2-PZ-16-TU19	Sample ID	27	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)	4.07	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	17.25	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	0.527	1/4 WELL VOLUME	0.131	3 WELL VOLUMES	~~0.131~~ 55	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	0838	PURGE TIME END	0853	TOTAL PURGED	3.00
INST. ID	X	X	X	X	SAL-SAM-63-08	SAL-SAM-65-08	SAL-SAM-63-08	SAL-SAM-55-08	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)
0841	0.60	0.60	0.20	4.24	5.2	25.9	189.2	0.91	499	BEIGE	NONE
0844	0.60	1.20	|	|	5.2	25.9	191.3	0.73	293	|	|
0847	0.60	1.80	|	|	5.3	25.8	193.0	0.33	41.2	CLOUDY	|
0850	0.60	2.40	|	|	5.3	25.8	193.9	0.31	12.2	CLEAR	|
0853	0.60	3.00	|	|	5.3	25.9	194.8	0.24	7.16	|	|

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	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	0854	SAMPLING ENDED	0855	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, 74°								
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	10/6/12	SAL Project #	1211971	Project Name	S&GW Test Facility SE #3
Well Number	TA2-PZ-09-TU21	Sample ID	28	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)	4.07	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	9.85	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	

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

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

ONE WELL VOLUME	0.231	1/4 WELL VOLUME		3 WELL VOLUMES	0.693	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	0743	PURGE TIME END	0758	TOTAL PURGED	1.50	
INST. ID	X	X	X	X	SAL-SAM-63-08	SAL-SAM-65-08	SAL-SAM-63-08	SAL-SAM-55-08	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)
0746	0.30	0.30	0.10	4.22	4.4	24.6	197.5	1.41	646	CLOUDY	NONE
0749	0.30	0.60			4.5	25.1	192.0	1.10	512		
0752	0.30	0.90			4.6	25.7	177.8	0.49	212		
0755	0.30	1.20			4.6	25.9	174.0	0.42	113		
0758	0.30	1.50			4.6	26.0	170.5	0.36	64.5		

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	0759	SAMPLING ENDED	0800	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, 74°						
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	101612	SAL Project #	1211971	Project Name	S&GW Test Facility SE #3
Well Number	TA2-PZ-16-TU21	Sample ID	29	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)	4.47	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	17.25	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	0.5112	1/4 WELL VOLUME	0.127	3 WELL VOLUMES		5 WELL VOLUMES	

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

PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME		EQUIPMENT VOLUME	

INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START	0802	PURGE TIME END	0813	TOTAL PURGED	1.10	
INST. ID				SAL-SAM-63-08	SAL-SAM-65-08	SAL-SAM-63-08	SAL-SAM-55-08	SAL-SAM-001		

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
0807	0.50	0.50	0.10	4.52	5.2	25.9	185.1	0.64	12.8	CLEAR	NONE
0810	0.30	0.80	|	|	5.2	25.9	186.1	0.42	7.24	|	|
0813	0.30	1.10	|	|	5.2	25.9	185.6	0.25	5.11	|	|

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	0814	SAMPLING ENDED	0815	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, 75°						
COMMENTS							

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

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

Reviewed By: Date:

Revision Date 09/25/09

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

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

November 2, 2012
Work Order: 1211976

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**TA3-LY-24-C**						
Matrix		**Groundwater**						
SAL Sample Number		**1211976-02**						
Date/Time Collected		**10/15/12 11:00**						
Collected by		**Josephine Edeback-Hirst**						
Date/Time Received		**10/15/12 15:40**						
Field Parameters								
pH	SU	6.3	DEP FT1100	0.1	0.1		10/15/12 11:00	1
Water Temperature	°C	29.5	DEP FT1400	0.1	0.1		10/15/12 11:00	1
Specific conductance	umhos/cm	704	DEP FT1200	0.1	0.1		10/15/12 11:00	1
Dissolved Oxygen	mg/L	6.4	DEP FT1500	0.1	0.1		10/15/12 11:00	1
Inorganics								
Ammonia as N	mg/L	0.011 I	EPA 350.1	0.040	0.009		10/25/12 15:01	1
Ammonium as NH4	mg/L	0.01 U	EPA 350.1	0.05	0.01		10/25/12 15:01	1
Chloride	mg/L	50	EPA 300.0	0.20	0.050		10/16/12 16:49	1
Nitrate (as N)	mg/L	35	EPA 300.0	0.04	0.01		10/16/12 16:49	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/16/12 16:49	1
Total Kjeldahl Nitrogen	mg/L	3.4	EPA 351.2	0.20	0.05	10/24/12 15:56	10/26/12 10:02	1
Nitrate+Nitrite (N)	mg/L	35	EPA 300.0	0.08	0.02		10/16/12 16:49	1

Sample Description		**TA3-LY-12-S**						
Matrix		**Groundwater**						
SAL Sample Number		**1211976-03**						
Date/Time Collected		**10/15/12 11:10**						
Collected by		**Josephine Edeback-Hirst**						
Date/Time Received		**10/15/12 15:40**						
Field Parameters								
pH	SU	6.9	DEP FT1100	0.1	0.1		10/15/12 11:10	1
Water Temperature	°C	30.1	DEP FT1400	0.1	0.1		10/15/12 11:10	1
Specific conductance	umhos/cm	589	DEP FT1200	0.1	0.1		10/15/12 11:10	1
Dissolved Oxygen	mg/L	6.8	DEP FT1500	0.1	0.1		10/15/12 11:10	1
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/25/12 15:01	1
Ammonium as NH4	mg/L	0.01 U	EPA 350.1	0.05	0.01		10/25/12 15:01	1
Chemical Oxygen Demand	mg/L	24 I	EPA 410.4	25	10	10/19/12 09:00	10/19/12 12:00	1
Chloride	mg/L	51	EPA 300.0	0.20	0.050		10/24/12 02:07	1
Nitrate (as N)	mg/L	6.2	EPA 300.0	0.04	0.01		10/16/12 16:49	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/16/12 16:49	1
Phosphorous - Total as P	mg/L	0.60	SM 4500P-E	0.040	0.010	10/25/12 10:21	10/26/12 11:03	1
Total Alkalinity	mg/L	86	SM 2320B	8.0	2.0		10/16/12 08:00	1
Total Kjeldahl Nitrogen	mg/L	1.9	EPA 351.2	0.20	0.05	10/24/12 15:56	10/26/12 10:50	1
Nitrate+Nitrite (N)	mg/L	6.2	EPA 300.0	0.08	0.02		10/16/12 16:49	1

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

November 2, 2012
Work Order: 1211976

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**TA3-LY-12-S DUP**						
Matrix		**Groundwater**						
SAL Sample Number		**1211976-04**						
Date/Time Collected		**10/15/12 11:15**						
Collected by		**Josephine Edeback-Hirst**						
Date/Time Received		**10/15/12 15:40**						
Field Parameters								
pH	SU	6.9	DEP FT1100	0.1	0.1		10/15/12 11:15	1
Water Temperature	°C	30.1	DEP FT1400	0.1	0.1		10/15/12 11:15	1
Specific conductance	umhos/cm	589	DEP FT1200	0.1	0.1		10/15/12 11:15	1
Dissolved Oxygen	mg/L	6.8	DEP FT1500	0.1	0.1		10/15/12 11:15	1
Inorganics								
Ammonia as N	mg/L	0.010 I	EPA 350.1	0.040	0.009		10/25/12 15:01	1
Ammonium as NH4	mg/L	0.01 U	EPA 350.1	0.05	0.01		10/25/12 15:01	1
Chemical Oxygen Demand	mg/L	24 I	EPA 410.4	25	10	10/22/12 08:00	10/22/12 10:30	1
Chloride	mg/L	53	EPA 300.0	0.20	0.050		10/24/12 02:07	1
Nitrate (as N)	mg/L	6.1	EPA 300.0	0.04	0.01		10/16/12 16:49	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/16/12 16:49	1
Phosphorous - Total as P	mg/L	0.63	SM 4500P-E	0.040	0.010	10/25/12 10:21	10/26/12 11:04	1
Total Alkalinity	mg/L	97	SM 2320B	8.0	2.0		10/16/12 08:00	1
Total Kjeldahl Nitrogen	mg/L	1.8	EPA 351.2	0.20	0.05	10/24/12 15:56	10/26/12 10:52	1
Nitrate+Nitrite (N)	mg/L	6.1	EPA 300.0	0.08	0.02		10/16/12 16:49	1

Sample Description		**TA3-LY-24-S**						
Matrix		**Groundwater**						
SAL Sample Number		**1211976-05**						
Date/Time Collected		**10/15/12 11:20**						
Collected by		**Josephine Edeback-Hirst**						
Date/Time Received		**10/15/12 15:40**						
Field Parameters								
pH	SU	6.3	DEP FT1100	0.1	0.1		10/15/12 11:20	1
Water Temperature	°C	30.2	DEP FT1400	0.1	0.1		10/15/12 11:20	1
Specific conductance	umhos/cm	616	DEP FT1200	0.1	0.1		10/15/12 11:20	1
Dissolved Oxygen	mg/L	6.3	DEP FT1500	0.1	0.1		10/15/12 11:20	1
Inorganics								
Ammonia as N	mg/L	0.013 I	EPA 350.1	0.040	0.009		10/25/12 15:01	1
Ammonium as NH4	mg/L	0.02 I	EPA 350.1	0.05	0.01		10/25/12 15:01	1
Chemical Oxygen Demand	mg/L	31	EPA 410.4	25	10	10/22/12 08:00	10/22/12 10:30	1
Chloride	mg/L	60	EPA 300.0	0.20	0.050		10/24/12 02:07	1
Fluoride	mg/L	0.14	EPA 300.0	0.040	0.010		10/16/12 16:49	1
Nitrate (as N)	mg/L	21	EPA 300.0	0.04	0.01		10/16/12 16:49	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/16/12 16:49	1
Orthophosphate as P	mg/L	0.19	EPA 300.0	0.040	0.010		10/16/12 16:49	1

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

November 2, 2012
Work Order: 1211976

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**TA3-LY-24-S**						
Matrix		**Groundwater**						
SAL Sample Number		**1211976-05**						
Date/Time Collected		**10/15/12 11:20**						
Collected by		**Josephine Edeback-Hirst**						
Date/Time Received		**10/15/12 15:40**						
Phosphorous - Total as P	mg/L	0.28	SM 4500P-E	0.040	0.010	10/25/12 10:21	10/26/12 11:10	1
Sulfate	mg/L	64	EPA 300.0	0.60	0.20		10/16/12 16:49	1
Total Alkalinity	mg/L	43	SM 2320B	8.0	2.0		10/16/12 08:00	1
Total Kjeldahl Nitrogen	mg/L	3.0	EPA 351.2	0.20	0.05	10/24/12 15:56	10/26/12 10:07	1
Nitrate+Nitrite (N)	mg/L	21	EPA 300.0	0.08	0.02		10/16/12 16:49	1
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	14	SM 5310B	1.0	0.50		10/17/12 10:41	1
Metals								
Boron	mg/L	0.16	EPA 200.7	0.10	0.050	10/18/12 12:11	10/19/12 11:44	1
Calcium	mg/L	34	EPA 200.7	0.50	0.042	10/18/12 12:11	10/19/12 11:44	1
Iron	mg/L	0.038 I	EPA 200.7	0.10	0.020	10/18/12 12:11	10/19/12 11:44	1
Magnesium	mg/L	14	EPA 200.7	0.50	0.020	10/18/12 12:11	10/19/12 11:44	1
Manganese	mg/L	0.0018 I	EPA 200.7	0.010	0.0010	10/18/12 12:11	10/19/12 11:44	1
Potassium	mg/L	2.0	EPA 200.7	0.050	0.010	10/18/12 12:11	10/19/12 11:44	1
Sodium	mg/L	67	EPA 200.7	0.50	0.13	10/18/12 12:11	10/19/12 11:44	1
Sample Description		**TA3-LY-42-S**						
Matrix		**Groundwater**						
SAL Sample Number		**1211976-06**						
Date/Time Collected		**10/15/12 11:35**						
Collected by		**Josephine Edeback-Hirst**						
Date/Time Received		**10/15/12 15:40**						
Field Parameters								
pH	SU	5.6	DEP FT1100	0.1	0.1		10/15/12 11:35	1
Water Temperature	°C	27.8	DEP FT1400	0.1	0.1		10/15/12 11:35	1
Specific conductance	umhos/cm	712	DEP FT1200	0.1	0.1		10/15/12 11:35	1
Dissolved Oxygen	mg/L	5.3	DEP FT1500	0.1	0.1		10/15/12 11:35	1
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/25/12 15:01	1
Ammonium as NH4	mg/L	0.01 U	EPA 350.1	0.05	0.01		10/25/12 15:01	1
Chloride	mg/L	54	EPA 300.0	0.20	0.050		10/16/12 16:49	1
Nitrate (as N)	mg/L	39	EPA 300.0	0.04	0.01		10/16/12 16:49	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/16/12 16:49	1
Total Kjeldahl Nitrogen	mg/L	3.9	EPA 351.2	0.20	0.05	10/24/12 15:56	10/26/12 10:09	1
Nitrate+Nitrite (N)	mg/L	39	EPA 300.0	0.08	0.02		10/16/12 16:49	1

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

November 2, 2012
Work Order: 1211976

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**TA3-PZ-11-L2**						
Matrix		**Groundwater**						
SAL Sample Number		**1211976-12**						
Date/Time Collected		**10/17/12 08:55**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/17/12 15:40**						
Field Parameters								
pH	SU	5.4	DEP FT1100	0.1	0.1		10/17/12 08:55	1
Water Temperature	°C	26.0	DEP FT1400	0.1	0.1		10/17/12 08:55	1
Specific conductance	umhos/cm	617	DEP FT1200	0.1	0.1		10/17/12 08:55	1
Dissolved Oxygen	mg/L	2.2	DEP FT1500	0.1	0.1		10/17/12 08:55	1
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/25/12 15:01	1
Ammonium as NH4	mg/L	0.01 U	EPA 350.1	0.05	0.01		10/25/12 15:01	1
Chemical Oxygen Demand	mg/L	15 I	EPA 410.4	25	10	10/22/12 08:00	10/22/12 10:30	1
Chloride	mg/L	41	EPA 300.0	0.20	0.050		10/18/12 17:38	1
Fluoride	mg/L	0.010 U	EPA 300.0	0.040	0.010		10/18/12 17:38	1
Nitrate (as N)	mg/L	29	EPA 300.0	0.04	0.01		10/18/12 17:38	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/18/12 17:38	1
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		10/18/12 17:38	1
Phosphorous - Total as P	mg/L	0.067	SM 4500P-E	0.040	0.010	10/25/12 10:21	10/26/12 11:12	1
Sulfate	mg/L	50	EPA 300.0	0.60	0.20		10/18/12 17:38	1
Total Alkalinity	mg/L	2.1 I	SM 2320B	8.0	2.0		10/22/12 09:45	1
Total Kjeldahl Nitrogen	mg/L	3.2	EPA 351.2	0.20	0.05	10/24/12 15:58	10/26/12 13:43	1
Total Organic Carbon	mg/L	3.7	SM 5310B	1.0	0.50		10/23/12 09:46	1
Nitrate+Nitrite (N)	mg/L	29	EPA 300.0	0.08	0.02		10/18/12 17:38	1
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	3.3	SM 5310B	1.0	0.50		10/23/12 09:46	1
Metals								
Boron	mg/L	0.10	EPA 200.7	0.10	0.050	10/18/12 12:11	10/19/12 11:54	1
Calcium	mg/L	37	EPA 200.7	0.50	0.042	10/18/12 12:11	10/19/12 11:54	1
Iron	mg/L	0.026 I	EPA 200.7	0.10	0.020	10/18/12 12:11	10/19/12 11:54	1
Magnesium	mg/L	16	EPA 200.7	0.50	0.020	10/18/12 12:11	10/19/12 11:54	1
Manganese	mg/L	0.054	EPA 200.7	0.010	0.0010	10/18/12 12:11	10/19/12 11:54	1
Potassium	mg/L	9.2	EPA 200.7	0.050	0.010	10/18/12 12:11	10/19/12 11:54	1
Sodium	mg/L	34	EPA 200.7	0.50	0.13	10/18/12 12:11	10/19/12 11:54	1

Sample Description	**TA3-PZ-11-L3**
Matrix	**Groundwater**
SAL Sample Number	**1211976-13**
Date/Time Collected	**10/17/12 09:26**
Collected by	**Ian Geraldi**
Date/Time Received	**10/17/12 15:40**

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

November 2, 2012
Work Order: 1211976

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**TA3-PZ-11-L3**						
Matrix		**Groundwater**						
SAL Sample Number		**1211976-13**						
Date/Time Collected		**10/17/12 09:26**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/17/12 15:40**						
Field Parameters								
pH	SU	5.1	DEP FT1100	0.1	0.1		10/17/12 09:26	1
Water Temperature	°C	26.3	DEP FT1400	0.1	0.1		10/17/12 09:26	1
Specific conductance	umhos/cm	522	DEP FT1200	0.1	0.1		10/17/12 09:26	1
Dissolved Oxygen	mg/L	1.3	DEP FT1500	0.1	0.1		10/17/12 09:26	1
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/25/12 15:01	1
Ammonium as NH4	mg/L	0.01 U	EPA 350.1	0.05	0.01		10/25/12 15:01	1
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	10/22/12 08:00	10/22/12 10:30	1
Chloride	mg/L	34	EPA 300.0	0.20	0.050		10/24/12 02:07	1
Fluoride	mg/L	0.078	EPA 300.0	0.040	0.010		10/18/12 17:38	1
Nitrate (as N)	mg/L	21	EPA 300.0	0.04	0.01		10/18/12 17:38	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/18/12 17:38	1
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		10/18/12 17:38	1
Phosphorous - Total as P	mg/L	0.059	SM 4500P-E	0.040	0.010	10/25/12 10:21	10/26/12 11:13	1
Sulfate	mg/L	51	EPA 300.0	0.60	0.20		10/18/12 17:38	1
Total Alkalinity	mg/L	2.1 I	SM 2320B	8.0	2.0		10/22/12 10:55	1
Total Kjeldahl Nitrogen	mg/L	3.0	EPA 351.2	0.20	0.05	10/24/12 15:58	10/26/12 13:44	1
Total Organic Carbon	mg/L	2.0	SM 5310B	1.0	0.50		10/23/12 09:46	1
Nitrate+Nitrite (N)	mg/L	21	EPA 300.0	0.08	0.02		10/18/12 17:38	1
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	1.7	SM 5310B	1.0	0.50		10/23/12 09:46	1
Metals								
Boron	mg/L	0.080 I	EPA 200.7	0.10	0.050	10/18/12 12:11	10/19/12 11:57	1
Calcium	mg/L	33	EPA 200.7	0.50	0.042	10/18/12 12:11	10/19/12 11:57	1
Iron	mg/L	0.023 I	EPA 200.7	0.10	0.020	10/18/12 12:11	10/19/12 11:57	1
Magnesium	mg/L	12	EPA 200.7	0.50	0.020	10/18/12 12:11	10/19/12 11:57	1
Manganese	mg/L	0.044	EPA 200.7	0.010	0.0010	10/18/12 12:11	10/19/12 11:57	1
Potassium	mg/L	8.9	EPA 200.7	0.050	0.010	10/18/12 12:11	10/19/12 11:57	1
Sodium	mg/L	28	EPA 200.7	0.50	0.13	10/18/12 12:11	10/19/12 11:57	1

Sample Description	**TA3-PZ-09-N3**
Matrix	**Groundwater**
SAL Sample Number	**1211976-16**
Date/Time Collected	**10/17/12 10:10**
Collected by	**Ian Geraldi**
Date/Time Received	**10/17/12 15:40**

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

November 2, 2012
Work Order: 1211976

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**TA3-PZ-09-N3**						
Matrix		**Groundwater**						
SAL Sample Number		**1211976-16**						
Date/Time Collected		**10/17/12 10:10**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/17/12 15:40**						
Field Parameters								
pH	SU	6.7	DEP FT1100	0.1	0.1		10/17/12 10:10	1
Water Temperature	°C	26.8	DEP FT1400	0.1	0.1		10/17/12 10:10	1
Specific conductance	umhos/cm	571	DEP FT1200	0.1	0.1		10/17/12 10:10	1
Dissolved Oxygen	mg/L	0.5	DEP FT1500	0.1	0.1		10/17/12 10:10	1
Inorganics								
Ammonia as N	mg/L	0.17	EPA 350.1	0.040	0.009		10/25/12 15:01	1
Ammonium as NH4	mg/L	0.22	EPA 350.1	0.05	0.01		10/25/12 15:01	1
Chemical Oxygen Demand	mg/L	58	EPA 410.4	25	10	10/22/12 08:00	10/22/12 10:30	1
Chloride	mg/L	24	EPA 300.0	0.20	0.050		10/18/12 17:38	1
Nitrate (as N)	mg/L	11	EPA 300.0	0.04	0.01		10/18/12 17:38	1
Nitrite (as N)	mg/L	0.03 I	EPA 300.0	0.04	0.01		10/18/12 17:38	1
Phosphorous - Total as P	mg/L	1.9	SM 4500P-E	0.040	0.010	10/25/12 10:21	10/26/12 11:14	1
Total Alkalinity	mg/L	65	SM 2320B	8.0	2.0		10/22/12 10:55	1
Total Kjeldahl Nitrogen	mg/L	2.4	EPA 351.2	0.20	0.05	10/24/12 15:58	10/26/12 13:46	1
Nitrate+Nitrite (N)	mg/L	11	EPA 300.0	0.08	0.02		10/18/12 17:38	1
Sample Description		**TA3-PZ-16-N3**						
Matrix		**Groundwater**						
SAL Sample Number		**1211976-17**						
Date/Time Collected		**10/17/12 10:40**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/17/12 15:40**						
Field Parameters								
pH	SU	5.8	DEP FT1100	0.1	0.1		10/17/12 10:40	1
Water Temperature	°C	26.1	DEP FT1400	0.1	0.1		10/17/12 10:40	1
Specific conductance	umhos/cm	333	DEP FT1200	0.1	0.1		10/17/12 10:40	1
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		10/17/12 10:40	1
Inorganics								
Ammonia as N	mg/L	0.043	EPA 350.1	0.040	0.009		10/29/12 12:04	1
Ammonium as NH4	mg/L	0.01 U	EPA 350.1	0.05	0.01		10/29/12 12:04	1
Chemical Oxygen Demand	mg/L	54	EPA 410.4	25	10	10/22/12 08:00	10/22/12 10:30	1
Chloride	mg/L	16	EPA 300.0	0.20	0.050		10/18/12 17:38	1
Nitrate (as N)	mg/L	10	EPA 300.0	0.04	0.01		10/18/12 17:38	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/18/12 17:38	1
Phosphorous - Total as P	mg/L	3.5	SM 4500P-E	0.20	0.050	10/24/12 10:27	10/25/12 11:53	5
Total Alkalinity	mg/L	11	SM 2320B	8.0	2.0		10/22/12 09:45	1

Florida Certification Number: 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

November 2, 2012
Work Order: 1211976

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**TA3-PZ-16-N3**						
Matrix		**Groundwater**						
SAL Sample Number		**1211976-17**						
Date/Time Collected		**10/17/12 10:40**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/17/12 15:40**						
Total Kjeldahl Nitrogen	mg/L	2.7	EPA 351.2	0.20	0.05	10/24/12 15:58	10/26/12 13:48	1
Nitrate+Nitrite (N)	mg/L	10	EPA 300.0	0.08	0.02		10/18/12 17:38	1
Sample Description		**TA3-PZ-09-O7**						
Matrix		**Groundwater**						
SAL Sample Number		**1211976-18**						
Date/Time Collected		**10/17/12 08:11**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/17/12 15:40**						
Field Parameters								
pH	SU	6.1	DEP FT1100	0.1	0.1		10/17/12 08:11	1
Water Temperature	°C	25.9	DEP FT1400	0.1	0.1		10/17/12 08:11	1
Specific conductance	umhos/cm	398	DEP FT1200	0.1	0.1		10/17/12 08:11	1
Dissolved Oxygen	mg/L	0.3	DEP FT1500	0.1	0.1		10/17/12 08:11	1
Inorganics								
Ammonia as N	mg/L	0.16	EPA 350.1	0.040	0.009		10/29/12 12:04	1
Ammonium as NH4	mg/L	0.20	EPA 350.1	0.05	0.01		10/29/12 12:04	1
Chloride	mg/L	18	EPA 300.0	0.20	0.050		10/18/12 17:38	1
Nitrate (as N)	mg/L	7.2	EPA 300.0	0.04	0.01		10/18/12 17:38	1
Nitrite (as N)	mg/L	0.11	EPA 300.0	0.04	0.01		10/18/12 17:38	1
Total Kjeldahl Nitrogen	mg/L	2.5	EPA 351.2	0.20	0.05	10/24/12 15:58	10/26/12 13:49	1
Nitrate+Nitrite (N)	mg/L	7.3	EPA 300.0	0.08	0.02		10/18/12 17:38	1
Sample Description		**TA3-PZ-16-O7**						
Matrix		**Groundwater**						
SAL Sample Number		**1211976-19**						
Date/Time Collected		**10/17/12 08:31**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/17/12 15:40**						
Field Parameters								
pH	SU	5.3	DEP FT1100	0.1	0.1		10/17/12 08:31	1
Water Temperature	°C	25.8	DEP FT1400	0.1	0.1		10/17/12 08:31	1
Specific conductance	umhos/cm	315	DEP FT1200	0.1	0.1		10/17/12 08:31	1
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		10/17/12 08:31	1
Inorganics								
Ammonia as N	mg/L	0.020 I	EPA 350.1	0.040	0.009		10/29/12 12:04	1

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

November 2, 2012
Work Order: 1211976

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**TA3-PZ-16-O7**						
Matrix		**Groundwater**						
SAL Sample Number		**1211976-19**						
Date/Time Collected		**10/17/12 08:31**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/17/12 15:40**						
Ammonium as NH4	mg/L	0.03 I	EPA 350.1	0.05	0.01		10/29/12 12:04	1
Chloride	mg/L	13	EPA 300.0	0.20	0.050		10/18/12 17:38	1
Nitrate (as N)	mg/L	8.6	EPA 300.0	0.04	0.01		10/18/12 17:38	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/18/12 17:38	1
Total Kjeldahl Nitrogen	mg/L	1.9	EPA 351.2	0.20	0.05	10/24/12 15:58	10/26/12 13:51	1
Nitrate+Nitrite (N)	mg/L	8.6	EPA 300.0	0.08	0.02		10/18/12 17:38	1
Sample Description		**TA3-PZ-09-I7**						
Matrix		**Groundwater**						
SAL Sample Number		**1211976-20**						
Date/Time Collected		**10/16/12 13:50**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/16/12 15:30**						
Field Parameters								
pH	SU	7.0	DEP FT1100	0.1	0.1		10/16/12 13:50	1
Water Temperature	°C	27.9	DEP FT1400	0.1	0.1		10/16/12 13:50	1
Specific conductance	umhos/cm	689	DEP FT1200	0.1	0.1		10/16/12 13:50	1
Dissolved Oxygen	mg/L	3.8	DEP FT1500	0.1	0.1		10/16/12 13:50	1
Inorganics								
Ammonia as N	mg/L	0.016 I	EPA 350.1	0.040	0.009		10/29/12 12:04	1
Ammonium as NH4	mg/L	0.02 I	EPA 350.1	0.05	0.01		10/29/12 12:04	1
Chloride	mg/L	11	EPA 300.0	0.20	0.050		10/18/12 01:54	1
Nitrate (as N)	mg/L	6.5	EPA 300.0	0.04	0.01		10/18/12 01:54	1
Nitrite (as N)	mg/L	0.07	EPA 300.0	0.04	0.01		10/18/12 01:54	1
Total Kjeldahl Nitrogen	mg/L	2.4	EPA 351.2	0.20	0.05	10/24/12 15:58	10/26/12 13:53	1
Nitrate+Nitrite (N)	mg/L	6.6	EPA 300.0	0.08	0.02		10/18/12 01:54	1
Sample Description		**TA3-PZ-16-I7**						
Matrix		**Groundwater**						
SAL Sample Number		**1211976-21**						
Date/Time Collected		**10/16/12 14:25**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/16/12 15:30**						
Field Parameters								
pH	SU	5.7	DEP FT1100	0.1	0.1		10/16/12 14:25	1
Water Temperature	°C	26.9	DEP FT1400	0.1	0.1		10/16/12 14:25	1

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

November 2, 2012
Work Order: 1211976

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**TA3-PZ-16-I7**						
Matrix		**Groundwater**						
SAL Sample Number		**1211976-21**						
Date/Time Collected		**10/16/12 14:25**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/16/12 15:30**						
Specific conductance	umhos/cm	291	DEP FT1200	0.1	0.1		10/16/12 14:25	1
Dissolved Oxygen	mg/L	0.3	DEP FT1500	0.1	0.1		10/16/12 14:25	1
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/29/12 12:04	1
Ammonium as NH4	mg/L	0.01 U	EPA 350.1	0.05	0.01		10/29/12 12:04	1
Chloride	mg/L	8.0	EPA 300.0	0.20	0.050		10/18/12 01:54	1
Nitrate (as N)	mg/L	4.0	EPA 300.0	0.04	0.01		10/18/12 01:54	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/18/12 01:54	1
Total Kjeldahl Nitrogen	mg/L	1.4	EPA 351.2	0.20	0.05	10/24/12 15:58	10/26/12 13:54	1
Nitrate+Nitrite (N)	mg/L	4.0	EPA 300.0	0.08	0.02		10/18/12 01:54	1
Sample Description		**TA3-PZ-09-M9**						
Matrix		**Groundwater**						
SAL Sample Number		**1211976-22**						
Date/Time Collected		**10/17/12 07:50**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/17/12 15:40**						
Field Parameters								
pH	SU	6.4	DEP FT1100	0.1	0.1		10/17/12 07:50	1
Water Temperature	°C	25.8	DEP FT1400	0.1	0.1		10/17/12 07:50	1
Specific conductance	umhos/cm	367	DEP FT1200	0.1	0.1		10/17/12 07:50	1
Dissolved Oxygen	mg/L	1.8	DEP FT1500	0.1	0.1		10/17/12 07:50	1
Inorganics								
Ammonia as N	mg/L	0.036 I	EPA 350.1	0.040	0.009		10/29/12 12:04	1
Ammonium as NH4	mg/L	0.05	EPA 350.1	0.05	0.01		10/29/12 12:04	1
Chloride	mg/L	12	EPA 300.0	0.20	0.050		10/18/12 17:38	1
Nitrate (as N)	mg/L	5.6	EPA 300.0	0.04	0.01		10/18/12 17:38	1
Nitrite (as N)	mg/L	0.08	EPA 300.0	0.04	0.01		10/18/12 17:38	1
Total Kjeldahl Nitrogen	mg/L	1.9	EPA 351.2	0.20	0.05	10/24/12 15:58	10/26/12 13:56	1
Nitrate+Nitrite (N)	mg/L	5.6	EPA 300.0	0.08	0.02		10/18/12 17:38	1

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

November 2, 2012
Work Order: 1211976

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**TA3-PZ-16-M9**						
Matrix		**Groundwater**						
SAL Sample Number		**1211976-23**						
Date/Time Collected		**10/17/12 08:25**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/17/12 15:40**						
Field Parameters								
pH	SU	5.7	DEP FT1100	0.1	0.1		10/17/12 08:25	1
Water Temperature	°C	25.9	DEP FT1400	0.1	0.1		10/17/12 08:25	1
Specific conductance	umhos/cm	288	DEP FT1200	0.1	0.1		10/17/12 08:25	1
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		10/17/12 08:25	1
Inorganics								
Ammonia as N	mg/L	0.048	EPA 350.1	0.040	0.009		10/29/12 12:04	1
Ammonium as NH4	mg/L	0.06	EPA 350.1	0.05	0.01		10/29/12 12:04	1
Chloride	mg/L	8.5	EPA 300.0	0.20	0.050		10/18/12 17:38	1
Nitrate (as N)	mg/L	4.2	EPA 300.0	0.04	0.01		10/18/12 17:38	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/18/12 17:38	1
Total Kjeldahl Nitrogen	mg/L	0.95	EPA 351.2	0.20	0.05	10/24/12 15:58	10/26/12 15:13	1
Nitrate+Nitrite (N)	mg/L	4.2	EPA 300.0	0.08	0.02		10/18/12 17:38	1

Sample Description		**TA3-PZ-09-ST14**						
Matrix		**Groundwater**						
SAL Sample Number		**1211976-24**						
Date/Time Collected		**10/17/12 07:35**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/17/12 15:40**						
Field Parameters								
pH	SU	4.6	DEP FT1100	0.1	0.1		10/17/12 07:35	1
Water Temperature	°C	25.9	DEP FT1400	0.1	0.1		10/17/12 07:35	1
Specific conductance	umhos/cm	184	DEP FT1200	0.1	0.1		10/17/12 07:35	1
Dissolved Oxygen	mg/L	0.4	DEP FT1500	0.1	0.1		10/17/12 07:35	1
Inorganics								
Ammonia as N	mg/L	0.025 I	EPA 350.1	0.040	0.009		10/29/12 12:04	1
Ammonium as NH4	mg/L	0.03 I	EPA 350.1	0.05	0.01		10/29/12 12:04	1
Chloride	mg/L	5.2	EPA 300.0	0.20	0.050		10/18/12 17:38	1
Nitrate (as N)	mg/L	3.5	EPA 300.0	0.04	0.01		10/18/12 17:38	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/18/12 17:38	1
Total Kjeldahl Nitrogen	mg/L	0.83	EPA 351.2	0.20	0.05	10/24/12 15:58	10/26/12 14:06	1
Nitrate+Nitrite (N)	mg/L	3.5	EPA 300.0	0.08	0.02		10/18/12 17:38	1

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

November 2, 2012
Work Order: 1211976

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**TA3-PZ-16-ST14**						
Matrix		**Groundwater**						
SAL Sample Number		**1211976-25**						
Date/Time Collected		**10/17/12 07:50**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/17/12 15:40**						
Field Parameters								
pH	SU	5.2	DEP FT1100	0.1	0.1		10/17/12 07:50	1
Water Temperature	°C	25.7	DEP FT1400	0.1	0.1		10/17/12 07:50	1
Specific conductance	umhos/cm	288	DEP FT1200	0.1	0.1		10/17/12 07:50	1
Dissolved Oxygen	mg/L	0.4	DEP FT1500	0.1	0.1		10/17/12 07:50	1
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/29/12 12:04	1
Ammonium as NH4	mg/L	0.01 U	EPA 350.1	0.05	0.01		10/29/12 12:04	1
Chloride	mg/L	8.4	EPA 300.0	0.20	0.050		10/18/12 17:38	1
Nitrate (as N)	mg/L	5.6	EPA 300.0	0.04	0.01		10/18/12 17:38	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/18/12 17:38	1
Total Kjeldahl Nitrogen	mg/L	0.70	EPA 351.2	0.20	0.05	10/24/12 15:58	10/26/12 14:08	1
Nitrate+Nitrite (N)	mg/L	5.6	EPA 300.0	0.08	0.02		10/18/12 17:38	1

Sample Description		**TA3-PZ-09-ST16**						
Matrix		**Groundwater**						
SAL Sample Number		**1211976-26**						
Date/Time Collected		**10/16/12 13:46**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/16/12 15:30**						
Field Parameters								
pH	SU	5.5	DEP FT1100	0.1	0.1		10/16/12 13:46	1
Water Temperature	°C	27.1	DEP FT1400	0.1	0.1		10/16/12 13:46	1
Specific conductance	umhos/cm	243	DEP FT1200	0.1	0.1		10/16/12 13:46	1
Dissolved Oxygen	mg/L	0.5	DEP FT1500	0.1	0.1		10/16/12 13:46	1
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/29/12 12:04	1
Ammonium as NH4	mg/L	0.01 U	EPA 350.1	0.05	0.01		10/29/12 12:04	1
Chloride	mg/L	5.6	EPA 300.0	0.20	0.050		10/18/12 01:54	1
Nitrate (as N)	mg/L	4.4	EPA 300.0	0.04	0.01		10/18/12 01:54	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/18/12 01:54	1
Total Kjeldahl Nitrogen	mg/L	1.6	EPA 351.2	0.20	0.05	10/24/12 15:58	10/26/12 14:10	1
Nitrate+Nitrite (N)	mg/L	4.4	EPA 300.0	0.08	0.02		10/18/12 01:54	1

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

November 2, 2012
Work Order: 1211976

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**TA3-PZ-16-ST16**						
Matrix		**Groundwater**						
SAL Sample Number		**1211976-27**						
Date/Time Collected		**10/16/12 14:06**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/16/12 15:30**						
Field Parameters								
pH	SU	5.2	DEP FT1100	0.1	0.1		10/16/12 14:06	1
Water Temperature	°C	26.3	DEP FT1400	0.1	0.1		10/16/12 14:06	1
Specific conductance	umhos/cm	266	DEP FT1200	0.1	0.1		10/16/12 14:06	1
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		10/16/12 14:06	1
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/29/12 12:04	1
Ammonium as NH4	mg/L	0.01 U	EPA 350.1	0.05	0.01		10/29/12 12:04	1
Chloride	mg/L	7.3	EPA 300.0	0.20	0.050		10/18/12 01:54	1
Nitrate (as N)	mg/L	4.3	EPA 300.0	0.04	0.01		10/18/12 01:54	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/18/12 01:54	1
Total Kjeldahl Nitrogen	mg/L	1.7	EPA 351.2	0.20	0.05	10/24/12 15:58	10/26/12 14:11	1
Nitrate+Nitrite (N)	mg/L	4.3	EPA 300.0	0.08	0.02		10/18/12 01:54	1

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

November 2, 2012
Work Order: 1211976

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21602 - alkalinity										
Blank (BJ21602-BLK1)					Prepared & Analyzed: 10/16/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
Blank (BJ21602-BLK2)					Prepared & Analyzed: 10/16/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
LCS (BJ21602-BS1)					Prepared & Analyzed: 10/16/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		
LCS (BJ21602-BS2)					Prepared & Analyzed: 10/16/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		
Matrix Spike (BJ21602-MS1)		**Source: 1211978-02**			Prepared & Analyzed: 10/16/12					
Total Alkalinity	190	8.0	2.0	mg/L	120	75	95	80-120		
Matrix Spike (BJ21602-MS2)		**Source: 1211987-01**			Prepared & Analyzed: 10/16/12					
Total Alkalinity	260	8.0	2.0	mg/L	120	140	95	80-120		
Matrix Spike Dup (BJ21602-MSD1)		**Source: 1211978-02**			Prepared & Analyzed: 10/16/12					
Total Alkalinity	190	8.0	2.0	mg/L	120	75	95	80-120	0	26
Matrix Spike Dup (BJ21602-MSD2)		**Source: 1211987-01**			Prepared & Analyzed: 10/16/12					
Total Alkalinity	250	8.0	2.0	mg/L	120	140	86	80-120	4	26
Batch BJ21618 - Ion Chromatography 300.0 Prep										
Blank (BJ21618-BLK1)					Prepared & Analyzed: 10/16/12					
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						

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

November 2, 2012
Work Order: 1211976

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21618 - Ion Chromatography 300.0 Prep										
LCS (BJ21618-BS1)					Prepared & Analyzed: 10/16/12					
Orthophosphate as P	0.910	0.040	0.010	mg/L	0.90		101	85-115		
Nitrite (as N)	1.37	0.04	0.01	mg/L	1.4		98	85-115		
Chloride	2.79	0.20	0.050	mg/L	3.0		93	85-115		
Sulfate	8.74	0.60	0.20	mg/L	9.0		97	85-115		
Nitrate (as N)	1.66	0.04	0.01	mg/L	1.7		98	85-115		
Fluoride	0.893	0.040	0.010	mg/L	0.90		99	85-115		
LCS Dup (BJ21618-BSD1)					Prepared & Analyzed: 10/16/12					
Sulfate	8.62	0.60	0.20	mg/L	9.0		96	85-115	1	200
Nitrate (as N)	1.65	0.04	0.01	mg/L	1.7		97	85-115	0.6	200
Fluoride	0.887	0.040	0.010	mg/L	0.90		99	85-115	0.7	200
Orthophosphate as P	0.893	0.040	0.010	mg/L	0.90		99	85-115	2	200
Chloride	2.84	0.20	0.050	mg/L	3.0		95	85-115	2	200
Nitrite (as N)	1.39	0.04	0.01	mg/L	1.4		99	85-115	1	200
Matrix Spike (BJ21618-MS1)		**Source: 1211976-03**			Prepared & Analyzed: 10/16/12					
Nitrate (as N)	8.02	0.04	0.01	mg/L	1.7	6.25	104	85-115		
Nitrite (as N)	1.41	0.04	0.01	mg/L	1.4	ND	101	85-115		
Orthophosphate as P	1.28	0.040	0.010	mg/L	0.90	0.385	99	85-115		
Fluoride	1.21	0.040	0.010	mg/L	0.90	0.356	95	85-115		
Chloride	39.5 +O	0.20	0.050	mg/L	3.0	38.8	23	80-120		
Sulfate	84.0	0.60	0.20	mg/L	9.0	75.5	94	85-115		
Matrix Spike (BJ21618-MS2)		**Source: 1211978-08**			Prepared & Analyzed: 10/16/12					
Orthophosphate as P	0.866	0.040	0.010	mg/L	0.90	ND	96	85-115		
Nitrite (as N)	1.42	0.04	0.01	mg/L	1.4	ND	101	85-115		
Chloride	7.84	0.20	0.050	mg/L	3.0	4.51	111	80-120		
Sulfate	42.3	0.60	0.20	mg/L	9.0	32.6	108	85-115		
Fluoride	1.02	0.040	0.010	mg/L	0.90	0.105	102	85-115		
Nitrate (as N)	7.38	0.04	0.01	mg/L	1.7	5.47	112	85-115		

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

November 2, 2012
Work Order: 1211976

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21707 - Ion Chromatography 300.0 Prep										
Blank (BJ21707-BLK1)					Prepared & Analyzed: 10/18/12					
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
Chloride	0.050 U	0.20	0.050	mg/L						
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						
LCS (BJ21707-BS1)					Prepared & Analyzed: 10/18/12					
Nitrate (as N)	1.65	0.04	0.01	mg/L	1.7		97	85-115		
Chloride	2.77	0.20	0.050	mg/L	3.0		92	85-115		
Nitrite (as N)	1.37	0.04	0.01	mg/L	1.4		98	85-115		
LCS Dup (BJ21707-BSD1)					Prepared & Analyzed: 10/18/12					
Nitrate (as N)	1.68	0.04	0.01	mg/L	1.7		99	85-115	2	200
Nitrite (as N)	1.38	0.04	0.01	mg/L	1.4		99	85-115	0.7	200
Chloride	2.79	0.20	0.050	mg/L	3.0		93	85-115	0.7	200
Matrix Spike (BJ21707-MS1)		**Source: 1211976-02**			Prepared & Analyzed: 10/18/12					
Chloride	80.8	0.20	0.050	mg/L	30	49.6	104	80-120		
Nitrite (as N)	14.5	0.04	0.01	mg/L	14	ND	104	85-115		
Nitrate (as N)	52.9	0.04	0.01	mg/L	17	35.2	104	85-115		
Matrix Spike (BJ21707-MS2)		**Source: 1211983-08**			Prepared & Analyzed: 10/18/12					
Nitrate (as N)	6.53	0.04	0.01	mg/L	1.7	4.74	105	85-115		
Nitrite (as N)	1.44	0.04	0.01	mg/L	1.4	ND	103	85-115		
Chloride	9.39	0.20	0.050	mg/L	3.0	6.38	100	80-120		
Batch BJ21815 - Ion Chromatography 300.0 Prep										
Blank (BJ21815-BLK1)					Prepared & Analyzed: 10/18/12					
Fluoride	0.010 U	0.040	0.010	mg/L						
Chloride	0.050 U	0.20	0.050	mg/L						
Orthophosphate as P	0.010 U	0.040	0.010	mg/L						
Sulfate	0.20 U	0.60	0.20	mg/L						
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

November 2, 2012
Work Order: 1211976

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21815 - Ion Chromatography 300.0 Prep										
LCS (BJ21815-BS1)					Prepared & Analyzed: 10/18/12					
Fluoride	0.836	0.040	0.010	mg/L	0.90		93	85-115		
Nitrate (as N)	1.67	0.04	0.01	mg/L	1.7		98	85-115		
Orthophosphate as P	0.979	0.040	0.010	mg/L	0.90		109	85-115		
Sulfate	8.74	0.60	0.20	mg/L	9.0		97	85-115		
Nitrite (as N)	1.41	0.04	0.01	mg/L	1.4		101	85-115		
Chloride	2.84	0.20	0.050	mg/L	3.0		95	85-115		
LCS Dup (BJ21815-BSD1)					Prepared & Analyzed: 10/18/12					
Chloride	2.79	0.20	0.050	mg/L	3.0		93	85-115	2	200
Fluoride	0.846	0.040	0.010	mg/L	0.90		94	85-115	1	200
Nitrite (as N)	1.37	0.04	0.01	mg/L	1.4		98	85-115	3	200
Nitrate (as N)	1.65	0.04	0.01	mg/L	1.7		97	85-115	1	200
Sulfate	8.69	0.60	0.20	mg/L	9.0		97	85-115	0.6	200
Orthophosphate as P	0.927	0.040	0.010	mg/L	0.90		103	85-115	5	200
Matrix Spike (BJ21815-MS1)		**Source: 1211976-19**			Prepared & Analyzed: 10/18/12					
Nitrite (as N)	1.34	0.04	0.01	mg/L	1.4	ND	96	85-115		
Chloride	15.9	0.20	0.050	mg/L	3.0	13.0	97	80-120		
Nitrate (as N)	10.4	0.04	0.01	mg/L	1.7	8.64	104	85-115		
Fluoride	0.819	0.040	0.010	mg/L	0.90	ND	91	85-115		
Sulfate	70.7	0.60	0.20	mg/L	9.0	61.5	102	85-115		
Orthophosphate as P	0.829	0.040	0.010	mg/L	0.90	ND	92	85-115		
Matrix Spike (BJ21815-MS2)		**Source: 1211983-06**			Prepared & Analyzed: 10/18/12					
Fluoride	0.846	0.040	0.010	mg/L	0.90	0.0130	93	85-115		
Orthophosphate as P	0.818	0.040	0.010	mg/L	0.90	ND	91	85-115		
Chloride	18.9	0.20	0.050	mg/L	3.0	15.7	107	80-120		
Nitrate (as N)	11.1	0.04	0.01	mg/L	1.7	9.29	106	85-115		
Sulfate	53.9	0.60	0.20	mg/L	9.0	44.6	103	85-115		
Nitrite (as N)	1.39	0.04	0.01	mg/L	1.4	ND	99	85-115		

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

November 2, 2012
Work Order: 1211976

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21920 - Ion Chromatography 300.0 Prep										
Blank (BJ21920-BLK1)					Prepared & Analyzed: 10/21/12					
Chloride	0.050 U	0.20	0.050	mg/L						
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
LCS (BJ21920-BS1)					Prepared & Analyzed: 10/21/12					
Chloride	2.84	0.20	0.050	mg/L	3.0		95	85-115		
Nitrate (as N)	1.69	0.04	0.01	mg/L	1.7		99	85-115		
LCS Dup (BJ21920-BSD1)					Prepared & Analyzed: 10/21/12					
Chloride	2.95	0.20	0.050	mg/L	3.0		98	85-115	4	200
Nitrate (as N)	1.69	0.04	0.01	mg/L	1.7		99	85-115	0	200
Matrix Spike (BJ21920-MS1)		**Source: 1212306-01**			Prepared & Analyzed: 10/21/12					
Chloride	47.5 +O	0.20	0.050	mg/L	3.0	47.5	0	80-120		
Nitrate (as N)	1.72	0.04	0.01	mg/L	1.7	ND	101	85-115		
Matrix Spike (BJ21920-MS2)		**Source: 1211985-02**			Prepared & Analyzed: 10/21/12					
Chloride	105	0.20	0.050	mg/L	30	73.4	105	80-120		
Nitrate (as N)	69.9	0.04	0.01	mg/L	17	51.9	106	85-115		
Batch BJ21942 - COD prep										
Blank (BJ21942-BLK1)					Prepared & Analyzed: 10/19/12					
Chemical Oxygen Demand	10 U	25	10	mg/L						
LCS (BJ21942-BS1)					Prepared & Analyzed: 10/19/12					
Chemical Oxygen Demand	51	25	10	mg/L	50		102	90-110		

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

November 2, 2012
Work Order: 1211976

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21942 - COD prep										
Matrix Spike (BJ21942-MS1)		**Source: 1211971-08**			Prepared & Analyzed: 10/19/12					
Chemical Oxygen Demand	60	25	10	mg/L	50	13	94	85-115		
Matrix Spike Dup (BJ21942-MSD1)		**Source: 1211971-08**			Prepared & Analyzed: 10/19/12					
Chemical Oxygen Demand	60	25	10	mg/L	50	13	94	85-115	0	32
Batch BJ22005 - alkalinity										
Blank (BJ22005-BLK1)					Prepared & Analyzed: 10/22/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
Blank (BJ22005-BLK2)					Prepared & Analyzed: 10/22/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
LCS (BJ22005-BS1)					Prepared & Analyzed: 10/22/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		
LCS (BJ22005-BS2)					Prepared & Analyzed: 10/22/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		
Matrix Spike (BJ22005-MS1)		**Source: 1212290-02**			Prepared & Analyzed: 10/22/12					
Total Alkalinity	190	8.0	2.0	mg/L	120	75	95	80-120		
Matrix Spike (BJ22005-MS2)		**Source: 1211976-16**			Prepared & Analyzed: 10/22/12					
Total Alkalinity	180	8.0	2.0	mg/L	120	65	95	80-120		
Matrix Spike Dup (BJ22005-MSD1)		**Source: 1212290-02**			Prepared & Analyzed: 10/22/12					
Total Alkalinity	190	8.0	2.0	mg/L	120	75	95	80-120	0	26

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

November 2, 2012
Work Order: 1211976

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22005 - alkalinity										
Matrix Spike Dup (BJ22005-MSD2)		**Source: 1211976-16**			Prepared & Analyzed: 10/22/12					
Total Alkalinity	180	8.0	2.0	mg/L	120	65	95	80-120	0	26
Batch BJ22228 - alkalinity										
Blank (BJ22228-BLK1)					Prepared & Analyzed: 10/22/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
Blank (BJ22228-BLK2)					Prepared & Analyzed: 10/22/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
LCS (BJ22228-BS1)					Prepared & Analyzed: 10/22/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		
LCS (BJ22228-BS2)					Prepared & Analyzed: 10/22/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		
Matrix Spike (BJ22228-MS1)		**Source: 1211981-05**			Prepared & Analyzed: 10/22/12					
Total Alkalinity	250	8.0	2.0	mg/L	120	130	95	80-120		
Matrix Spike (BJ22228-MS2)		**Source: 1212157-01**			Prepared & Analyzed: 10/22/12					
Total Alkalinity	230	8.0	2.0	mg/L	120	110	95	80-120		
Matrix Spike Dup (BJ22228-MSD1)		**Source: 1211981-05**			Prepared & Analyzed: 10/22/12					
Total Alkalinity	250	8.0	2.0	mg/L	120	130	95	80-120	0	26
Matrix Spike Dup (BJ22228-MSD2)		**Source: 1212157-01**			Prepared & Analyzed: 10/22/12					
Total Alkalinity	230	8.0	2.0	mg/L	120	110	95	80-120	0	26

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

November 2, 2012
Work Order: 1211976

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22247 - COD prep										
Blank (BJ22247-BLK1)					Prepared & Analyzed: 10/22/12					
Chemical Oxygen Demand	10 U	25	10	mg/L						
LCS (BJ22247-BS1)					Prepared & Analyzed: 10/22/12					
Chemical Oxygen Demand	54	25	10	mg/L	50		108	90-110		
Matrix Spike (BJ22247-MS1)		**Source: 1211976-12**			Prepared & Analyzed: 10/22/12					
Chemical Oxygen Demand	58	25	10	mg/L	50	15	86	85-115		
Matrix Spike Dup (BJ22247-MSD1)		**Source: 1211976-12**			Prepared & Analyzed: 10/22/12					
Chemical Oxygen Demand	58	25	10	mg/L	50	15	86	85-115	0	32
Batch BJ22310 - Ion Chromatography 300.0 Prep										
Blank (BJ22310-BLK1)					Prepared & Analyzed: 10/24/12					
Chloride	0.050 U	0.20	0.050	mg/L						
LCS (BJ22310-BS1)					Prepared & Analyzed: 10/24/12					
Chloride	2.87	0.20	0.050	mg/L	3.0		96	85-115		
LCS Dup (BJ22310-BSD1)					Prepared & Analyzed: 10/24/12					
Chloride	2.87	0.20	0.050	mg/L	3.0		96	85-115	0	200
Matrix Spike (BJ22310-MS1)		**Source: 1211978-06**			Prepared & Analyzed: 10/24/12					
Chloride	91.3	0.20	0.050	mg/L	30	61.6	99	80-120		
Batch BJ22322 - TOC prep										
Blank (BJ22322-BLK1)					Prepared & Analyzed: 10/23/12					
Total Organic Carbon	0.50 U	1.0	0.50	mg/L						

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

November 2, 2012
Work Order: 1211976

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22322 - TOC prep										
LCS (BJ22322-BS1)					Prepared & Analyzed: 10/23/12					
Total Organic Carbon	9.80	1.0	0.50	mg/L	10		98	90-110		
Matrix Spike (BJ22322-MS1)		**Source: 1211976-12**			Prepared & Analyzed: 10/23/12					
Total Organic Carbon	14.0	1.0	0.50	mg/L	10	3.74	102	85-115		
Matrix Spike Dup (BJ22322-MSD1)		**Source: 1211976-12**			Prepared & Analyzed: 10/23/12					
Total Organic Carbon	13.7	1.0	0.50	mg/L	10	3.74	99	85-115	2	10
Batch BJ22416 - Digestion for TP by EPA 365.2/SM4500PE										
Blank (BJ22416-BLK1)					Prepared: 10/24/12 Analyzed: 10/25/12					
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						
LCS (BJ22416-BS1)					Prepared: 10/24/12 Analyzed: 10/25/12					
Phosphorous - Total as P	0.779	0.040	0.010	mg/L	0.80		97	90-110		
Matrix Spike (BJ22416-MS1)		**Source: 1211976-17**			Prepared: 10/24/12 Analyzed: 10/25/12					
Phosphorous - Total as P	13.6	0.40	0.10	mg/L	10	3.55	100	75-125		
Matrix Spike (BJ22416-MS2)		**Source: 1212358-01**			Prepared: 10/24/12 Analyzed: 10/25/12					
Phosphorous - Total as P	1.02	0.040	0.010	mg/L	1.0	0.0678	95	75-125		
Matrix Spike Dup (BJ22416-MSD1)		**Source: 1211976-17**			Prepared: 10/24/12 Analyzed: 10/25/12					
Phosphorous - Total as P	13.3	0.40	0.10	mg/L	10	3.55	97	75-125	3	25
Matrix Spike Dup (BJ22416-MSD2)		**Source: 1212358-01**			Prepared: 10/24/12 Analyzed: 10/25/12					
Phosphorous - Total as P	1.01	0.040	0.010	mg/L	1.0	0.0678	94	75-125	0.8	25

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

November 2, 2012
Work Order: 1211976

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22440 - Digestion for TKN by EPA 351.2										
Blank (BJ22440-BLK1)					Prepared: 10/24/12	Analyzed: 10/26/12				
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
LCS (BJ22440-BS1)					Prepared: 10/24/12	Analyzed: 10/26/12				
Total Kjeldahl Nitrogen	2.48	0.20	0.05	mg/L	2.5		98	90-110		
Matrix Spike (BJ22440-MS1)		**Source: 1211971-17**			Prepared: 10/24/12	Analyzed: 10/26/12				
Total Kjeldahl Nitrogen	ed up in ele	0.20	0.05	mg/L	2.5	2.29	90	90-110		
Matrix Spike (BJ22440-MS2)		**Source: 1211976-06**			Prepared: 10/24/12	Analyzed: 10/26/12				
Total Kjeldahl Nitrogen	6.59	0.20	0.05	mg/L	2.5	3.89	107	90-110		
Matrix Spike Dup (BJ22440-MSD1)		**Source: 1211971-17**			Prepared: 10/24/12	Analyzed: 10/26/12				
Total Kjeldahl Nitrogen	4.59	0.20	0.05	mg/L	2.5	2.29	91	90-110	0.7	20
Matrix Spike Dup (BJ22440-MSD2)		**Source: 1211976-06**			Prepared: 10/24/12	Analyzed: 10/26/12				
Total Kjeldahl Nitrogen	6.18	0.20	0.05	mg/L	2.5	3.89	90	90-110	7	20
Batch BJ22441 - Digestion for TKN by EPA 351.2										
Blank (BJ22441-BLK1)					Prepared: 10/24/12	Analyzed: 10/26/12				
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
LCS (BJ22441-BS1)					Prepared: 10/24/12	Analyzed: 10/26/12				
Total Kjeldahl Nitrogen	2.56	0.20	0.05	mg/L	2.5		101	90-110		
Matrix Spike (BJ22441-MS1)		**Source: 1211976-12**			Prepared: 10/24/12	Analyzed: 10/26/12				
Total Kjeldahl Nitrogen	5.73	0.20	0.05	mg/L	2.5	3.21	99	90-110		

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

November 2, 2012
Work Order: 1211976

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22441 - Digestion for TKN by EPA 351.2										
Matrix Spike (BJ22441-MS2)		**Source: 1211978-07**			Prepared: 10/24/12	Analyzed: 10/26/12				
Total Kjeldahl Nitrogen	4.56	0.20	0.05	mg/L	2.5	2.05	99	90-110		
Matrix Spike Dup (BJ22441-MSD1)		**Source: 1211976-12**			Prepared: 10/24/12	Analyzed: 10/26/12				
Total Kjeldahl Nitrogen	5.72	0.20	0.05	mg/L	2.5	3.21	99	90-110	0.2	20
Matrix Spike Dup (BJ22441-MSD2)		**Source: 1211978-07**			Prepared: 10/24/12	Analyzed: 10/26/12				
Total Kjeldahl Nitrogen	4.69	0.20	0.05	mg/L	2.5	2.05	104	90-110	3	20
Batch BJ22514 - Digestion for TP by EPA 365.2/SM4500PE										
Blank (BJ22514-BLK1)					Prepared: 10/25/12	Analyzed: 10/26/12				
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						
LCS (BJ22514-BS1)					Prepared: 10/25/12	Analyzed: 10/26/12				
Phosphorous - Total as P	0.788	0.040	0.010	mg/L	0.80		98	90-110		
Matrix Spike (BJ22514-MS1)		**Source: 1211971-12**			Prepared: 10/25/12	Analyzed: 10/26/12				
Phosphorous - Total as P	1.23	0.040	0.010	mg/L	1.0	0.225	100	75-125		
Matrix Spike (BJ22514-MS2)		**Source: 1211976-05**			Prepared: 10/25/12	Analyzed: 10/26/12				
Phosphorous - Total as P	1.29	0.040	0.010	mg/L	1.0	0.281	101	75-125		
Matrix Spike Dup (BJ22514-MSD1)		**Source: 1211971-12**			Prepared: 10/25/12	Analyzed: 10/26/12				
Phosphorous - Total as P	1.21	0.040	0.010	mg/L	1.0	0.225	99	75-125	1	25
Matrix Spike Dup (BJ22514-MSD2)		**Source: 1211976-05**			Prepared: 10/25/12	Analyzed: 10/26/12				
Phosphorous - Total as P	1.28	0.040	0.010	mg/L	1.0	0.281	100	75-125	0.4	25

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

November 2, 2012
Work Order: 1211976

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22522 - Ammonia by SEAL										
Blank (BJ22522-BLK1)					Prepared & Analyzed: 10/25/12					
Ammonia as N	0.009 U	0.040	0.009	mg/L						
LCS (BJ22522-BS1)					Prepared & Analyzed: 10/25/12					
Ammonia as N	0.51	0.040	0.009	mg/L	0.50		101	90-110		
Matrix Spike (BJ22522-MS1)		**Source: 1211971-22**			Prepared & Analyzed: 10/25/12					
Ammonia as N	0.54	0.040	0.009	mg/L	0.50	0.062	96	90-110		
Matrix Spike (BJ22522-MS2)		**Source: 1211976-16**			Prepared & Analyzed: 10/25/12					
Ammonia as N	0.65	0.040	0.009	mg/L	0.50	0.17	97	90-110		
Matrix Spike Dup (BJ22522-MSD1)		**Source: 1211971-22**			Prepared & Analyzed: 10/25/12					
Ammonia as N	0.55	0.040	0.009	mg/L	0.50	0.062	98	90-110	2	10
Matrix Spike Dup (BJ22522-MSD2)		**Source: 1211976-16**			Prepared & Analyzed: 10/25/12					
Ammonia as N	0.63	0.040	0.009	mg/L	0.50	0.17	93	90-110	3	10
Batch BJ22910 - Ammonia by SEAL										
Blank (BJ22910-BLK1)					Prepared & Analyzed: 10/29/12					
Ammonia as N	0.009 U	0.040	0.009	mg/L						
LCS (BJ22910-BS1)					Prepared & Analyzed: 10/29/12					
Ammonia as N	0.49	0.040	0.009	mg/L	0.50		98	90-110		
Matrix Spike (BJ22910-MS1)		**Source: 1211976-17**			Prepared & Analyzed: 10/29/12					
Ammonia as N	0.54	0.040	0.009	mg/L	0.50	0.043	99	90-110		

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

November 2, 2012
Work Order: 1211976

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22910 - Ammonia by SEAL										
Matrix Spike (BJ22910-MS2)		**Source: 1212352-01**			Prepared & Analyzed: 10/29/12					
Ammonia as N	1.1	0.040	0.009	mg/L	0.50	0.56	105	90-110		
Matrix Spike Dup (BJ22910-MSD1)		**Source: 1211976-17**			Prepared & Analyzed: 10/29/12					
Ammonia as N	0.53	0.040	0.009	mg/L	0.50	0.043	97	90-110	1	10
Matrix Spike Dup (BJ22910-MSD2)		**Source: 1212352-01**			Prepared & Analyzed: 10/29/12					
Ammonia as N	1.1	0.040	0.009	mg/L	0.50	0.56	108	90-110	1	10

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

November 2, 2012
Work Order: 1211976

Inorganic, Dissolved - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21636 - DOC prep										
Blank (BJ21636-BLK1)					Prepared & Analyzed: 10/17/12					
Dissolved Organic Carbon	0.50 U	1.0	0.50	mg/L						
LCS (BJ21636-BS1)					Prepared & Analyzed: 10/17/12					
Dissolved Organic Carbon	9.22	1.0	0.50	mg/L	10		92	90-110		
Matrix Spike (BJ21636-MS1)		**Source: 1211987-03**			Prepared & Analyzed: 10/17/12					
Dissolved Organic Carbon	9.36	1.0	0.50	mg/L	10	ND	94	85-125		
Matrix Spike Dup (BJ21636-MSD1)		**Source: 1211987-03**			Prepared & Analyzed: 10/17/12					
Dissolved Organic Carbon	8.61	1.0	0.50	mg/L	10	ND	86	85-125	8	25
Batch BJ22323 - DOC prep										
Blank (BJ22323-BLK1)					Prepared & Analyzed: 10/23/12					
Dissolved Organic Carbon	0.50 U	1.0	0.50	mg/L						
LCS (BJ22323-BS1)					Prepared & Analyzed: 10/23/12					
Dissolved Organic Carbon	10.6	1.0	0.50	mg/L	10		106	90-110		
Matrix Spike (BJ22323-MS1)		**Source: 1211976-12**			Prepared & Analyzed: 10/23/12					
Dissolved Organic Carbon	13.2	1.0	0.50	mg/L	10	3.30	99	85-125		
Matrix Spike Dup (BJ22323-MSD1)		**Source: 1211976-12**			Prepared & Analyzed: 10/23/12					
Dissolved Organic Carbon	13.9	1.0	0.50	mg/L	10	3.30	106	85-125	5	25

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

November 2, 2012
Work Order: 1211976

Metals - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21824 - Metals Preparation for EPA Method 200.7										
Blank (BJ21824-BLK1)					Prepared: 10/18/12 Analyzed: 10/19/12					
Boron	0.050 U	0.10	0.050	mg/L						
Iron	0.020 U	0.10	0.020	mg/L						
Manganese	0.0010 U	0.010	0.0010	mg/L						
Magnesium	0.020 U	0.50	0.020	mg/L						
Potassium	0.010 U	0.050	0.010	mg/L						
Calcium	0.042 U	0.50	0.042	mg/L						
Sodium	0.33 I	0.50	0.13	mg/L						
LCS (BJ21824-BS1)					Prepared: 10/18/12 Analyzed: 10/19/12					
Potassium	20	0.050	0.010	mg/L	20		100	85-115		
Manganese	0.41	0.010	0.0010	mg/L	0.40		103	85-115		
Sodium	21	0.50	0.13	mg/L	20		106	85-115		
Magnesium	21	0.50	0.020	mg/L	20		103	85-115		
Calcium	21	0.50	0.042	mg/L	20		104	85-115		
Iron	8.5	0.10	0.020	mg/L	8.0		107	85-115		
Boron	0.40	0.10	0.050	mg/L	0.40		99	85-115		
Matrix Spike (BJ21824-MS1)		**Source: 1211971-02**			Prepared: 10/18/12 Analyzed: 10/19/12					
Boron	0.54	0.10	0.050	mg/L	0.40	0.065	119	70-130		
Calcium	35	0.50	0.042	mg/L	20	14	102	70-130		
Iron	8.6	0.10	0.020	mg/L	8.0	0.049	107	70-130		
Magnesium	24	0.50	0.020	mg/L	20	3.4	102	70-130		
Potassium	24	0.050	0.010	mg/L	20	4.0	98	70-130		
Manganese	0.44	0.010	0.0010	mg/L	0.40	0.025	104	70-130		
Sodium	31	0.50	0.13	mg/L	20	11	100	70-130		
Matrix Spike (BJ21824-MS2)		**Source: 1211971-06**			Prepared: 10/18/12 Analyzed: 10/19/12					
Boron	0.65	0.10	0.050	mg/L	0.40	0.18	118	70-130		
Calcium	46	0.50	0.042	mg/L	20	26	99	70-130		
Iron	8.4	0.10	0.020	mg/L	8.0	0.036	105	70-130		
Potassium	27	0.050	0.010	mg/L	20	8.4	94	70-130		
Manganese	0.42	0.010	0.0010	mg/L	0.40	0.012	101	70-130		
Sodium	57	0.50	0.13	mg/L	20	37	98	70-130		
Magnesium	29	0.50	0.020	mg/L	20	8.3	101	70-130		

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

November 2, 2012
Work Order: 1211976

Metals - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21824 - Metals Preparation for EPA Method 200.7										
Matrix Spike Dup (BJ21824-MSD1)		**Source: 1211971-02**			Prepared: 10/18/12 Analyzed: 10/19/12					
Boron	0.54	0.10	0.050	mg/L	0.40	0.065	119	70-130	0.5	30
Calcium	35	0.50	0.042	mg/L	20	14	103	70-130	0.3	30
Iron	8.7	0.10	0.020	mg/L	8.0	0.049	108	70-130	1	30
Potassium	24	0.050	0.010	mg/L	20	4.0	98	70-130	0.4	30
Magnesium	24	0.50	0.020	mg/L	20	3.4	103	70-130	0.8	30
Manganese	0.44	0.010	0.0010	mg/L	0.40	0.025	103	70-130	0.4	30
Sodium	32	0.50	0.13	mg/L	20	11	103	70-130	2	30
Matrix Spike Dup (BJ21824-MSD2)		**Source: 1211971-06**			Prepared: 10/18/12 Analyzed: 10/19/12					
Boron	0.68	0.10	0.050	mg/L	0.40	0.18	126	70-130	5	30
Calcium	46	0.50	0.042	mg/L	20	26	98	70-130	0.5	30
Iron	8.5	0.10	0.020	mg/L	8.0	0.036	105	70-130	0.7	30
Magnesium	28	0.50	0.020	mg/L	20	8.3	101	70-130	0.2	30
Manganese	0.42	0.010	0.0010	mg/L	0.40	0.012	101	70-130	0.09	30
Sodium	58	0.50	0.13	mg/L	20	37	103	70-130	2	30
Potassium	28	0.050	0.010	mg/L	20	8.4	96	70-130	2	30

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

November 2, 2012
Work Order: 1211976

* 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.

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

Questions regarding this report should be directed to :

Kathryn Nordmark
Telephone (813) 855-1844 FAX (813) 855-2218
Kathryn@southernanalyticallabs.com

or to Client Services (clientservices@southernanalyticallabs.com).

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

1211976

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: S&GW Test Facility SE #3 (TA3)

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	250mL P, H_2SO_4 TKN, NH_4	1LP, Cool NOx, Cl	250mL P, H_2SO_4 TKN, NH_4, COD, TP	1LP, Cool NOx, Cl, Alkalinity	1LP, Cool NOx, Cl, Alkalinity, F, OP, SO_4	250mLaG, Cool DOC	40mLaV, HCl TOC	250mL P, HNO_3 B, Ca, Fe, Mg, Mn, K, Na					Field pH	Field Temperature	Field Conductivity	Field DO
01	TA3-PAN-12-N not sampled			GW		X	1	1														
02	TA3-LY-24-C	10/15/12	1100	GW		X	1	1											6.3	29.5	704	6.36
03	TA3-LY-12-S		1110	GW		X			1	1									6.9	30.1	589	6.8
04	TA3-LY-12-S DUP		1115	GW		X			1	1									6.9	30.1	589	6.8
05	TA3-LY-24-S		1120	GW		X			1		1	1		1					6.3	30.2	606	6.3
06	TA3-LY-42-S		1135	GW		X	1	1											5.6	27.8	712	5.3
07	TA3-PZ-11-EF2 not sampled			GW		X			1	1												
08	TA3-PZ-11-I2			GW		X			1		1	1	2	1								
09	TA3-PZ-10-J5			GW		X	1	1														
10	TA3-PZ-10-J5 DUP			GW		X	1	1														
11	TA3-PZ-10-K5			GW		X			1	1												
12	TA3-PZ-11-L2	10/16/12	0855	GW		X			1		1	1	2	1					5.4	26.0	617	2.15

Containers Prepared/ Relinquished:	Date/Time:	Received:	Date/Time:
Q. Chambers	10-12-12 11:35		1135 10/12/12
	1530 10/16/12	K Mudmark	10/16/12 1530
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

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

Instructions / Remarks:

1211976

Chain of Custody

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

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

1211976

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: S&GW Test Facility SE #3 (TA3)

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	250mL P, H_2SO_4 TKN, NH_4	1LP, Cool NOx, Cl	250mL P, H_2SO_4 TKN, NH_4, COD, TP	1LP, Cool NOx, Cl, Alkalinity	1LP, Cool NOx, Cl, Alkalinity, F, OP, SO_4	250mLaG, Cool DOC	40mLaV, HCl TOC	250mL P, HNO_3 B, Ca, Fe, Mg, Mn, K, Na					Field pH	Field Temperature	Field Conductivity	Field DO
13	TA3-PZ-11-L3	101712	0926	GW		X			1		1	1	2	1					5.1	26.3	522	1.29
14	TA3-PZ-11-L4 not sampled			GW		X			1	1												
15	TA3-PZ-10-L5			GW		X			1	1												
16	TA3-PZ-09-N3	101712	1010	GW		X			1	1									6.7	26.8	571	0.49
17	TA2-PZ-16-N3		1040	GW		X			1	1									5.8	26.1	333	0.15
18	TA3-PZ-09-O7		0811	GW		X	1	1											6.1	25.9	398.2	0.34
19	TA3-PZ-16-O7		0831	GW		X	1	1											5.3	25.8	315.0	0.15
20	TA3-PZ-09-I7	101612	1350	GW		X	1	1											7.0	27.9	689	3.83
21	TA3-PZ-16-I7		1425	GW		X	1	1											5.7	26.9	290.6	0.30
22	TA3-PZ-09-M9	101712	0750	GW		X	1	1											6.4	25.8	344.8	1.76
23	TA3-PZ-16-M9		0825	GW		X	1	1											5.7	25.9	288	0.24
24	TA3-PZ-09-ST14	~~101612~~	0735	GW		X	1	1											4.6	25.9	184.0	0.40

Containers Prepared/ Relinquished	Date/Time	Received	Date/Time
J. Chambers	10-12-12 11:35		1135 10/12/12
	1530 10/16/12		10/16/12 1530

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

Instructions / Remarks:

1211976

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

1211976

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: S&GW Test Facility SE #3 (TA3)

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	250mL P, H_2SO_4 TKN, NH_4	1LP, Cool NOx, Cl	250mL P, H_2SO_4 TKN, NH_4, COD, TP	1LP, Cool NOx, Cl, Alkalinity	1LP, Cool NOx, Cl, Alkalinity, F, OP, SO_4	250mLaG, Cool DOC	40mLaV, HCl TOC	250mL P, HNO_3 B, Ca, Fe, Mg, Mn, K, Na					Field pH	Field Temperature	Field Conductivity	Field DO
25	TA3-PZ-16-ST14	10/7/12	0750	GW		X	1	1											5.2	25.7	288.2	0.43
26	TA3-PZ-09-ST16	10/6/12	1346	GW		X	1	1														
27	TA3-PZ-16-ST16	/	1406	GW		X	1	1											5.5	27.1	243.4	0.50
																			5.2	26.3	266.0	0.16

Containers Prepared/ Relinquished	Date/Time	Received	Date/Time
J. Chambers	10-12-12 11:35		1135 10/12/12
Relinquished:	Date/Time: 1570 10/16/12	Received: K Mulmeah	Date/Time: 1530 10/16/12
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

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

Instructions / Remarks:

1211976

Chain of Custody

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

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

1211976

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: S&GW Test Facility SE #3 (TA3)

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	250mL P, H_2SO_4 TKN, NH_4	1LP, Cool NOx, Cl	250mL P, H_2SO_4 TKN, NH_4, COD, TP	1LP, Cool NOx, Cl, Alkalinity	1LP, Cool NOx, Cl, Alkalinity, F, OP, SO_4	250mLaG, Cool DOC	40mLaV, HCl TOC	250mL P, HNO_3 B, Ca, Fe, Mg, Mn, K, Na					Field pH	Field Temperature	Field Conductivity	Field DO
01	TA3-PAN-12-N			GW		X	1	1														
02	TA3-LY-24-C	101512	1100	GW		X	1	1											6.3	29.5	704	6.36
03	TA3-LY-12-S		1110	GW		X			1	1									6.4	30.1	589	6.8
04	TA3-LY-12-S DUP		1115	GW		X			1	1									6.4	30.1	589	6.8
05	TA3-LY-24-S		1120	GW		X			1		1	1		1					6.3	30.2	6.16	6.3
06	TA3-LY-42-S		1135	GW		X	1	1											5.6	27.8	712	5.3
07	TA3-PZ-11-EF2			GW		X			1	1												
08	TA3-PZ-11-I2			GW		X			1		1	1	2	1								
09	TA3-PZ-10-J5			GW		X	1	1														
10	TA3-PZ-10-J5 DUP			GW		X	1	1														
11	TA3-PZ-10-K5			GW		X			1	1												
12	TA3-PZ-11-L2			GW		X			1		1	1	2	1								

Relinquished:	Date/Time:	Received:	Date/Time:
Containers Prepared/ Relinquished: G. Chambers	10-12-12 11:35		1135 10/12/12
Relinquished:	1530 10/16/12	Received: K Medinech	1530 10/16/17
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

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

Instructions / Remarks:

1211976

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

1211976

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: S&GW Test Facility SE #3 (TA3)

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	250mL P, H_2SO_4 TKN, NH_4	1LP, Cool NOx, Cl	250mL P, H_2SO_4 TKN, NH_4, COD, TP	1LP, Cool NOx, Cl, Alkalinity	1LP, Cool NOx, Cl, Alkalinity, F, OP, SO_4	250mLaG, Cool DOC	40mLaV, HCl TOC	250mL P, HNO_3 B, Ca, Fe, Mg, Mn, K, Na					Field pH	Field Temperature	Field Conductivity	Field DO
13	TA3-PZ-11-L3			GW		X			1		1	1	2	1								
14	TA3-PZ-11-L4			GW		X			1	1												
15	TA3-PZ-10-L5			GW		X			1	1												
16	TA3-PZ-09-N3			GW		X			1	1												
17	TA2-PZ-16-N3			GW		X			1	1												
18	TA3-PZ-09-O7			GW		X	1	1														
19	TA3-PZ-16-O7			GW		X	1	1														
20	TA3-PZ-09-I7	10/16/12	1350	GW		X	1	1											7.0	27.9	689	3.83
21	TA3-PZ-16-I7		1425	GW		X	1	1											5.7	26.9	290.6	0.30
22	TA3-PZ-09-M9			GW		X	1	1														
23	TA3-PZ-16-M9			GW		X	1	1														
24	TA3-PZ-09-ST14	~~10/16/12~~		GW		X	1	1														

Containers Prepared/ Relinquished:	Date/Time:	Received:	Date/Time:
J. Chambers	10-12-12 11:35		1135 10/12/12
	1530 10/16/12	K Melment	1530 10/16/12

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

Instructions / Remarks:

1211976

Chain of Custody

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

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

1211976

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: S&GW Test Facility SE #3 (TA3)

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	250mL P, H_2SO_4 TKN, NH_4	1LP, Cool NOx, Cl	250mL P, H_2SO_4 TKN, NH_4, COD, TP	1LP, Cool NOx, Cl, Alkalinity	1LP, Cool NOx, Cl, Alkalinity, F, OP, SO_4	250mLaG, Cool DOC	40mLaV, HCl TOC	250mL P, HNO_3 B, Ca, Fe, Mg, Mn, K, Na					Field pH	Field Temperature	Field Conductivity	Field DO
25	TA3-PZ-16-ST14			GW		X	1	1														
26	TA3-PZ-09-ST16	10/16/12	1346	GW		X	1	1														
27	TA3-PZ-16-ST16	/	1406	GW		X	1	1											5.5	27.1	2434	0.50
																			5.2	26.3	266.0	0.16

Containers Prepared/ Relinquished:	Date/Time:	Received:	Date/Time:
J. Chambers	10-12-12 11:35		1135 10/12/12
Relinquished:	Date/Time: 1530 10/16/12	Received: K Mudmeen	Date/Time: 10/16/12 1530
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

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

Instructions / Remarks:

COP

1211976

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		SAL Project #	1211976	Project Name	S&GW Test Facility SE #3
Well Number	TA3-PAN-12-N	Sample ID	01	GPS LAT	
				GPS LONG	

PURGING DATA

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

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

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

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

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

PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME		EQUIPMENT VOLUME	

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

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-VOCS 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

Revision Date: 09/25/09 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	10/15/12 11:00am	SAL Project #	1211976	Project Name	S&GW Test Facility SE #3
Well Number	TA3-LY-24-C	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		1/4 WELL VOLUME		3 WELL VOLUMES		5 WELL VOLUMES	

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

PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME		EQUIPMENT VOLUME	

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

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
11:00am	500mL				6.3	29.5	704	6.36		none	none

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	HJS					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	Clear sunny 80s								
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	10/15/12 11:10 am	SAL Project #	1211976	Project Name	S&GW Test Facility SE #3
Well Number	TA3-LY-12-S	Sample ID	03 and 04	GPS LAT	
				GPS LONG	

PURGING DATA

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

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

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

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

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

PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME		EQUIPMENT VOLUME	

INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START		PURGE TIME END		TOTAL PURGED	
INST. ID				SAL-SAM-63-____	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)
11:10 am	10kPa	~500mL			6.9	30.1	589	6.8			

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)		HOS				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		Clear sunny 80s							
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	10/15/12 ~~12:10pm~~ 11:20 am	SAL Project #	1211976	Project Name	S&GW Test Facility SE #3
Well Number	TA3-LY-24-S	Sample ID	05	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)		WELL CAPACITY (gal/ft)		Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)		PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)		REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	
Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)										
WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =										
ONE WELL VOLUME			1/4 WELL VOLUME		3 WELL VOLUMES			5 WELL VOLUMES		
EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME										
PUMP VOLUME			TUBING LEGNTH		FLOW CELL VOLUME			EQUIPMENT VOLUME		
INITIAL TUBING LEGNTH IN WELL (FEET)			FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START		PURGE TIME END		TOTAL PURGED	
INST. ID				SAL-SAM-63-_____	SAL-SAM - 65-_____	SAL-SAM-63-_____	SAL-SAM-55-__	SAL-SAM-0_____		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
~~12:10pm~~	~~100mL~~				6.4	29.9	510	~~7.7~~			
11:20	700mL				6.3	30.2	616	6.3			

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)		HdS				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-VOCS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?		Y N N/A	LIST PRESERVATIVES ADDED						
WEATHER CONDITIONS		clear sunny 80s							
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

Revised Date: 09/25/09 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	10/17/12	SAL Project #	1211976	Project Name	S&GW Test Facility SE #3
Well Number	TA3-PZ-11-L2	Sample ID	12	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1"	WELL CAPACITY (gal/ft)	.04	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	8.34	PURGE PUMP CODE: PP GP IBP
TOTAL WELL DEPTH (Feet)	14.81	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	.2588	1/4 WELL VOLUME		3 WELL VOLUMES	.7764	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	0836	PURGE TIME END	0851	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)
0839	.3	.3	.1	8.34	5.68	24.8	671	3.33	146	cloudy	
0842	.3	.6	.1		5.50	25.1	664	2.94	125		
0845	.3	.9	.1		5.45	25.5	651	2.75	88	Slightly cloudy	
0848	.3	1.2	.1		5.39	25.8	638	2.39	42.4		
0851	.3	1.5	.1		5.36	26.0	617	2.15	20	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:	[signature] IG		
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	0855	SAMPLING ENDED	0900	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 3 N-NW 70°F								
COMMENTS	Wells being installed hand auger								

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	10/17/12	SAL Project #	1211976	Project Name	S&GW Test Facility SE #3
Well Number	TA3-PZ-11-L3	Sample ID	13	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1"	WELL CAPACITY (gal/ft)	.04	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	8.34	PURGE PUMP CODE: PP GP IBP
TOTAL WELL DEPTH (Feet)	14.81	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	.2988	1/4 WELL VOLUME		3 WELL VOLUMES	.8964	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	0910	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)
0913	.3	.3	.1	8.34	5.15	26.1	565	1.91	277	Cloudy Brown	
0916	.3	.6	.1		5.14	26.1	553	1.77	52.5		
0919	.3	.9	.1		5.14	26.2	535	1.65	13.7	Clear	
0922	.3	1.2	.1		5.12	26.3	527	1.42	8.72		
0925	.3	1.5	.1		5.11	26.3	522	1.29	4.05	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:	J. [illegible] IG		
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	Cloudy N-NW 5-10 mph 70°F						
COMMENTS	Spraying herbicides						

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	10/17/2012	SAL Project #	1211976	Project Name	S&GW Test Facility SE #2
Well Number	TA3-PZ-09-N3	Sample ID	16	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1"	WELL CAPACITY (gal/ft)	.04	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	4.73	PURGE PUMP CODE: PP GP IBP
TOTAL WELL DEPTH (Feet)	9.80	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	.2028	1/4 WELL VOLUME		3 WELL VOLUMES	.6084	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	0952	PURGE TIME END	1007	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)
0955	.3	.3	.1	4.73	6.57	26.3	639	1.10	735	Cloudy Brown	
0958	.3	.6	.1		6.55	26.4	621	.95	630		
1001	.3	.9	.1		6.63	26.7	607	.58	478	Cloudy	
1004	.3	1.2	.1		6.65	26.8	585	.54	330		
1007	.3	1.5	.1		6.65	26.8	571	.49	228	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:	[illegible]		
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	1010	SAMPLING ENDED	1015	FIELD CLEANED	Y N	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Partly Cloudy 5-10 mph N-NW 77°F								
COMMENTS	Wells being installed HAND AUGER								

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	10/17/12	SAL Project #	1211976	Project Name	S&GW Test Facility SE #3
Well Number	TA3-PZ-16-N3	Sample ID	17	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1"	WELL CAPACITY (gal/ft)	.04	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	4.84	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	17.32	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	.4992	1/4 WELL VOLUME		3 WELL VOLUMES	1.4976	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	1015	PURGE TIME END	1040	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)
1020	.5	.5	.1	4.84	6.03	26.2	334	.52	312	Cloudy Brown	
1025	.5	1.0	.1		5.86	26.1	335.1	.41	505		
1030	.5	1.5	.1		5.82	26.1	333.2	.16	OOR	Brown	
1035	.5	2.0	.1		5.78	26.0	333	.15	242		
1040	.5	2.5	.1		5.77	26.1	333	.15	165	Slightly 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)	SAV					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	1040	SAMPLING ENDED	1045	FIELD CLEANED	Y N	CLEANING STEPS			
FIELD FILTERED?	~~Y~~ N	FILTER SIZE (µm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?	Y N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Cloudy 5mph NW 80°F								
COMMENTS	Wells installed hand auger								

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	101712	SAL Project #	1211976	Project Name	S&GW Test Facility SE #3
Well Number	TA3-PZ-09-O7	Sample ID	18	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)	4.97	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	9.85	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	

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

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

ONE WELL VOLUME	0.195	1/4 WELL VOLUME		3 WELL VOLUMES	0.585	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	0755	PURGE TIME END	0816	TOTAL PURGED	1.50

INST. ID					SAL-SAM-63-08	SAL-SAM-65-08	SAL-SAM-63-08	SAL-SAM-55-08	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)
0758	0.30	0.30	0.10	5.10	5.8	25.1	339.5	1.61	MAX	BROWN	NONE
0801	0.30	0.60	/	/	5.8	25.6	348.3	0.59	515	/	/
0804	0.30	0.90	/	/	5.8	25.8	362.5	0.45	246	CLOUDY	/
0807	0.30	1.20	/	/	5.9	25.9	377.2	0.38	246	/	/
0810	0.30	1.50	/	/	6.1	25.9	398.2	0.34	187	/	/

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	0811	SAMPLING ENDED	0812	FIELD CLEANED	Y (N)	CLEANING STEPS	
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)
SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)						
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED					
WEATHER CONDITIONS	Cloudy, 72°						
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	101712	SAL Project #	1211976	Project Name	S&GW Test Facility SE #3
Well Number	TA3-PZ-16-O7	Sample ID	19	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)	5.28	PURGE PUMP CODE (PP) GP IBP
TOTAL WELL DEPTH (Feet)	17.25	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	0.478	1/4 WELL VOLUME	0.119	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	0813	PURGE TIME END	0830	TOTAL PURGED	1.70
INST. ID				SAL-SAM-63-08	SAL-SAM-65-08	SAL-SAM-63-08	SAL-SAM-55-08	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)
0818	0.50	0.50	0.10	5.35	5.4	25.7	316.5	0.24	MAX	BROWN	NONE
0821	0.30	0.80			5.4	25.7	316.4	0.20			
0824	0.30	1.10			5.3	25.7	316.4	0.17			
0827	0.30	1.40			5.3	25.7	316.5	0.17	493		
0830	0.30	1.70			5.3	25.8	315.0	0.15	144	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	0831	SAMPLING ENDED	0832	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, 72°								
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	10/16/12	SAL Project #	1211976	Project Name	S&GW Test Facility SE #3
Well Number	TA3-PZ-09-I7	Sample ID	20	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1"	WELL CAPACITY (gal/ft)	.04	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	4.77	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	9.90	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	.2052	1/4 WELL VOLUME		3 WELL VOLUMES	.6156	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)	6'	FINAL TUBING LEGNTH IN WELL (FEET)	9.88'	PURGE TIME START	1333	PURGE TIME END	1348	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)
1336	.3	.3	.1	4.77	6.77	29.7	502	2.87	OOR	Brown	
1339	.3	.6	.1		6.96	28.9	775	3.62	OOR		
1342	.3	.9	.1		6.99	28.4	766	3.54	303	Cloudy Brown	
1345	.3	1.2	.1		7.00	28.1	721	3.55	207		
1348	.3	1.5	.1		6.95	27.9	689	3.83	132	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:	J. [illegible] IG			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	1350	SAMPLING ENDED	1355	FIELD CLEANED	Y N	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Sunny NE 5 88°F								
COMMENTS	Well is drawing down - Air bubble might effect D.O.								

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	10/16/12	SAL Project #	1211976	Project Name	S&GW Test Facility SE #3
Well Number	TA3-PZ-16-I7	Sample ID	21	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1"	WELL CAPACITY (gal/ft)	.04	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	4.78	PURGE PUMP CODE: PP GP IBP
TOTAL WELL DEPTH (Feet)	17.31	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	.5012	1/4 WELL VOLUME		3 WELL VOLUMES	1.5036	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	1358	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)
1403	.5	.5	.1	4.78	5.94	27.0	294.8	.82	215	Cloudy white	
1408	.5	1.0	.1		5.86	26.8	295	.55	187		
1413	.5	1.5	.1		5.79	26.8	294	.43	35.9	Cloudy	
1418	.5	2.0	.1		5.75	27.0	292.2	.33	13.8		
1423	.5	2.5	.1		5.74	26.9	290.6	.30	6.25	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:	[signature] IG		
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	1425	SAMPLING ENDED	1430	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	PARTLY SUNNY 88°F N S								
COMMENTS	Wells being installed by hand AUGER								

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	10/17/2012	SAL Project #	1211976	Project Name	S&GW Test Facility SE #3
Well Number	TA3-PZ-09-M9	Sample ID	22	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1"	WELL CAPACITY (gal/ft)	.04	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	5.10	PURGE PUMP CODE: PP GP IBP
TOTAL WELL DEPTH (Feet)	9.90	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	.1920	1/4 WELL VOLUME		3 WELL VOLUMES	.5760	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	0733	PURGE TIME END		TOTAL PURGED	
INST. ID	X	X	X	X	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)
0736	.3	.3	.1	5.10	6.95	24.3	322.6	3.55	OOR	Brown	
0739	.3	.6	.1		6.35	25.0	319.9	2.94	984		
0742	.3	.9	.1		6.34	25.6	341.3	2.34	520	Cloudy Brown	
0745	.3	1.2	.1		6.39	25.7	350.9	2.05	355		
0748	.3	1.5	.1		6.42	25.8	366.8	1.76	284	Cloudy Brown	

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:	[signature] IG		
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	0750	SAMPLING ENDED	0755	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 70°F								
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	10/17/12	SAL Project #	1211976	Project Name	S&GW Test Facility SE #3
Well Number	TA3-PZ-16-M9	Sample ID	23	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1"	WELL CAPACITY (gal/ft)	.04	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	4.96	PURGE PUMP CODE: PP GP IBP
TOTAL WELL DEPTH (Feet)	17.31	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	.4940	1/4 WELL VOLUME		3 WELL VOLUMES	1.482	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	0800	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)
0805	.5	.5	.1	4.96	5.83	25.5	313.2	.62	179	Cloudy Brown	
0810	.5	1.0	.1		5.75	25.7	308.1	.34	406		
0815	.5	1.5	.1		5.70	25.7	303.2	.28	241	Cloudy Brown	
0820	.5	2.0	.1		5.67	25.9	292.9	.25	240		
0825	.5	2.5	.1		5.65	25.9	288	.24	221	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:	J. Gill - IG		
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	0825	SAMPLING ENDED	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	Cloudy 70°F 3mph N								
COMMENTS	Hayden Sawyer hand auger wells								

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	109712	SAL Project #	1211976	Project Name	S&GW Test Facility SE #3
Well Number	TA3-PZ-09-ST14	Sample ID	24	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)	4.92	PURGE PUMP CODE (PP) GP IBP
TOTAL WELL DEPTH (Feet)	9.82	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	0.196	1/4 WELL VOLUME		3 WELL VOLUMES	0.588	5 WELL VOLUMES	

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

PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME		EQUIPMENT VOLUME	

INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START	0719	PURGE TIME END	0734	TOTAL PURGED	1.50
INST. ID	X	X	X	X	SAL-SAM-63-08	SAL-SAM-65-08	SAL-SAM-63-08	SAL-SAM-55-08	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)
0722	0.30	0.30	0.10	5.07	4.6	25.0	204.0	1.19	MAX	BROWN	NONE
0725	0.30	0.60	|	|	4.5	25.2	200.6	0.64	|	|	|
0728	0.30	0.90	|	|	4.5	25.8	189.0	0.41	294	CLOUDY	|
0731	0.30	1.20	|	|	4.6	25.8	185.5	0.42	66.5	|	|
0734	0.30	1.50	|	|	4.6	25.9	184.0	0.40	25.0	|	|

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	0735	SAMPLING ENDED	0736	FIELD CLEANED	Y (N)	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Cloudy, 72°								
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	101712	SAL Project #	1211976	Project Name	S&GW Test Facility SE #3
Well Number	TA3-PZ-16-ST14	Sample ID	25	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)	4.84	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	17.15	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	0.492	1/4 WELL VOLUME	0.123	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	0738	PURGE TIME END	0748	TOTAL PURGED	1.10
INST. ID				SAL-SAM-63-08	SAL-SAM-65-08	SAL-SAM-63-08	SAL-SAM-55-08	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)
0743	0.50	0.50	0.10	4.98	5.1	25.7	272.3	0.86	37.2	CLOUDY	NONE
0746	0.30	0.80	/	/	5.1	25.7	280.6	0.59	37.0	/	/
0749	0.30	1.10	/	/	5.2	25.7	288.2	0.43	36.8	/	/

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	0750	SAMPLING ENDED	0751	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, 72°								
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	10/6/12	SAL Project #	1211976	Project Name	S&GW Test Facility SE #3
Well Number	TA3-PZ-09-ST16	Sample ID	26	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)	4.58	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	9.85	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	

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

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

ONE WELL VOLUME	0.210	1/4 WELL VOLUME		3 WELL VOLUMES	0.632	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	1330	PURGE TIME END	1345	TOTAL PURGED	1.50

INST. ID					SAL-SAM-63-08	SAL-SAM-65-08	SAL-SAM-63-08	SAL-SAM-55-08	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)
1333	0.30	0.30	0.10	4.67	5.4	28.6	220.5	1.99	187	CLOUDY	NONE
1336	0.30	0.60			5.5	27.6	228.0	0.62	124		
1339	0.30	0.90			5.5	27.6	228.1	0.56	88.2		
1342	0.30	1.20			5.5	27.1	241.5	0.48	37.3		
1345	0.30	1.50			5.5	27.1	243.4	0.50	19.5		

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	1346	SAMPLING ENDED	1347	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	10/6/12	SAL Project #	1211976	Project Name	S&GW Test Facility SE #3
Well Number	TA3-PZ-16-ST16	Sample ID	27	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)	4.94	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	17.25	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	0.492	1/4 WELL VOLUME	0.123	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	1348	PURGE TIME END	1405	TOTAL PURGED	1.70	
INST. ID				SAL-SAM-63-08	SAL-SAM-65-08	SAL-SAM-63-08	SAL-SAM-55-08	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)
1353	0.50	0.50	0.10	5.07	5.2	26.7	266.5	0.32	MAX	BROWN	NONE
1356	0.30	0.80			5.1	26.5	266.2	0.20	83.1		
1359	0.30	1.10			5.1	26.4	266.2	0.19	16.0	CLOUDY	
1402	0.30	1.40			5.1	26.4	266.1	0.17	36.6		
1405	0.30	1.70			5.2	26.3	266.0	0.16	8.63	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	1406	SAMPLING ENDED	1407	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

November 2, 2012
Work Order: 1212352

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**TA3-PZ-11-EF2**						
Matrix		**Groundwater**						
SAL Sample Number		**1212352-01**						
Date/Time Collected		**10/23/12 14:50**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/23/12 16:45**						
Field Parameters								
pH	SU	4.8	DEP FT1100	0.1	0.1		10/23/12 14:50	1
Water Temperature	°C	26.7	DEP FT1400	0.1	0.1		10/23/12 14:50	1
Specific conductance	umhos/cm	331	DEP FT1200	0.1	0.1		10/23/12 14:50	1
Dissolved Oxygen	mg/L	0.4	DEP FT1500	0.1	0.1		10/23/12 14:50	1
Inorganics								
Ammonia as N	mg/L	0.56	EPA 350.1	0.040	0.009	10/29/12 12:49	10/29/12 12:50	1
Ammonium as NH4	mg/L	0.72	EPA 350.1	0.05	0.01		10/31/12 14:47	1
Chemical Oxygen Demand	mg/L	15 I	EPA 410.4	25	10		10/24/12 12:30	1
Chloride	mg/L	11	EPA 300.0	0.20	0.050		10/24/12 17:40	1
Nitrate (as N)	mg/L	17	EPA 300.0	0.04	0.01		10/24/12 17:40	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/24/12 17:40	1
Phosphorous - Total as P	mg/L	0.044	SM 4500P-E	0.040	0.010	10/25/12 10:27	10/30/12 10:58	1
Total Alkalinity	mg/L	2.1 I	SM 2320B	8.0	2.0		10/29/12 09:13	1
Total Kjeldahl Nitrogen	mg/L	1.5	EPA 351.2	0.20	0.05	10/26/12 16:02	10/30/12 10:02	1
Nitrate+Nitrite (N)	mg/L	17	EPA 300.0	0.08	0.02		10/24/12 17:40	1
Sample Description		**TA3-PZ-11-I2**						
Matrix		**Groundwater**						
SAL Sample Number		**1212352-02**						
Date/Time Collected		**10/23/12 14:18**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/23/12 16:45**						
Field Parameters								
pH	SU	4.6	DEP FT1100	0.1	0.1		10/23/12 14:18	1
Water Temperature	°C	26.6	DEP FT1400	0.1	0.1		10/23/12 14:18	1
Specific conductance	umhos/cm	377	DEP FT1200	0.1	0.1		10/23/12 14:18	1
Dissolved Oxygen	mg/L	0.8	DEP FT1500	0.1	0.1		10/23/12 14:18	1
Inorganics								
Ammonia as N	mg/L	0.056	EPA 350.1	0.040	0.009		10/30/12 10:43	1
Ammonium as NH4	mg/L	0.07	EPA 350.1	0.05	0.01		10/31/12 14:47	1
Chemical Oxygen Demand	mg/L	17 I	EPA 410.4	25	10		10/24/12 12:30	1
Chloride	mg/L	19	EPA 300.0	0.20	0.050		10/24/12 17:40	1
Fluoride	mg/L	0.053	EPA 300.0	0.040	0.010		10/24/12 17:40	1
Nitrate (as N)	mg/L	18	EPA 300.0	0.04	0.01		10/24/12 17:40	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/24/12 17:40	1
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		10/24/12 17:40	1

Florida Certification Number: E84129
NELAP Accredited

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

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

November 2, 2012
Work Order: 1212352

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**TA3-PZ-11-I2**						
Matrix		**Groundwater**						
SAL Sample Number		**1212352-02**						
Date/Time Collected		**10/23/12 14:18**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/23/12 16:45**						
Phosphorous - Total as P	mg/L	0.084	SM 4500P-E	0.040	0.010	10/25/12 10:27	10/30/12 10:59	1
Sulfate	mg/L	38	EPA 300.0	0.60	0.20		10/24/12 17:40	1
Total Alkalinity	mg/L	2.0 U	SM 2320B	8.0	2.0		10/29/12 09:13	1
Total Kjeldahl Nitrogen	mg/L	1.1	EPA 351.2	0.20	0.05	10/26/12 16:02	10/30/12 10:03	1
Total Organic Carbon	mg/L	2.4	SM 5310B	1.0	0.50		10/25/12 14:47	1
Nitrate+Nitrite (N)	mg/L	18	EPA 300.0	0.08	0.02		10/24/12 17:40	1
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	1.6	SM 5310B	1.0	0.50		10/25/12 14:47	1
Metals								
Boron	mg/L	0.050 U	EPA 200.7	0.10	0.050	10/24/12 08:59	10/25/12 13:20	1
Calcium	mg/L	26	EPA 200.7	0.50	0.042	10/24/12 08:59	10/24/12 15:19	1
Iron	mg/L	0.020 U	EPA 200.7	0.10	0.020	10/24/12 08:59	10/25/12 13:20	1
Magnesium	mg/L	9.4	EPA 200.7	0.50	0.020	10/24/12 08:59	10/24/12 15:19	1
Manganese	mg/L	0.077	EPA 200.7	0.010	0.0010	10/24/12 08:59	10/24/12 15:19	1
Potassium	mg/L	8.1	EPA 200.7	0.050	0.010	10/24/12 08:59	10/24/12 15:19	1
Sodium	mg/L	16	EPA 200.7	0.50	0.13	10/24/12 08:59	10/24/12 15:19	1
Sample Description		**TA3-PZ-10-J5**						
Matrix		**Groundwater**						
SAL Sample Number		**1212352-03**						
Date/Time Collected		**10/23/12 13:50**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/23/12 16:45**						
Field Parameters								
pH	SU	4.3	DEP FT1100	0.1	0.1		10/23/12 13:50	1
Water Temperature	°C	26.8	DEP FT1400	0.1	0.1		10/23/12 13:50	1
Specific conductance	umhos/cm	331	DEP FT1200	0.1	0.1		10/23/12 13:50	1
Dissolved Oxygen	mg/L	1.0	DEP FT1500	0.1	0.1		10/23/12 13:50	1
Inorganics								
Ammonia as N	mg/L	0.27	EPA 350.1	0.040	0.009		10/30/12 10:46	1
Ammonium as NH4	mg/L	0.35	EPA 350.1	0.05	0.01		10/31/12 14:47	1
Chloride	mg/L	17	EPA 300.0	0.20	0.050		10/24/12 17:40	1
Nitrate (as N)	mg/L	10	EPA 300.0	0.04	0.01		10/24/12 17:40	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/24/12 17:40	1
Total Kjeldahl Nitrogen	mg/L	1.2	EPA 351.2	0.20	0.05	10/26/12 16:02	10/30/12 10:05	1
Nitrate+Nitrite (N)	mg/L	10	EPA 300.0	0.08	0.02		10/24/12 17:40	1

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

November 2, 2012
Work Order: 1212352

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**TA3-PZ-10-J5 DUP**						
Matrix		**Groundwater**						
SAL Sample Number		**1212352-04**						
Date/Time Collected		**10/23/12 13:55**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/23/12 16:45**						
Field Parameters								
pH	SU	4.3	DEP FT1100	0.1	0.1		10/23/12 13:55	1
Water Temperature	°C	26.8	DEP FT1400	0.1	0.1		10/23/12 13:55	1
Specific conductance	umhos/cm	331	DEP FT1200	0.1	0.1		10/23/12 13:55	1
Dissolved Oxygen	mg/L	1.0	DEP FT1500	0.1	0.1		10/23/12 13:55	1
Inorganics								
Ammonia as N	mg/L	0.27	EPA 350.1	0.040	0.009		10/30/12 10:48	1
Ammonium as NH4	mg/L	0.38	EPA 350.1	0.05	0.01		10/31/12 14:47	1
Chloride	mg/L	16	EPA 300.0	0.20	0.050		10/24/12 17:40	1
Nitrate (as N)	mg/L	9.8	EPA 300.0	0.04	0.01		10/24/12 17:40	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/24/12 17:40	1
Total Kjeldahl Nitrogen	mg/L	1.1	EPA 351.2	0.20	0.05	10/26/12 16:02	10/30/12 10:07	1
Nitrate+Nitrite (N)	mg/L	9.8	EPA 300.0	0.08	0.02		10/24/12 17:40	1

Sample Description		**TA3-PZ-10-K5**						
Matrix		**Groundwater**						
SAL Sample Number		**1212352-05**						
Date/Time Collected		**10/23/12 13:20**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/23/12 16:45**						
Field Parameters								
pH	SU	4.4	DEP FT1100	0.1	0.1		10/23/12 13:20	1
Water Temperature	°C	26.7	DEP FT1400	0.1	0.1		10/23/12 13:20	1
Specific conductance	umhos/cm	370	DEP FT1200	0.1	0.1		10/23/12 13:20	1
Dissolved Oxygen	mg/L	0.5	DEP FT1500	0.1	0.1		10/23/12 13:20	1
Inorganics								
Ammonia as N	mg/L	0.32	EPA 350.1	0.040	0.009		10/30/12 10:50	1
Ammonium as NH4	mg/L	0.41	EPA 350.1	0.05	0.01		10/31/12 14:47	1
Chemical Oxygen Demand	mg/L	13 I	EPA 410.4	25	10		10/24/12 12:30	1
Chloride	mg/L	20	EPA 300.0	0.20	0.050		10/24/12 17:40	1
Nitrate (as N)	mg/L	12	EPA 300.0	0.04	0.01		10/24/12 17:40	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/24/12 17:40	1
Phosphorous - Total as P	mg/L	0.048	SM 4500P-E	0.040	0.010	10/25/12 10:27	10/30/12 11:01	1
Total Alkalinity	mg/L	2.0 U	SM 2320B	8.0	2.0		10/29/12 09:13	1
Total Kjeldahl Nitrogen	mg/L	1.8	EPA 351.2	0.20	0.05	10/26/12 16:02	10/30/12 10:08	1
Nitrate+Nitrite (N)	mg/L	12	EPA 300.0	0.08	0.02		10/24/12 17:40	1

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

November 2, 2012
Work Order: 1212352

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**TA3-PZ-11-L4**						
Matrix		**Groundwater**						
SAL Sample Number		**1212352-06**						
Date/Time Collected		**10/23/12 13:00**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/23/12 16:45**						
Field Parameters								
pH	SU	4.4	DEP FT1100	0.1	0.1	10/30/12 10:29	10/23/12 13:00	1
Water Temperature	°C	27.1	DEP FT1400	0.1	0.1	10/30/12 10:29	10/23/12 13:00	1
Specific conductance	umhos/cm	494	DEP FT1200	0.1	0.1	10/30/12 10:29	10/23/12 13:00	1
Dissolved Oxygen	mg/L	0.7	DEP FT1500	0.1	0.1	10/30/12 10:29	10/23/12 13:00	1
Inorganics								
Ammonia as N	mg/L	0.23	EPA 350.1	0.040	0.009		10/30/12 10:52	1
Ammonium as NH4	mg/L	0.30	EPA 350.1	0.05	0.01		10/31/12 14:47	1
Chemical Oxygen Demand	mg/L	13 I	EPA 410.4	25	10		10/24/12 12:30	1
Chloride	mg/L	31	EPA 300.0	0.20	0.050		10/24/12 17:40	1
Nitrate (as N)	mg/L	18	EPA 300.0	0.04	0.01		10/24/12 17:40	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/24/12 17:40	1
Phosphorous - Total as P	mg/L	0.039 I	SM 4500P-E	0.040	0.010	10/25/12 10:27	10/30/12 11:02	1
Total Alkalinity	mg/L	2.0 U	SM 2320B	8.0	2.0		10/29/12 09:13	1
Total Kjeldahl Nitrogen	mg/L	1.4	EPA 351.2	0.20	0.05	10/26/12 16:02	10/30/12 10:10	1
Nitrate+Nitrite (N)	mg/L	18	EPA 300.0	0.08	0.02		10/24/12 17:40	1
Sample Description		**TA3-PZ-10-L5**						
Matrix		**Groundwater**						
SAL Sample Number		**1212352-07**						
Date/Time Collected		**10/23/12 12:40**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/23/12 16:45**						
Field Parameters								
pH	SU	4.4	DEP FT1100	0.1	0.1	10/30/12 10:29	10/23/12 12:40	1
Water Temperature	°C	27.1	DEP FT1400	0.1	0.1	10/30/12 10:29	10/23/12 12:40	1
Specific conductance	umhos/cm	424	DEP FT1200	0.1	0.1	10/30/12 10:29	10/23/12 12:40	1
Dissolved Oxygen	mg/L	0.3	DEP FT1500	0.1	0.1	10/30/12 10:29	10/23/12 12:40	1
Inorganics								
Ammonia as N	mg/L	0.17	EPA 350.1	0.040	0.009		10/30/12 10:54	1
Ammonium as NH4	mg/L	0.22	EPA 350.1	0.05	0.01		10/31/12 14:47	1
Chemical Oxygen Demand	mg/L	17 I	EPA 410.4	25	10		10/24/12 12:30	1
Chloride	mg/L	28	EPA 300.0	0.20	0.050		10/24/12 17:40	1
Nitrate (as N)	mg/L	15	EPA 300.0	0.04	0.01		10/24/12 17:40	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/24/12 17:40	1
Phosphorous - Total as P	mg/L	0.28	SM 4500P-E	0.040	0.010	10/25/12 10:27	10/30/12 11:03	1
Total Alkalinity	mg/L	2.0 U	SM 2320B	8.0	2.0		10/29/12 09:13	1

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

November 2, 2012
Work Order: 1212352

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**TA3-PZ-10-L5**						
Matrix		**Groundwater**						
SAL Sample Number		**1212352-07**						
Date/Time Collected		**10/23/12 12:40**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/23/12 16:45**						
Total Kjeldahl Nitrogen	mg/L	1.8	EPA 351.2	0.20	0.05	10/26/12 16:02	10/30/12 10:12	1
Nitrate+Nitrite (N)	mg/L	15	EPA 300.0	0.08	0.02		10/24/12 17:40	1

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

November 2, 2012
Work Order: 1212352

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22422 - Ion Chromatography 300.0 Prep										
Blank (BJ22422-BLK1)					Prepared & Analyzed: 10/24/12					
Fluoride	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						
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						
LCS (BJ22422-BS1)					Prepared & Analyzed: 10/24/12					
Chloride	2.75	0.20	0.050	mg/L	3.0		92	85-115		
Nitrite (as N)	1.35	0.04	0.01	mg/L	1.4		96	85-115		
Sulfate	8.65	0.60	0.20	mg/L	9.0		96	85-115		
Fluoride	0.873	0.040	0.010	mg/L	0.90		97	85-115		
Nitrate (as N)	1.65	0.04	0.01	mg/L	1.7		97	85-115		
Orthophosphate as P	0.863	0.040	0.010	mg/L	0.90		96	85-115		
LCS Dup (BJ22422-BSD1)					Prepared & Analyzed: 10/24/12					
Nitrate (as N)	1.65	0.04	0.01	mg/L	1.7		97	85-115	0	200
Chloride	2.83	0.20	0.050	mg/L	3.0		94	85-115	3	200
Fluoride	0.892	0.040	0.010	mg/L	0.90		99	85-115	2	200
Nitrite (as N)	1.39	0.04	0.01	mg/L	1.4		99	85-115	3	200
Orthophosphate as P	0.890	0.040	0.010	mg/L	0.90		99	85-115	3	200
Sulfate	8.68	0.60	0.20	mg/L	9.0		96	85-115	0.3	200
Matrix Spike (BJ22422-MS1)		**Source: 1212355-03**			Prepared & Analyzed: 10/24/12					
Sulfate	56.0	0.60	0.20	mg/L	9.0	46.5	106	85-115		
Chloride	39.9 +O	0.20	0.050	mg/L	3.0	53.9	NR	80-120		
Nitrate (as N)	26.3 +O	0.04	0.01	mg/L	1.7	40.8	NR	85-115		
Nitrite (as N)	1.41	0.04	0.01	mg/L	1.4	ND	101	85-115		
Fluoride	0.917	0.040	0.010	mg/L	0.90	0.0780	93	85-115		
Orthophosphate as P	0.843	0.040	0.010	mg/L	0.90	ND	94	85-115		

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

November 2, 2012
Work Order: 1212352

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22422 - Ion Chromatography 300.0 Prep										
Matrix Spike (BJ22422-MS2)		**Source: 1212425-05**			Prepared & Analyzed: 10/24/12					
Sulfate	27.7	0.60	0.20	mg/L	9.0	19.4	92	85-115		
Chloride	20.2	0.20	0.050	mg/L	3.0	17.7	83	80-120		
Nitrite (as N)	1.37	0.04	0.01	mg/L	1.4	ND	98	85-115		
Nitrate (as N)	1.66	0.04	0.01	mg/L	1.7	ND	98	85-115		
Orthophosphate as P	4.30	0.040	0.010	mg/L	0.90	3.48	91	85-115		
Fluoride	3.61	0.040	0.010	mg/L	0.90	2.66	106	85-115		
Batch BJ22504 - COD prep										
Blank (BJ22504-BLK1)					Prepared & Analyzed: 10/24/12					
Chemical Oxygen Demand	10 U	25	10	mg/L						
LCS (BJ22504-BS1)					Prepared & Analyzed: 10/24/12					
Chemical Oxygen Demand	54	25	10	mg/L	50		108	90-110		
Matrix Spike (BJ22504-MS1)		**Source: 1212355-02**			Prepared & Analyzed: 10/24/12					
Chemical Oxygen Demand	72	25	10	mg/L	50	20	104	85-115		
Matrix Spike Dup (BJ22504-MSD1)		**Source: 1212355-02**			Prepared & Analyzed: 10/24/12					
Chemical Oxygen Demand	65	25	10	mg/L	50	20	90	85-115	10	32
Batch BJ22516 - Digestion for TP by EPA 365.2/SM4500PE										
Blank (BJ22516-BLK1)					Prepared: 10/25/12 Analyzed: 10/30/12					
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						

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

November 2, 2012
Work Order: 1212352

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22516 - Digestion for TP by EPA 365.2/SM4500PE										
LCS (BJ22516-BS1)					Prepared: 10/25/12 Analyzed: 10/30/12					
Phosphorous - Total as P	0.793	0.040	0.010	mg/L	0.80		99	90-110		
Matrix Spike (BJ22516-MS1)		**Source: 1212352-01**			Prepared: 10/25/12 Analyzed: 10/30/12					
Phosphorous - Total as P	1.01	0.040	0.010	mg/L	1.0	0.0442	96	75-125		
Matrix Spike (BJ22516-MS2)		**Source: 1212475-01**			Prepared: 10/25/12 Analyzed: 10/30/12					
Phosphorous - Total as P	1.20	0.040	0.010	mg/L	1.0	0.187	102	75-125		
Matrix Spike Dup (BJ22516-MSD1)		**Source: 1212352-01**			Prepared: 10/25/12 Analyzed: 10/30/12					
Phosphorous - Total as P	1.03	0.040	0.010	mg/L	1.0	0.0442	99	75-125	2	25
Matrix Spike Dup (BJ22516-MSD2)		**Source: 1212475-01**			Prepared: 10/25/12 Analyzed: 10/30/12					
Phosphorous - Total as P	1.20	0.040	0.010	mg/L	1.0	0.187	102	75-125	0.2	25
Batch BJ22526 - TOC prep										
Blank (BJ22526-BLK1)					Prepared & Analyzed: 10/25/12					
Total Organic Carbon	0.50 U	1.0	0.50	mg/L						
LCS (BJ22526-BS1)					Prepared & Analyzed: 10/25/12					
Total Organic Carbon	10.2	1.0	0.50	mg/L	10		102	90-110		
Matrix Spike (BJ22526-MS1)		**Source: 1212435-04**			Prepared & Analyzed: 10/25/12					
Total Organic Carbon	17.3	1.0	0.50	mg/L	10	6.64	107	85-115		
Matrix Spike Dup (BJ22526-MSD1)		**Source: 1212435-04**			Prepared & Analyzed: 10/25/12					
Total Organic Carbon	15.8	1.0	0.50	mg/L	10	6.64	92	85-115	9	10

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

November 2, 2012
Work Order: 1212352

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22645 - Digestion for TKN by EPA 351.2										
Blank (BJ22645-BLK1)					Prepared: 10/26/12 Analyzed: 10/30/12					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
LCS (BJ22645-BS1)					Prepared: 10/26/12 Analyzed: 10/30/12					
Total Kjeldahl Nitrogen	2.71	0.20	0.05	mg/L	2.5		107	90-110		
Matrix Spike (BJ22645-MS1)		**Source: 1211985-03**			Prepared: 10/26/12 Analyzed: 10/30/12					
Total Kjeldahl Nitrogen	3.88	0.20	0.05	mg/L	2.5	1.41	97	90-110		
Matrix Spike (BJ22645-MS2)		**Source: 1212356-06**			Prepared: 10/26/12 Analyzed: 10/30/12					
Total Kjeldahl Nitrogen	3.95	0.20	0.05	mg/L	2.5	1.61	92	90-110		
Matrix Spike Dup (BJ22645-MSD1)		**Source: 1211985-03**			Prepared: 10/26/12 Analyzed: 10/30/12					
Total Kjeldahl Nitrogen	3.86	0.20	0.05	mg/L	2.5	1.41	97	90-110	0.6	20
Matrix Spike Dup (BJ22645-MSD2)		**Source: 1212356-06**			Prepared: 10/26/12 Analyzed: 10/30/12					
Total Kjeldahl Nitrogen	3.97	0.20	0.05	mg/L	2.5	1.61	93	90-110	0.4	20
Batch BJ22910 - Ammonia by SEAL										
Blank (BJ22910-BLK1)					Prepared & Analyzed: 10/29/12					
Ammonia as N	0.009 U	0.040	0.009	mg/L						
LCS (BJ22910-BS1)					Prepared & Analyzed: 10/29/12					
Ammonia as N	0.49	0.040	0.009	mg/L	0.50		98	90-110		
Matrix Spike (BJ22910-MS1)		**Source: 1211976-17**			Prepared & Analyzed: 10/29/12					
Ammonia as N	0.54	0.040	0.009	mg/L	0.50	0.043	99	90-110		

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

November 2, 2012
Work Order: 1212352

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22910 - Ammonia by SEAL										
Matrix Spike (BJ22910-MS2)		**Source: 1212352-01**			Prepared & Analyzed: 10/29/12					
Ammonia as N	1.1	0.040	0.009	mg/L	0.50	0.56	105	90-110		
Matrix Spike Dup (BJ22910-MSD1)		**Source: 1211976-17**			Prepared & Analyzed: 10/29/12					
Ammonia as N	0.53	0.040	0.009	mg/L	0.50	0.043	97	90-110	1	10
Matrix Spike Dup (BJ22910-MSD2)		**Source: 1212352-01**			Prepared & Analyzed: 10/29/12					
Ammonia as N	1.1	0.040	0.009	mg/L	0.50	0.56	108	90-110	1	10
Batch BJ23002 - Ammonia by SEAL										
Blank (BJ23002-BLK1)					Prepared & Analyzed: 10/30/12					
Ammonia as N	0.009 U	0.040	0.009	mg/L						
LCS (BJ23002-BS1)					Prepared & Analyzed: 10/30/12					
Ammonia as N	0.53	0.040	0.009	mg/L	0.50		105	90-110		
Matrix Spike (BJ23002-MS1)		**Source: 1212352-02**			Prepared & Analyzed: 10/30/12					
Ammonia as N	0.53	0.040	0.009	mg/L	0.50	0.056	96	90-110		
Matrix Spike (BJ23002-MS2)		**Source: 1212381-07**			Prepared & Analyzed: 10/30/12					
Ammonia as N	0.53	0.040	0.009	mg/L	0.50	0.063	93	90-110		
Matrix Spike Dup (BJ23002-MSD1)		**Source: 1212352-02**			Prepared & Analyzed: 10/30/12					
Ammonia as N	0.55	0.040	0.009	mg/L	0.50	0.056	98	90-110	2	10
Matrix Spike Dup (BJ23002-MSD2)		**Source: 1212381-07**			Prepared & Analyzed: 10/30/12					
Ammonia as N	0.53	0.040	0.009	mg/L	0.50	0.063	94	90-110	1	10

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

November 2, 2012
Work Order: 1212352

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ23101 - alkalinity										
Blank (BJ23101-BLK1)					Prepared & Analyzed: 10/29/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
Blank (BJ23101-BLK2)					Prepared & Analyzed: 10/29/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
LCS (BJ23101-BS1)					Prepared & Analyzed: 10/29/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		
LCS (BJ23101-BS2)					Prepared & Analyzed: 10/29/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		
Matrix Spike (BJ23101-MS1)		**Source: 1211968-05**			Prepared & Analyzed: 10/29/12					
Total Alkalinity	270	8.0	2.0	mg/L	120	150	95	80-120		
Matrix Spike (BJ23101-MS2)		**Source: 1212585-01**			Prepared & Analyzed: 10/29/12					
Total Alkalinity	280	8.0	2.0	mg/L	120	160	95	80-120		
Matrix Spike Dup (BJ23101-MSD1)		**Source: 1211968-05**			Prepared & Analyzed: 10/29/12					
Total Alkalinity	270	8.0	2.0	mg/L	120	150	95	80-120	0	26
Matrix Spike Dup (BJ23101-MSD2)		**Source: 1212585-01**			Prepared & Analyzed: 10/29/12					
Total Alkalinity	270	8.0	2.0	mg/L	120	160	86	80-120	4	26

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

November 2, 2012
Work Order: 1212352

Inorganic, Dissolved - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22527 -										
Blank (BJ22527-BLK1)					Prepared & Analyzed: 10/25/12					
Dissolved Organic Carbon	0.50 U	1.0	0.50	mg/L						
LCS (BJ22527-BS1)					Prepared & Analyzed: 10/25/12					
Dissolved Organic Carbon	10.5	1.0	0.50	mg/L	10		105	90-110		
Matrix Spike (BJ22527-MS1)		**Source: 1212355-03**			Prepared & Analyzed: 10/25/12					
Dissolved Organic Carbon	14.1	1.0	0.50	mg/L	10	3.20	109	85-125		
Matrix Spike Dup (BJ22527-MSD1)		**Source: 1212355-03**			Prepared & Analyzed: 10/25/12					
Dissolved Organic Carbon	14.3	1.0	0.50	mg/L	10	3.20	111	85-125	2	25

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

November 2, 2012
Work Order: 1212352

Metals - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22409 - Metals Preparation for EPA Method 200.7										
Blank (BJ22409-BLK1)					Prepared & Analyzed: 10/24/12					
Magnesium	0.020 U	0.50	0.020	mg/L						
Potassium	0.010 U	0.050	0.010	mg/L						
Calcium	0.042 U	0.50	0.042	mg/L						
Sodium	0.13 U	0.50	0.13	mg/L						
Manganese	0.0010 U	0.010	0.0010	mg/L						
Iron	0.020 U	0.10	0.020	mg/L						
Boron	0.050 U	0.10	0.050	mg/L						
LCS (BJ22409-BS1)					Prepared & Analyzed: 10/24/12					
Sodium	20	0.50	0.13	mg/L	20		99	85-115		
Potassium	19	0.050	0.010	mg/L	20		94	85-115		
Manganese	0.41	0.010	0.0010	mg/L	0.40		102	85-115		
Calcium	20	0.50	0.042	mg/L	20		101	85-115		
Magnesium	20	0.50	0.020	mg/L	20		100	85-115		
Iron	8.3	0.10	0.020	mg/L	8.0		104	85-115		
Boron	0.35	0.10	0.050	mg/L	0.40		87	85-115		
Matrix Spike (BJ22409-MS1)		**Source: 1212352-02**			Prepared & Analyzed: 10/24/12					
Sodium	36	0.50	0.13	mg/L	20	16	103	70-130		
Manganese	0.48	0.010	0.0010	mg/L	0.40	0.077	101	70-130		
Magnesium	30	0.50	0.020	mg/L	20	9.4	104	70-130		
Potassium	29	0.050	0.010	mg/L	20	8.1	103	70-130		
Iron	8.3	0.10	0.020	mg/L	8.0	ND	104	70-130		
Calcium	47	0.50	0.042	mg/L	20	26	105	70-130		
Boron	0.38	0.10	0.050	mg/L	0.40	ND	95	70-130		
Matrix Spike (BJ22409-MS2)		**Source: 1212392-03**			Prepared & Analyzed: 10/24/12					
Potassium	37	0.050	0.010	mg/L	20	15	107	70-130		
Magnesium	73	0.50	0.020	mg/L	20	53	104	70-130		
Iron	29	0.10	0.020	mg/L	8.0	20	104	70-130		
Boron	0.54	0.10	0.050	mg/L	0.40	0.094	110	70-130		
Calcium	110	0.50	0.042	mg/L	20	92	101	70-130		
Manganese	)00,000,000 +O	0.010	0.0010	mg/L	0.40	00000000	0	70-130		
Sodium	)00,000,000 +O	0.50	0.13	mg/L	20	00000000	0	70-130		

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

November 2, 2012
Work Order: 1212352

Metals - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22409 - Metals Preparation for EPA Method 200.7										
Matrix Spike Dup (BJ22409-MSD1)		**Source: 1212352-02**			Prepared & Analyzed: 10/24/12					
Boron	0.40	0.10	0.050	mg/L	0.40	ND	101	70-130	6	30
Calcium	47	0.50	0.042	mg/L	20	26	105	70-130	0.03	30
Iron	8.4	0.10	0.020	mg/L	8.0	ND	106	70-130	1	30
Potassium	28	0.050	0.010	mg/L	20	8.1	101	70-130	1	30
Magnesium	30	0.50	0.020	mg/L	20	9.4	104	70-130	0.03	30
Manganese	0.49	0.010	0.0010	mg/L	0.40	0.077	103	70-130	2	30
Sodium	36	0.50	0.13	mg/L	20	16	104	70-130	0.6	30
Matrix Spike Dup (BJ22409-MSD2)		**Source: 1212392-03**			Prepared & Analyzed: 10/24/12					
Boron	0.53	0.10	0.050	mg/L	0.40	0.094	109	70-130	1	30
Calcium	110	0.50	0.042	mg/L	20	92	89	70-130	2	30
Iron	28	0.10	0.020	mg/L	8.0	20	93	70-130	3	30
Potassium	34	0.050	0.010	mg/L	20	15	92	70-130	8	30
Magnesium	71	0.50	0.020	mg/L	20	53	92	70-130	3	30
Sodium	)00,000,000 +O	0.50	0.13	mg/L	20	00000000	0	70-130	0	30
Manganese	)00,000,000 +O	0.010	0.0010	mg/L	0.40	00000000	0	70-130	0	30

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

November 2, 2012
Work Order: 1212352

* 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.

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

Questions regarding this report should be directed to :

Kathryn Nordmark
Telephone (813) 855-1844 FAX (813) 855-2218
Kathryn@southernanalyticallabs.com

or to Client Services (clientservices@southernanalyticallabs.com).

1212352

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: S&GW Test Facility SB #3 (TA3)

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	250mL P, H_2SO_4 TKN, NH_4	1LP, Cool NOx, Cl	250mL P, H_2SO_4 TKN, NH_4, COD, TP	1LP, Cool NOx, Cl, Alkalinity	1LP, Cool NOx, Cl, Alkalinity, F, OP, SO_4	250mLaG, Cool DOC	40mLaV, HCl TOC	250mL P, HNO_3 B, Ca, Fe, Mg, Mn, K, Na					Field pH	Field Temperature	Field Conductivity	Field DO
01	TA3-PZ-11-EF2	10/23/12	1450	GW		X			1	1									4.81	26.7	336.6	0.44
02	TA3-PZ-11-I2	10/23/12	14:18	GW		X			1		1	1	2	1					4.56	26.6	374.6	0.80
03	TA3-PZ-10-J5	10/23/12	13:50	GW		X	1	1											4.33	26.8	331.1	1.03
04	TA3-PZ-10-J5 DUP	10/23/12	13:55	GW		X	1	1											4.33	26.8	331.1	1.03
05	TA3-PZ-10-K5	10/23/12	13:20	GW		X			1	1									4.35	26.7	369.6	0.51

Containers Prepared/ Relinquished:	Date/Time:	Received:	Date/Time:
J. Chambers	10-22-12 12:10		10-23-12 07:10
	10-23-12 16:45		16:45 10-23-12
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

Seal intact? Y N N/A

Samples intact upon arrival? Y N N/A

Received on ice? Temp_____ Y N N/A

Proper preservatives indicated? Y N N/A

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

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

Proper containers used? Y N N/A

Instructions / Remarks:

1212352

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

Chain of Custody

1212352

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: S&GW Test Facility SE #3 (TA3)

Samplers: (Signature) X J. Hall

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	250mL P, H_2SO_4 TKN, NH_4	1LP, Cool NOx, Cl	250mL P, H_2SO_4 TKN, NH_4, COD, TP	1LP, Cool NOx, Cl, Alkalinity	1LP, Cool NOx, Cl, Alkalinity, F, OP, SO_4	250mLaG, Cool DOC	40mLaV, HCl TOC	250mL P, HNO_3 B, Ca, Fe, Mg, Mn, K, Na					Field pH	Field Temperature	Field Conductivity	Field DO
																			4.39	27.1	494	.71
06	TA3-PZ-11-L4	10/23/12	13:00	GW		X			1	1									4.42	27.1	424	.31
07	TA3-PZ-10-L5	10/23/12	12:40	GW		X			1	1												

Containers Prepared/ Relinquished:	Date/Time:	Received:	Date/Time:
J. Chambers	10-22-12 12:10	10-23-12 0710	J. Hall
J. Hall	10-23-12 1645	[illegible]	1645 10-23-12
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

Seal intact? Y N N/A

Samples intact upon arrival? Y N N/A

Received on ice? Temp_____ Y N N/A

Proper preservatives indicated? Y N N/A

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

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

Proper containers used? Y N N/A

Instructions / Remarks:

1212352

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	10-23-12	SAL Project #	1212352	Project Name	S&GW Test Facility SE #3
Well Number	TA3-PZ-11-EF2	Sample ID	01	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1"	WELL CAPACITY (gal/ft)	0.04	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	8.91	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	0.2364	1/4 WELL VOLUME		3 WELL VOLUMES	0.7092	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	14:32	PURGE TIME END		TOTAL PURGED

INST. ID					SAL-SAM-63-____	SAL-SAM-65-____	SAL-SAM-63-____	SAL-SAM-55-__	SAL-SAM-0____		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
14:35	0.3	0.3	0.1	8.91	4.86	26.7	3016	1.46	7.37	clear	
14:38	0.3	0.6	0.1		4.83	26.8	321.7	0.82	2.30	"	
14:41	0.3	0.9	0.1		4.81	26.8	329.1	0.55	50.3	slightly cloudy	
14:44	0.3	1.2	0.1		4.81	26.7	329.9	0.44	3.64	clear	
14:47	0.3	1.5	0.1		4.81	26.7	330.6	0.44	1.46	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:	[signature] IG		
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT	SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	1450	SAMPLING ENDED	1455	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	Drizzle 10 mph NE 78°F						
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	10-23-12	SAL Project #	1212352	Project Name	S&GW Test Facility SE #3
Well Number	TA3-PZ-11-I2	Sample ID	02	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1"	WELL CAPACITY (gal/ft)	0.04	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	8.69	PURGE PUMP CODE: PP GP IBP
TOTAL WELL DEPTH (Feet)	14.79	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	0.244	1/4 WELL VOLUME		3 WELL VOLUMES	0.732	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)	20'	FINAL TUBING LEGNTH IN WELL (FEET)	2'	PURGE TIME START	14:04	PURGE TIME END		TOTAL PURGED	
INST. ID				SAL-SAM-63-____	SAL-SAM-65-____	SAL-SAM-63-____	SAL-SAM-55-__	SAL-SAM-0____	

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
14:07	.3	.3	0.1	8.69	4.55	26.7	382.9	1.63	23.3		
14:10	.3	.9	0.1		4.56	26.7	381.6	0.98	8.88		
14:13	.3	1.2	0.1		4.56	26.7	378.2	0.79	6.86		
14:16	.3	1.5	0.1		4.56	26.6	376.6	0.80	3.74		

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	1418	SAMPLING ENDED	1423	FIELD CLEANED	Y N	CLEANING STEPS			
FIELD FILTERED?	Y N	FILTER SIZE (µm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?	Y N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Drizzle 10 mph NE 78°F								
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	10-23-12	SAL Project #	1212352	Project Name	S&GW Test Facility SE #3
Well Number	TA3-PZ-10-J5	Sample ID	03	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1"	WELL CAPACITY (gal/ft)	0.04	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	8.70	PURGE PUMP CODE: PP GP IBP
TOTAL WELL DEPTH (Feet)	~~8~~ TOW 14.84	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)

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

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

ONE WELL VOLUME	0.2456	1/4 WELL VOLUME		3 WELL VOLUMES	0.7368	5 WELL VOLUMES	

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

PUMP VOLUME		TUBING LEGNTH	20"	FLOW CELL VOLUME	2.0L	EQUIPMENT VOLUME	

INITIAL TUBING LEGNTH IN WELL (FEET)	20"	FINAL TUBING LEGNTH IN WELL (FEET)	1"	PURGE TIME START	13:31	PURGE TIME END		TOTAL PURGED
INST. ID				SAL-SAM-63-___	SAL-SAM-65-___	SAL-SAM-63-___	SAL-SAM-55-___	SAL-SAM-0___

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
13:34	0.3	0.3	0.1	8.70	4:34	26.8	315.3	~~26~~ 2.06	45.3	Clear	
13:37	0.3	0.6	.1		4:33	26.7	328.2	1.24	9.65		
13:40	0.3	0.9	.1		4.33	26.7	330.3	1.05	8.59	Clear	
1343	.3	1.2	.1		4.33	26.7	330.7	1.04	4.32		
1346	.3	1.5	.1		4.33	26.8	331.1	1.03	3.52	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:	[signature] IG		
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT	SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	1350	SAMPLING ENDED	1355	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 10 mph NE 79°F						
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	10/23/12	SAL Project #	1212352	Project Name	S&GW Test Facility SE #3
Well Number	TA3-PZ-10-J5 DUP	Sample ID	04	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1"	WELL CAPACITY (gal/ft)	.04	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	8.70	PURGE PUMP CODE: PP GP IBP
TOTAL WELL DEPTH (Feet)	14.84	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	.2456	1/4 WELL VOLUME		3 WELL VOLUMES	.7368	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)
1334	.3	.3	.1	8.70	4.34	26.8	315.3	2.06	45.3	clear	
1337	.3	.6	.1		4.33	26.7	328.2	1.24	9.65		
1340	.3	.9	.1		4.33	26.7	330.3	1.05	8.59	clear	
1343	.3	1.2	.1		4.33	26.7	330.7	1.04	4.32		
1346	.3	1.5	.1		4.33	26.8	331.1	1.03	3.52	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:	[signature] IG		
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	1355	SAMPLING ENDED	1400	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 10 mph NE 79°F								
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	10-23-12	SAL Project #	1212352	Project Name	S&GW Test Facility SE #3
Well Number	TA3-PZ-10-K5	Sample ID	05	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1"	WELL CAPACITY (gal/ft)	0.04	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	8.70	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	0.244	1/4 WELL VOLUME		3 WELL VOLUMES	0.732	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	1:06	PURGE TIME END	1315	TOTAL PURGED	
INST. ID	X	X	X	X	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)
1:09	.3	.3	0.1	8.70	4.38	27.0	387.3	0.88	9.40	clear	
1:12	.3	.6			4.36	26.8	376.7	0.70	3.90	clear	
1:15	.3	.9			4.35	26.7	369.6	0.51	2.70	clear	
~~1:18~~	~~.3~~	~~1.2~~									

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:	[illegible]		
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT		SAMPLE TUBING LEGNTH IN WELL (FEET)		SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	1310	SAMPLING ENDED	1325	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 10 mph NE 80°F						
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	10/23/12	SAL Project #	1212352	Project Name	S&GW Test Facility SE #3
Well Number	TA3-PZ-11-L4	Sample ID	06	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1"	WELL CAPACITY (gal/ft)	.04	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	8.79	PURGE PUMP CODE: PP GP IBP
TOTAL WELL DEPTH (Feet)	14.84	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	.2420	1/4 WELL VOLUME		3 WELL VOLUMES	.7260	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	1245	PURGE TIME END	1257	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)
1248	.3	.3	.1	8.79	4.42	27.1	484	1.15	6.05	Clear	
1251	.3	.6	.1		4.40	26.8	489	.84	2.88		
1254	.3	.9	.1		4.39	27.1	491	.80	2.12	Clear	
1257	.3	1.2	.1		4.39	27.1	494	.71	1.04		
1300	.3	1.5	.1								

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL					SAMPLER(S) SIGNATURES:	[signature]		
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	1300	SAMPLING ENDED	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	Cloudy NE 10 mph 63°F								
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	10/23/12	SAL Project #	1212-352	Project Name	S&GW Test Facility SE #3
Well Number	TA3-PZ-10-L5	Sample ID	07	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1"	WELL CAPACITY (gal/ft)	.04	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	8.70	PURGE PUMP CODE: PP GP IBP
TOTAL WELL DEPTH (Feet)	14.85	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	.2460	1/4 WELL VOLUME		3 WELL VOLUMES	.7380	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	1223	PURGE TIME END	1238	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)
1226	.3	.3	.1		4.40	26.8	424.5	.34	352	Cloudy Brown	
1229	.3	.6	.1		4.40	26.9	424.7	.38	208		
1232	.3	.9	.1		4.41	27.0	427.2	.34	105	Cloudy	
1235	.3	1.2	.1		4.41	27.0	426.1	.32	54.8		
1238	.3	1.5	.1		4.42	27.1	424.2	.31	28.7	Slightly 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:	[illegible]		
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	1240	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	Cloudy 10-5mph NE 85°F								
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

November 2, 2012
Work Order: 1211978

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**TA4-LY-24-C**						
Matrix		**Groundwater**						
SAL Sample Number		**1211978-02**						
Date/Time Collected		**10/15/12 09:35**						
Collected by		**Josephine Edeback-Hirst**						
Date/Time Received		**10/15/12 15:40**						
Field Parameters								
pH	SU	6.4	DEP FT1100	0.1	0.1		10/15/12 09:35	1
Water Temperature	°C	26.2	DEP FT1400	0.1	0.1		10/15/12 09:35	1
Specific conductance	umhos/cm	461	DEP FT1200	0.1	0.1		10/15/12 09:35	1
Dissolved Oxygen	mg/L	4.7	DEP FT1500	0.1	0.1		10/15/12 09:35	1
Inorganics								
Ammonia as N	mg/L	0.012 I	EPA 350.1	0.040	0.009		10/29/12 12:35	1
Ammonium as NH4	mg/L	0.02 I	EPA 350.1	0.05	0.01		10/29/12 16:31	1
Chemical Oxygen Demand	mg/L	29	EPA 410.4	25	10	10/23/12 11:15	10/23/12 15:17	1
Chloride	mg/L	36	EPA 300.0	0.20	0.050		10/24/12 02:07	1
Nitrate (as N)	mg/L	26	EPA 300.0	0.04	0.01		10/16/12 16:49	1
Nitrite (as N)	mg/L	0.01 I	EPA 300.0	0.04	0.01		10/16/12 16:49	1
Phosphorous - Total as P	mg/L	0.18	SM 4500P-E	0.040	0.010	10/24/12 10:27	10/25/12 11:06	1
Total Alkalinity	mg/L	75	SM 2320B	8.0	2.0		10/16/12 08:00	1
Total Kjeldahl Nitrogen	mg/L	2.6	EPA 351.2	0.20	0.05	10/24/12 15:58	10/26/12 14:13	1
Nitrate+Nitrite (N)	mg/L	26	EPA 300.0	0.08	0.02		10/16/12 16:49	1
Sample Description		**TA4-LY-12-S**						
Matrix		**Groundwater**						
SAL Sample Number		**1211978-03**						
Date/Time Collected		**10/15/12 09:50**						
Collected by		**Josephine Edeback-Hirst**						
Date/Time Received		**10/15/12 15:40**						
Field Parameters								
pH	SU	6.8	DEP FT1100	0.1	0.1		10/15/12 09:50	1
Water Temperature	°C	26.6	DEP FT1400	0.1	0.1		10/15/12 09:50	1
Specific conductance	umhos/cm	364	DEP FT1200	0.1	0.1		10/15/12 09:50	1
Dissolved Oxygen	mg/L	7.6	DEP FT1500	0.1	0.1		10/15/12 09:50	1
Inorganics								
Ammonia as N	mg/L	0.037 I	EPA 350.1	0.040	0.009		10/29/12 12:37	1
Ammonium as NH4	mg/L	0.05	EPA 350.1	0.05	0.01		10/29/12 16:31	1
Chemical Oxygen Demand	mg/L	20 I	EPA 410.4	25	10	10/23/12 11:15	10/23/12 15:17	1
Chloride	mg/L	58	EPA 300.0	0.20	0.050		10/24/12 02:07	1
Fluoride	mg/L	0.34	EPA 300.0	0.040	0.010		10/16/12 16:49	1
Nitrate (as N)	mg/L	14	EPA 300.0	0.04	0.01		10/16/12 16:49	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/16/12 16:49	1
Orthophosphate as P	mg/L	1.3	EPA 300.0	0.040	0.010		10/16/12 16:49	1

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

November 2, 2012
Work Order: 1211978

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**TA4-LY-12-S**						
Matrix		**Groundwater**						
SAL Sample Number		**1211978-03**						
Date/Time Collected		**10/15/12 09:50**						
Collected by		**Josephine Edeback-Hirst**						
Date/Time Received		**10/15/12 15:40**						
Phosphorous - Total as P	mg/L	1.9	SM 4500P-E	0.040	0.010	10/18/12 11:04	10/22/12 15:15	1
Sulfate	mg/L	66	EPA 300.0	0.60	0.20		10/16/12 16:49	1
Total Alkalinity	mg/L	54	SM 2320B	8.0	2.0		10/16/12 08:00	1
Total Kjeldahl Nitrogen	mg/L	2.4	EPA 351.2	0.20	0.05	10/24/12 15:58	10/26/12 14:15	1
Nitrate+Nitrite (N)	mg/L	14	EPA 300.0	0.08	0.02		10/16/12 16:49	1
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	8.3	SM 5310B	1.0	0.50		10/17/12 10:41	1
Metals								
Boron	mg/L	0.15	EPA 200.7	0.10	0.050	10/18/12 12:11	10/19/12 12:00	1
Calcium	mg/L	47	EPA 200.7	0.50	0.042	10/18/12 12:11	10/19/12 12:00	1
Iron	mg/L	0.021 I	EPA 200.7	0.10	0.020	10/18/12 12:11	10/19/12 12:00	1
Magnesium	mg/L	13	EPA 200.7	0.50	0.020	10/18/12 12:11	10/19/12 12:00	1
Manganese	mg/L	0.0010 U	EPA 200.7	0.010	0.0010	10/18/12 12:11	10/19/12 12:00	1
Potassium	mg/L	11	EPA 200.7	0.050	0.010	10/18/12 12:11	10/19/12 12:00	1
Sodium	mg/L	47	EPA 200.7	0.50	0.13	10/18/12 12:11	10/19/12 12:00	1
Sample Description		**TA2-LY-42-S-DUP**						
Matrix		**Groundwater**						
SAL Sample Number		**1211978-04**						
Date/Time Collected		**10/15/12 09:55**						
Collected by		**Josephine Edeback-Hirst**						
Date/Time Received		**10/15/12 15:40**						
Field Parameters								
pH	SU	6.8	DEP FT1100	0.1	0.1	10/15/12 09:55	10/30/12 09:55	1
Water Temperature	°C	26.6	DEP FT1400	0.1	0.1	10/15/12 09:55	10/30/12 09:55	1
Specific conductance	umhos/cm	364	DEP FT1200	0.1	0.1	10/15/12 09:55	10/30/12 09:55	1
Dissolved Oxygen	mg/L	7.6	DEP FT1500	0.1	0.1	10/15/12 09:55	10/30/12 09:55	1
Inorganics								
Ammonia as N	mg/L	0.018 I	EPA 350.1	0.040	0.009		10/29/12 12:39	1
Ammonium as NH4	mg/L	0.02 I	EPA 350.1	0.05	0.01		10/29/12 16:31	1
Chemical Oxygen Demand	mg/L	29	EPA 410.4	25	10	10/23/12 11:15	10/23/12 15:17	1
Chloride	mg/L	39	EPA 300.0	0.20	0.050		10/24/12 02:07	1
Fluoride	mg/L	0.072	EPA 300.0	0.040	0.010		10/16/12 16:49	1
Nitrate (as N)	mg/L	10	EPA 300.0	0.04	0.01		10/16/12 16:49	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/16/12 16:49	1
Orthophosphate as P	mg/L	0.15	EPA 300.0	0.040	0.010		10/16/12 16:49	1
Phosphorous - Total as P	mg/L	0.22	SM 4500P-E	0.040	0.010	10/18/12 11:04	10/22/12 15:16	1

Florida Certification Number: 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

November 2, 2012
Work Order: 1211978

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**TA2-LY-42-S-DUP**						
Matrix		**Groundwater**						
SAL Sample Number		**1211978-04**						
Date/Time Collected		**10/15/12 09:55**						
Collected by		**Josephine Edeback-Hirst**						
Date/Time Received		**10/15/12 15:40**						
Sulfate	mg/L	53	EPA 300.0	0.60	0.20		10/16/12 16:49	1
Total Alkalinity	mg/L	19	SM 2320B	8.0	2.0		10/16/12 08:00	1
Total Kjeldahl Nitrogen	mg/L	2.4	EPA 351.2	0.20	0.05	10/24/12 15:58	10/26/12 14:16	1
Nitrate+Nitrite (N)	mg/L	10	EPA 300.0	0.08	0.02		10/16/12 16:49	1
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	14	SM 5310B	1.0	0.50		10/17/12 10:41	1
Metals								
Boron	mg/L	0.18	EPA 200.7	0.10	0.050	10/18/12 12:11	10/19/12 12:03	1
Calcium	mg/L	25	EPA 200.7	0.50	0.042	10/18/12 12:11	10/19/12 12:03	1
Iron	mg/L	0.032 I	EPA 200.7	0.10	0.020	10/18/12 12:11	10/19/12 12:03	1
Magnesium	mg/L	8.2	EPA 200.7	0.50	0.020	10/18/12 12:11	10/19/12 12:03	1
Manganese	mg/L	0.012	EPA 200.7	0.010	0.0010	10/18/12 12:11	10/19/12 12:03	1
Potassium	mg/L	8.1	EPA 200.7	0.050	0.010	10/18/12 12:11	10/19/12 12:03	1
Sodium	mg/L	36	EPA 200.7	0.50	0.13	10/18/12 12:11	10/19/12 12:03	1
Sample Description		**TA4-LY-24-S**						
Matrix		**Groundwater**						
SAL Sample Number		**1211978-05**						
Date/Time Collected		**10/15/12 10:05**						
Collected by		**Josephine Edeback-Hirst**						
Date/Time Received		**10/15/12 15:40**						
Field Parameters								
pH	SU	6.4	DEP FT1100	0.1	0.1		10/15/12 10:05	1
Water Temperature	°C	26.4	DEP FT1400	0.1	0.1		10/15/12 10:05	1
Specific conductance	umhos/cm	527	DEP FT1200	0.1	0.1		10/15/12 10:05	1
Dissolved Oxygen	mg/L	6.6	DEP FT1500	0.1	0.1		10/15/12 10:05	1
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/23/12 15:16	1
Ammonium as NH4	mg/L	0.01 U	EPA 350.1	0.05	0.01		10/29/12 16:31	1
Chloride	mg/L	44	EPA 300.0	0.20	0.050		10/24/12 02:07	1
Nitrate (as N)	mg/L	15	EPA 300.0	0.04	0.01		10/16/12 16:49	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/16/12 16:49	1
Total Kjeldahl Nitrogen	mg/L	2.8	EPA 351.2	0.20	0.05	10/24/12 15:58	10/26/12 14:18	1
Nitrate+Nitrite (N)	mg/L	15	EPA 300.0	0.08	0.02		10/16/12 16:49	1

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

November 2, 2012
Work Order: 1211978

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**TA4-LY-42-S**						
Matrix		**Groundwater**						
SAL Sample Number		**1211978-06**						
Date/Time Collected		**10/15/12 10:20**						
Collected by		**Josephine Edeback-Hirst**						
Date/Time Received		**10/15/12 15:40**						
Field Parameters								
pH	SU	6.1	DEP FT1100	0.1	0.1		10/15/12 10:20	1
Water Temperature	°C	26.9	DEP FT1400	0.1	0.1		10/15/12 10:20	1
Specific conductance	umhos/cm	617	DEP FT1200	0.1	0.1		10/15/12 10:20	1
Dissolved Oxygen	mg/L	5.7	DEP FT1500	0.1	0.1		10/15/12 10:20	1
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/23/12 15:18	1
Ammonium as NH4	mg/L	0.01 U	EPA 350.1	0.05	0.01		10/29/12 16:31	1
Chloride	mg/L	62	EPA 300.0	0.20	0.050		10/24/12 02:07	1
Nitrate (as N)	mg/L	18	EPA 300.0	0.04	0.01		10/16/12 16:49	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/16/12 16:49	1
Total Kjeldahl Nitrogen	mg/L	2.8	EPA 351.2	0.20	0.05	10/24/12 15:58	10/26/12 14:20	1
Nitrate+Nitrite (N)	mg/L	18	EPA 300.0	0.08	0.02		10/16/12 16:49	1

Sample Description		**TA4-PZ-11-EF2**						
Matrix		**Groundwater**						
SAL Sample Number		**1211978-07**						
Date/Time Collected		**10/15/12 12:00**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/15/12 15:40**						
Field Parameters								
pH	SU	3.9	DEP FT1100	0.1	0.1		10/15/12 12:00	1
Water Temperature	°C	27.2	DEP FT1400	0.1	0.1		10/15/12 12:00	1
Specific conductance	umhos/cm	188	DEP FT1200	0.1	0.1		10/15/12 12:00	1
Dissolved Oxygen	mg/L	1.4	DEP FT1500	0.1	0.1		10/15/12 12:00	1
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/23/12 15:20	1
Ammonium as NH4	mg/L	0.01 U	EPA 350.1	0.05	0.01		10/29/12 16:31	1
Chemical Oxygen Demand	mg/L	22 I	EPA 410.4	25	10	10/23/12 11:15	10/23/12 15:17	1
Chloride	mg/L	3.9	EPA 300.0	0.20	0.050		10/16/12 16:49	1
Nitrate (as N)	mg/L	6.4	EPA 300.0	0.04	0.01		10/16/12 16:49	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/16/12 16:49	1
Phosphorous - Total as P	mg/L	0.024 I	SM 4500P-E	0.040	0.010	10/18/12 11:04	10/22/12 15:17	1
Total Alkalinity	mg/L	2.0 U	SM 2320B	8.0	2.0		10/16/12 08:00	1
Total Kjeldahl Nitrogen	mg/L	2.1	EPA 351.2	0.20	0.05	10/24/12 15:58	10/26/12 14:21	1
Nitrate+Nitrite (N)	mg/L	6.4	EPA 300.0	0.08	0.02		10/16/12 16:49	1

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

November 2, 2012
Work Order: 1211978

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**TA4-PZ-10-H5**						
Matrix		**Groundwater**						
SAL Sample Number		**1211978-08**						
Date/Time Collected		**10/15/12 12:33**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/15/12 15:40**						
Field Parameters								
pH	SU	4.0	DEP FT1100	0.1	0.1		10/15/12 12:33	1
Water Temperature	°C	27.4	DEP FT1400	0.1	0.1		10/15/12 12:33	1
Specific conductance	umhos/cm	179	DEP FT1200	0.1	0.1		10/15/12 12:33	1
Dissolved Oxygen	mg/L	1.2	DEP FT1500	0.1	0.1		10/15/12 12:33	1
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/23/12 15:22	1
Ammonium as NH4	mg/L	0.01 U	EPA 350.1	0.05	0.01		10/29/12 16:31	1
Chemical Oxygen Demand	mg/L	11 I	EPA 410.4	25	10	10/23/12 11:15	10/23/12 15:17	1
Chloride	mg/L	4.5	EPA 300.0	0.20	0.050		10/16/12 16:49	1
Nitrate (as N)	mg/L	5.5	EPA 300.0	0.04	0.01		10/16/12 16:49	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/16/12 16:49	1
Phosphorous - Total as P	mg/L	0.030 I	SM 4500P-E	0.040	0.010	10/18/12 11:04	10/22/12 15:19	1
Total Alkalinity	mg/L	2.0 U	SM 2320B	8.0	2.0		10/16/12 08:00	1
Total Kjeldahl Nitrogen	mg/L	1.3	EPA 351.2	0.20	0.05	10/24/12 16:02	10/26/12 14:33	1
Nitrate+Nitrite (N)	mg/L	5.5	EPA 300.0	0.08	0.02		10/16/12 16:49	1
Sample Description		**TA4-PZ-10-J5**						
Matrix		**Groundwater**						
SAL Sample Number		**1211978-09**						
Date/Time Collected		**10/15/12 14:18**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/15/12 15:40**						
Field Parameters								
pH	SU	4.0	DEP FT1100	0.1	0.1		10/15/12 14:18	1
Water Temperature	°C	27.6	DEP FT1400	0.1	0.1		10/15/12 14:18	1
Specific conductance	umhos/cm	284	DEP FT1200	0.1	0.1		10/15/12 14:18	1
Dissolved Oxygen	mg/L	2.2	DEP FT1500	0.1	0.1		10/15/12 14:18	1
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/23/12 15:24	1
Ammonium as NH4	mg/L	0.01 U	EPA 350.1	0.05	0.01		10/29/12 16:31	1
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	10/23/12 11:15	10/23/12 15:17	1
Chloride	mg/L	12	EPA 300.0	0.20	0.050		10/17/12 01:36	1
Nitrate (as N)	mg/L	8.0	EPA 300.0	0.04	0.01		10/17/12 01:36	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/17/12 01:36	1
Phosphorous - Total as P	mg/L	0.025 I	SM 4500P-E	0.040	0.010	10/18/12 11:04	10/22/12 15:20	1
Total Alkalinity	mg/L	2.0 U	SM 2320B	8.0	2.0		10/16/12 08:00	1

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

November 2, 2012
Work Order: 1211978

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**TA4-PZ-10-J5**						
Matrix		**Groundwater**						
SAL Sample Number		**1211978-09**						
Date/Time Collected		**10/15/12 14:18**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/15/12 15:40**						
Total Kjeldahl Nitrogen	mg/L	0.99	EPA 351.2	0.20	0.05	10/24/12 16:02	10/26/12 14:35	1
Nitrate+Nitrite (N)	mg/L	8.0	EPA 300.0	0.08	0.02		10/17/12 01:36	1
Sample Description		**TA4-PZ-10-K5**						
Matrix		**Groundwater**						
SAL Sample Number		**1211978-10**						
Date/Time Collected		**10/15/12 14:14**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/15/12 15:40**						
Field Parameters								
pH	SU	4.3	DEP FT1100	0.1	0.1		10/15/12 14:14	1
Water Temperature	°C	27.4	DEP FT1400	0.1	0.1		10/15/12 14:14	1
Specific conductance	umhos/cm	334	DEP FT1200	0.1	0.1		10/15/12 14:14	1
Dissolved Oxygen	mg/L	1.2	DEP FT1500	0.1	0.1		10/15/12 14:14	1
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/23/12 15:26	1
Ammonium as NH4	mg/L	0.01 U	EPA 350.1	0.05	0.01		10/29/12 16:31	1
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	10/23/12 11:15	10/23/12 15:17	1
Chloride	mg/L	22	EPA 300.0	0.20	0.050		10/17/12 01:36	1
Fluoride	mg/L	0.16	EPA 300.0	0.040	0.010		10/17/12 01:36	1
Nitrate (as N)	mg/L	11	EPA 300.0	0.04	0.01		10/17/12 01:36	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/17/12 01:36	1
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		10/17/12 01:36	1
Phosphorous - Total as P	mg/L	0.34	SM 4500P-E	0.040	0.010	10/18/12 11:04	10/22/12 15:21	1
Sulfate	mg/L	50	EPA 300.0	0.60	0.20		10/17/12 01:36	1
Total Alkalinity	mg/L	2.0 U	SM 2320B	8.0	2.0		10/16/12 08:00	1
Total Kjeldahl Nitrogen	mg/L	1.3	EPA 351.2	0.20	0.05	10/24/12 16:02	10/26/12 14:36	1
Total Organic Carbon	mg/L	2.3	SM 5310B	1.0	0.50		10/16/12 10:41	1
Nitrate+Nitrite (N)	mg/L	11	EPA 300.0	0.08	0.02		10/17/12 01:36	1
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	1.8	SM 5310B	1.0	0.50		10/17/12 10:41	1
Metals								
Boron	mg/L	0.088 I	EPA 200.7	0.10	0.050	10/18/12 12:11	10/19/12 12:07	1
Calcium	mg/L	23	EPA 200.7	0.50	0.042	10/18/12 12:11	10/19/12 12:07	1
Iron	mg/L	0.062 I	EPA 200.7	0.10	0.020	10/18/12 12:11	10/19/12 12:07	1
Magnesium	mg/L	5.0	EPA 200.7	0.50	0.020	10/18/12 12:11	10/19/12 12:07	1
Manganese	mg/L	0.030	EPA 200.7	0.010	0.0010	10/18/12 12:11	10/19/12 12:07	1

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

November 2, 2012
Work Order: 1211978

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**TA4-PZ-10-K5**						
Matrix		**Groundwater**						
SAL Sample Number		**1211978-10**						
Date/Time Collected		**10/15/12 14:14**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/15/12 15:40**						
Potassium	mg/L	8.7	EPA 200.7	0.050	0.010	10/18/12 12:11	10/19/12 12:07	1
Sodium	mg/L	17	EPA 200.7	0.50	0.13	10/18/12 12:11	10/19/12 12:07	1
Sample Description		**TA4-PZ-11-L2**						
Matrix		**Groundwater**						
SAL Sample Number		**1211978-11**						
Date/Time Collected		**10/15/12 12:24**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/15/12 15:40**						
Field Parameters								
pH	SU	4.8	DEP FT1100	0.1	0.1		10/15/12 12:24	1
Water Temperature	°C	27.2	DEP FT1400	0.1	0.1		10/15/12 12:24	1
Specific conductance	umhos/cm	267	DEP FT1200	0.1	0.1		10/15/12 12:24	1
Dissolved Oxygen	mg/L	0.9	DEP FT1500	0.1	0.1		10/15/12 12:24	1
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/23/12 15:29	1
Ammonium as NH4	mg/L	0.01 U	EPA 350.1	0.05	0.01		10/29/12 16:31	1
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	10/23/12 11:15	10/23/12 15:17	1
Chloride	mg/L	9.4	EPA 300.0	0.20	0.050		10/17/12 01:36	1
Fluoride	mg/L	0.16	EPA 300.0	0.040	0.010		10/17/12 01:36	1
Nitrate (as N)	mg/L	12	EPA 300.0	0.04	0.01		10/17/12 01:36	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/17/12 01:36	1
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		10/17/12 01:36	1
Phosphorous - Total as P	mg/L	0.027 I	SM 4500P-E	0.040	0.010	10/18/12 11:04	10/22/12 15:22	1
Sulfate	mg/L	43	EPA 300.0	0.60	0.20		10/17/12 01:36	1
Total Alkalinity	mg/L	2.1 I	SM 2320B	8.0	2.0		10/16/12 08:00	1
Total Kjeldahl Nitrogen	mg/L	1.6	EPA 351.2	0.20	0.05	10/24/12 16:02	10/26/12 14:38	1
Total Organic Carbon	mg/L	2.2	SM 5310B	1.0	0.50		10/16/12 10:41	1
Nitrate+Nitrite (N)	mg/L	12	EPA 300.0	0.08	0.02		10/17/12 01:36	1
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	1.4	SM 5310B	1.0	0.50		10/17/12 10:41	1
Metals								
Boron	mg/L	0.050 U	EPA 200.7	0.10	0.050	10/22/12 08:00	10/23/12 14:49	1
Calcium	mg/L	26	EPA 200.7	0.50	0.042	10/22/12 08:00	10/23/12 14:49	1
Iron	mg/L	0.020 U	EPA 200.7	0.10	0.020	10/22/12 08:00	10/23/12 14:49	1
Magnesium	mg/L	4.7	EPA 200.7	0.50	0.020	10/22/12 08:00	10/23/12 14:49	1
Manganese	mg/L	0.057	EPA 200.7	0.010	0.0010	10/22/12 08:00	10/24/12 12:10	1

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

November 2, 2012
Work Order: 1211978

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**TA4-PZ-11-L2**						
Matrix		**Groundwater**						
SAL Sample Number		**1211978-11**						
Date/Time Collected		**10/15/12 12:24**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/15/12 15:40**						
Potassium	mg/L	5.6	EPA 200.7	0.050	0.010	10/22/12 08:00	10/23/12 14:49	1
Sodium	mg/L	6.7	EPA 200.7	0.50	0.13	10/22/12 08:00	10/23/12 14:49	1
Sample Description		**TA4-PZ-11-L3**						
Matrix		**Groundwater**						
SAL Sample Number		**1211978-12**						
Date/Time Collected		**10/15/12 12:40**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/15/12 15:40**						
Field Parameters								
pH	SU	4.4	DEP FT1100	0.1	0.1		10/15/12 12:40	1
Water Temperature	°C	27.5	DEP FT1400	0.1	0.1		10/15/12 12:40	1
Specific conductance	umhos/cm	287	DEP FT1200	0.1	0.1		10/15/12 12:40	1
Dissolved Oxygen	mg/L	0.9	DEP FT1500	0.1	0.1		10/15/12 12:40	1
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/23/12 15:31	1
Ammonium as NH4	mg/L	0.01 U	EPA 350.1	0.05	0.01		10/29/12 16:31	1
Chemical Oxygen Demand	mg/L	17 I	EPA 410.4	25	10	10/24/12 08:30	10/24/12 12:45	1
Chloride	mg/L	15	EPA 300.0	0.20	0.050		10/17/12 01:36	1
Nitrate (as N)	mg/L	9.4	EPA 300.0	0.04	0.01		10/17/12 01:36	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/17/12 01:36	1
Phosphorous - Total as P	mg/L	0.13	SM 4500P-E	0.040	0.010	10/18/12 11:04	10/22/12 15:24	1
Total Alkalinity	mg/L	2.0 U	SM 2320B	8.0	2.0		10/16/12 08:00	1
Total Kjeldahl Nitrogen	mg/L	1.5	EPA 351.2	0.20	0.05	10/24/12 16:02	10/26/12 14:39	1
Nitrate+Nitrite (N)	mg/L	9.4	EPA 300.0	0.08	0.02		10/17/12 01:36	1
Sample Description		**TA4-PZ-11-L4**						
Matrix		**Groundwater**						
SAL Sample Number		**1211978-13**						
Date/Time Collected		**10/15/12 13:30**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/15/12 15:40**						
Field Parameters								
pH	SU	4.4	DEP FT1100	0.1	0.1		10/15/12 13:30	1
Water Temperature	°C	27.4	DEP FT1400	0.1	0.1		10/15/12 13:30	1
Specific conductance	umhos/cm	338	DEP FT1200	0.1	0.1		10/15/12 13:30	1

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

November 2, 2012
Work Order: 1211978

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**TA4-PZ-11-L4**						
Matrix		**Groundwater**						
SAL Sample Number		**1211978-13**						
Date/Time Collected		**10/15/12 13:30**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/15/12 15:40**						
Dissolved Oxygen	mg/L	1.6	DEP FT1500	0.1	0.1		10/15/12 13:30	1
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/23/12 15:33	1
Ammonium as NH4	mg/L	0.01 U	EPA 350.1	0.05	0.01		10/29/12 16:31	1
Chemical Oxygen Demand	mg/L	15 I	EPA 410.4	25	10	10/24/12 08:30	10/24/12 12:45	1
Chloride	mg/L	25	EPA 300.0	0.20	0.050		10/17/12 01:36	1
Fluoride	mg/L	0.12	EPA 300.0	0.040	0.010		10/17/12 01:36	1
Nitrate (as N)	mg/L	11	EPA 300.0	0.04	0.01		10/17/12 01:36	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/17/12 01:36	1
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		10/17/12 01:36	1
Phosphorous - Total as P	mg/L	0.029 I	SM 4500P-E	0.040	0.010	10/18/12 11:04	10/22/12 15:25	1
Sulfate	mg/L	53	EPA 300.0	0.60	0.20		10/17/12 01:36	1
Total Alkalinity	mg/L	2.0 U	SM 2320B	8.0	2.0		10/16/12 08:00	1
Total Kjeldahl Nitrogen	mg/L	1.5	EPA 351.2	0.20	0.05	10/24/12 16:02	10/26/12 14:40	1
Total Organic Carbon	mg/L	2.1	SM 5310B	1.0	0.50		10/16/12 10:41	1
Nitrate+Nitrite (N)	mg/L	11	EPA 300.0	0.08	0.02		10/17/12 01:36	1
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	1.8	SM 5310B	1.0	0.50		10/17/12 10:41	1
Metals								
Boron	mg/L	0.093 I	EPA 200.7	0.10	0.050	10/22/12 08:00	10/23/12 14:52	1
Calcium	mg/L	21	EPA 200.7	0.50	0.042	10/22/12 08:00	10/23/12 14:52	1
Iron	mg/L	0.030 I	EPA 200.7	0.10	0.020	10/22/12 08:00	10/23/12 14:52	1
Magnesium	mg/L	5.5	EPA 200.7	0.50	0.020	10/22/12 08:00	10/23/12 14:52	1
Manganese	mg/L	0.037	EPA 200.7	0.010	0.0010	10/22/12 08:00	10/23/12 14:52	1
Potassium	mg/L	6.4	EPA 200.7	0.050	0.010	10/22/12 08:00	10/23/12 14:52	1
Sodium	mg/L	22	EPA 200.7	0.50	0.13	10/22/12 08:00	10/23/12 14:52	1
Sample Description		**TA4-PZ-11-L5**						
Matrix		**Groundwater**						
SAL Sample Number		**1211978-14**						
Date/Time Collected		**10/15/12 13:40**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/15/12 15:40**						
Field Parameters								
pH	SU	4.3	DEP FT1100	0.1	0.1		10/15/12 13:46	1
Water Temperature	°C	27.1	DEP FT1400	0.1	0.1		10/15/12 13:46	1
Specific conductance	umhos/cm	341	DEP FT1200	0.1	0.1		10/15/12 13:46	1

Florida Certification Number: 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

November 2, 2012
Work Order: 1211978

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**TA4-PZ-11-L5**						
Matrix		**Groundwater**						
SAL Sample Number		**1211978-14**						
Date/Time Collected		**10/15/12 13:40**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/15/12 15:40**						
Dissolved Oxygen	mg/L	0.9	DEP FT1500	0.1	0.1		10/15/12 13:46	1
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/23/12 15:35	1
Ammonium as NH4	mg/L	0.01 U	EPA 350.1	0.05	0.01		10/29/12 16:31	1
Chemical Oxygen Demand	mg/L	13 I	EPA 410.4	25	10	10/24/12 08:30	10/24/12 12:45	1
Chloride	mg/L	23	EPA 300.0	0.20	0.050		10/17/12 01:36	1
Nitrate (as N)	mg/L	11	EPA 300.0	0.04	0.01		10/17/12 01:36	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/17/12 01:36	1
Phosphorous - Total as P	mg/L	0.23	SM 4500P-E	0.040	0.010	10/18/12 11:04	10/22/12 15:26	1
Total Alkalinity	mg/L	2.0 U	SM 2320B	8.0	2.0		10/16/12 08:00	1
Total Kjeldahl Nitrogen	mg/L	1.6	EPA 351.2	0.20	0.05	10/24/12 16:02	10/26/12 14:41	1
Nitrate+Nitrite (N)	mg/L	11	EPA 300.0	0.08	0.02		10/17/12 01:36	1
Sample Description		**TA4-PZ-11-L6**						
Matrix		**Groundwater**						
SAL Sample Number		**1211978-15**						
Date/Time Collected		**10/15/12 14:01**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/15/12 15:40**						
Field Parameters								
pH	SU	4.3	DEP FT1100	0.1	0.1		10/15/12 14:01	1
Water Temperature	°C	27.1	DEP FT1400	0.1	0.1		10/15/12 14:01	1
Specific conductance	umhos/cm	331	DEP FT1200	0.1	0.1		10/15/12 14:01	1
Dissolved Oxygen	mg/L	0.7	DEP FT1500	0.1	0.1		10/15/12 14:01	1
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/23/12 15:45	1
Ammonium as NH4	mg/L	0.01 U	EPA 350.1	0.05	0.01		10/29/12 16:31	1
Chemical Oxygen Demand	mg/L	29	EPA 410.4	25	10	10/24/12 08:30	10/24/12 12:45	1
Chloride	mg/L	20	EPA 300.0	0.20	0.050		10/17/12 01:36	1
Nitrate (as N)	mg/L	11	EPA 300.0	0.04	0.01		10/17/12 01:36	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/17/12 01:36	1
Phosphorous - Total as P	mg/L	0.098	SM 4500P-E	0.040	0.010	10/18/12 11:04	10/22/12 15:32	1
Total Alkalinity	mg/L	2.0 U	SM 2320B	8.0	2.0		10/16/12 08:00	1
Total Kjeldahl Nitrogen	mg/L	2.3	EPA 351.2	0.20	0.05	10/26/12 08:10	10/29/12 13:07	1
Nitrate+Nitrite (N)	mg/L	11	EPA 300.0	0.08	0.02		10/17/12 01:36	1

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

November 2, 2012
Work Order: 1211978

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**TA4-PZ-09-M4**						
Matrix		**Groundwater**						
SAL Sample Number		**1211978-16**						
Date/Time Collected		**10/15/12 13:00**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/15/12 15:40**						
Field Parameters								
pH	SU	6.3	DEP FT1100	0.1	0.1		10/15/12 13:00	1
Water Temperature	°C	27.3	DEP FT1400	0.1	0.1		10/15/12 13:00	1
Specific conductance	umhos/cm	518	DEP FT1200	0.1	0.1		10/15/12 13:00	1
Dissolved Oxygen	mg/L	0.6	DEP FT1500	0.1	0.1		10/15/12 13:00	1
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/23/12 15:47	1
Ammonium as NH4	mg/L	0.01 U	EPA 350.1	0.05	0.01		10/29/12 16:31	1
Chemical Oxygen Demand	mg/L	24 I	EPA 410.4	25	10	10/24/12 08:30	10/24/12 12:45	1
Chloride	mg/L	29	EPA 300.0	0.20	0.050		10/17/12 01:36	1
Nitrate (as N)	mg/L	12	EPA 300.0	0.04	0.01		10/17/12 01:36	1
Nitrite (as N)	mg/L	0.16	EPA 300.0	0.04	0.01		10/17/12 01:36	1
Phosphorous - Total as P	mg/L	0.28	SM 4500P-E	0.040	0.010	10/18/12 11:04	10/22/12 15:33	1
Total Alkalinity	mg/L	65	SM 2320B	8.0	2.0		10/16/12 08:00	1
Total Kjeldahl Nitrogen	mg/L	2.1	EPA 351.2	0.20	0.05	10/26/12 08:10	10/29/12 13:08	1
Nitrate+Nitrite (N)	mg/L	12	EPA 300.0	0.08	0.02		10/17/12 01:36	1
Sample Description		**TA4-PZ-16-M4**						
Matrix		**Groundwater**						
SAL Sample Number		**1211978-17**						
Date/Time Collected		**10/15/12 13:16**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/15/12 15:40**						
Field Parameters								
pH	SU	5.2	DEP FT1100	0.1	0.1		10/15/12 13:16	1
Water Temperature	°C	26.7	DEP FT1400	0.1	0.1		10/15/12 13:16	1
Specific conductance	umhos/cm	226	DEP FT1200	0.1	0.1		10/15/12 13:16	1
Dissolved Oxygen	mg/L	0.1	DEP FT1500	0.1	0.1		10/15/12 13:16	1
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/23/12 15:49	1
Ammonium as NH4	mg/L	0.01 U	EPA 350.1	0.05	0.01		10/29/12 16:31	1
Chloride	mg/L	7.4	EPA 300.0	0.20	0.050		10/17/12 01:36	1
Nitrate (as N)	mg/L	3.6	EPA 300.0	0.04	0.01		10/17/12 01:36	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/17/12 01:36	1
Total Kjeldahl Nitrogen	mg/L	2.7	EPA 351.2	0.20	0.05	10/26/12 08:08	10/29/12 12:16	1
Nitrate+Nitrite (N)	mg/L	3.6	EPA 300.0	0.08	0.02		10/17/12 01:36	1

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

November 2, 2012
Work Order: 1211978

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**TA4-PZ-09-N7**						
Matrix		**Groundwater**						
SAL Sample Number		**1211978-18**						
Date/Time Collected		**10/15/12 10:56**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/15/12 15:40**						
Field Parameters								
pH	SU	5.2	DEP FT1100	0.1	0.1		10/15/12 10:56	1
Water Temperature	°C	27.4	DEP FT1400	0.1	0.1		10/15/12 10:56	1
Specific conductance	umhos/cm	259	DEP FT1200	0.1	0.1		10/15/12 10:56	1
Dissolved Oxygen	mg/L	1.9	DEP FT1500	0.1	0.1		10/15/12 10:56	1
Inorganics								
Ammonia as N	mg/L	0.068	EPA 350.1	0.040	0.009		10/23/12 15:50	1
Ammonium as NH4	mg/L	0.09	EPA 350.1	0.05	0.01		10/29/12 16:31	1
Chemical Oxygen Demand	mg/L	83	EPA 410.4	25	10	10/24/12 08:30	10/24/12 12:45	1
Chloride	mg/L	8.3	EPA 300.0	0.20	0.050		10/17/12 01:36	1
Nitrate (as N)	mg/L	15	EPA 300.0	0.04	0.01		10/17/12 01:36	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/17/12 01:36	1
Phosphorous - Total as P	mg/L	3.9	SM 4500P-E	0.20	0.050	10/18/12 11:04	10/22/12 16:13	5
Total Alkalinity	mg/L	10	SM 2320B	8.0	2.0		10/16/12 08:00	1
Total Kjeldahl Nitrogen	mg/L	3.8	EPA 351.2	0.20	0.05	10/26/12 08:08	10/29/12 12:18	1
Nitrate+Nitrite (N)	mg/L	15	EPA 300.0	0.08	0.02		10/17/12 01:36	1
Sample Description		**TA4-PZ-16-N7**						
Matrix		**Groundwater**						
SAL Sample Number		**1211978-19**						
Date/Time Collected		**10/15/12 11:14**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/15/12 15:40**						
Field Parameters								
pH	SU	5.1	DEP FT1100	0.1	0.1		10/15/12 11:14	1
Water Temperature	°C	26.7	DEP FT1400	0.1	0.1		10/15/12 11:14	1
Specific conductance	umhos/cm	221	DEP FT1200	0.1	0.1		10/15/12 11:14	1
Dissolved Oxygen	mg/L	0.1	DEP FT1500	0.1	0.1		10/15/12 11:14	1
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/23/12 15:52	1
Ammonium as NH4	mg/L	0.01 U	EPA 350.1	0.05	0.01		10/29/12 16:31	1
Chloride	mg/L	7.1	EPA 300.0	0.20	0.050		10/17/12 01:36	1
Nitrate (as N)	mg/L	2.8	EPA 300.0	0.04	0.01		10/17/12 01:36	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/17/12 01:36	1
Total Kjeldahl Nitrogen	mg/L	1.7	EPA 351.2	0.20	0.05	10/26/12 08:08	10/29/12 12:20	1
Nitrate+Nitrite (N)	mg/L	2.8	EPA 300.0	0.08	0.02		10/17/12 01:36	1

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

November 2, 2012
Work Order: 1211978

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**TA4-PZ-09-I7**						
Matrix		**Groundwater**						
SAL Sample Number		**1211978-20**						
Date/Time Collected		**10/15/12 13:02**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/15/12 15:40**						
Field Parameters								
pH	SU	5.0	DEP FT1100	0.1	0.1		10/15/12 13:02	1
Water Temperature	°C	27.9	DEP FT1400	0.1	0.1		10/15/12 13:02	1
Specific conductance	umhos/cm	237	DEP FT1200	0.1	0.1		10/15/12 13:02	1
Dissolved Oxygen	mg/L	1.0	DEP FT1500	0.1	0.1		10/15/12 13:02	1
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/23/12 15:54	1
Ammonium as NH4	mg/L	0.01 U	EPA 350.1	0.05	0.01		10/29/12 16:31	1
Chloride	mg/L	8.6	EPA 300.0	0.20	0.050		10/17/12 01:36	1
Nitrate (as N)	mg/L	5.0	EPA 300.0	0.04	0.01		10/17/12 01:36	1
Nitrite (as N)	mg/L	0.02 I	EPA 300.0	0.04	0.01		10/17/12 01:36	1
Total Kjeldahl Nitrogen	mg/L	3.0	EPA 351.2	0.20	0.05	10/26/12 08:08	10/29/12 12:21	1
Nitrate+Nitrite (N)	mg/L	5.1	EPA 300.0	0.08	0.02		10/17/12 01:36	1

Sample Description		**TA4-PZ-16-I7**						
Matrix		**Groundwater**						
SAL Sample Number		**1211978-21**						
Date/Time Collected		**10/15/12 13:42**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/15/12 15:40**						
Field Parameters								
pH	SU	4.7	DEP FT1100	0.1	0.1		10/15/12 13:42	1
Water Temperature	°C	26.6	DEP FT1400	0.1	0.1		10/15/12 13:42	1
Specific conductance	umhos/cm	214	DEP FT1200	0.1	0.1		10/15/12 13:42	1
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		10/15/12 13:42	1
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/23/12 15:55	1
Ammonium as NH4	mg/L	0.01 U	EPA 350.1	0.05	0.01		10/29/12 16:31	1
Chloride	mg/L	5.2	EPA 300.0	0.20	0.050		10/17/12 01:36	1
Nitrate (as N)	mg/L	1.4	EPA 300.0	0.04	0.01		10/17/12 01:36	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/17/12 01:36	1
Total Kjeldahl Nitrogen	mg/L	0.76	EPA 351.2	0.20	0.05	10/26/12 08:08	10/29/12 12:23	1
Nitrate+Nitrite (N)	mg/L	1.4	EPA 300.0	0.08	0.02		10/17/12 01:36	1

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

November 2, 2012
Work Order: 1211978

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**TA4-PZ-09-L8**						
Matrix		**Groundwater**						
SAL Sample Number		**1211978-22**						
Date/Time Collected		**10/15/12 11:47**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/15/12 15:40**						
Field Parameters								
pH	SU	6.2	DEP FT1100	0.1	0.1		10/15/12 11:47	1
Water Temperature	°C	27.2	DEP FT1400	0.1	0.1		10/15/12 11:47	1
Specific conductance	umhos/cm	294	DEP FT1200	0.1	0.1		10/15/12 11:47	1
Dissolved Oxygen	mg/L	0.4	DEP FT1500	0.1	0.1		10/15/12 11:47	1
Inorganics								
Ammonia as N	mg/L	0.067	EPA 350.1	0.040	0.009		10/29/12 12:41	1
Ammonium as NH4	mg/L	0.09	EPA 350.1	0.05	0.01		10/29/12 16:31	1
Chloride	mg/L	5.9	EPA 300.0	0.20	0.050		10/17/12 01:36	1
Nitrate (as N)	mg/L	4.3	EPA 300.0	0.04	0.01		10/17/12 01:36	1
Nitrite (as N)	mg/L	0.06	EPA 300.0	0.04	0.01		10/17/12 01:36	1
Total Kjeldahl Nitrogen	mg/L	2.1	EPA 351.2	0.20	0.05	10/26/12 08:08	10/29/12 12:25	1
Nitrate+Nitrite (N)	mg/L	4.3	EPA 300.0	0.08	0.02		10/17/12 01:36	1

Sample Description		**TA4-PZ-16-L8**						
Matrix		**Groundwater**						
SAL Sample Number		**1211978-23**						
Date/Time Collected		**10/15/12 12:05**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/15/12 15:40**						
Field Parameters								
pH	SU	5.1	DEP FT1100	0.1	0.1		10/15/12 12:05	1
Water Temperature	°C	26.6	DEP FT1400	0.1	0.1		10/15/12 12:05	1
Specific conductance	umhos/cm	222	DEP FT1200	0.1	0.1		10/15/12 12:05	1
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		10/15/12 12:05	1
Inorganics								
Ammonia as N	mg/L	0.017 I	EPA 350.1	0.040	0.009		10/29/12 12:43	1
Ammonium as NH4	mg/L	0.02 I	EPA 350.1	0.05	0.01		10/29/12 16:31	1
Chloride	mg/L	6.0	EPA 300.0	0.20	0.050		10/17/12 01:36	1
Nitrate (as N)	mg/L	2.2	EPA 300.0	0.04	0.01		10/17/12 01:36	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/17/12 01:36	1
Total Kjeldahl Nitrogen	mg/L	0.85	EPA 351.2	0.20	0.05	10/26/12 08:08	10/29/12 12:26	1
Nitrate+Nitrite (N)	mg/L	2.2	EPA 300.0	0.08	0.02		10/17/12 01:36	1

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

November 2, 2012
Work Order: 1211978

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**TA4-PZ-09-TU14**						
Matrix		**Groundwater**						
SAL Sample Number		**1211978-24**						
Date/Time Collected		**10/15/12 10:19**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/15/12 15:40**						
Field Parameters								
pH	SU	4.6	DEP FT1100	0.1	0.1		10/15/12 10:19	1
Water Temperature	°C	27.0	DEP FT1400	0.1	0.1		10/15/12 10:19	1
Specific conductance	umhos/cm	198	DEP FT1200	0.1	0.1		10/15/12 10:19	1
Dissolved Oxygen	mg/L	0.7	DEP FT1500	0.1	0.1		10/15/12 10:19	1
Inorganics								
Ammonia as N	mg/L	0.028 I	EPA 350.1	0.040	0.009		10/29/12 12:44	1
Ammonium as NH4	mg/L	0.04 I	EPA 350.1	0.05	0.01		10/29/12 16:31	1
Chloride	mg/L	5.2	EPA 300.0	0.20	0.050		10/17/12 01:36	1
Nitrate (as N)	mg/L	6.5	EPA 300.0	0.04	0.01		10/17/12 01:36	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/17/12 01:36	1
Total Kjeldahl Nitrogen	mg/L	0.09 I	EPA 351.2	0.20	0.05	10/26/12 08:08	10/29/12 13:56	1
Nitrate+Nitrite (N)	mg/L	6.5	EPA 300.0	0.08	0.02		10/17/12 01:36	1

Sample Description		**TA4-PZ-16-TU14**						
Matrix		**Groundwater**						
SAL Sample Number		**1211978-25**						
Date/Time Collected		**10/15/12 10:33**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/15/12 15:40**						
Field Parameters								
pH	SU	5.1	DEP FT1100	0.1	0.1		10/15/12 10:33	1
Water Temperature	°C	26.6	DEP FT1400	0.1	0.1		10/15/12 10:33	1
Specific conductance	umhos/cm	226	DEP FT1200	0.1	0.1		10/15/12 10:33	1
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		10/15/12 10:33	1
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/18/12 14:11	1
Ammonium as NH4	mg/L	0.01 U	EPA 350.1	0.05	0.01		10/29/12 16:31	1
Chloride	mg/L	4.1	EPA 300.0	0.20	0.050		10/17/12 01:36	1
Nitrate (as N)	mg/L	0.76	EPA 300.0	0.04	0.01		10/17/12 01:36	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/17/12 01:36	1
Total Kjeldahl Nitrogen	mg/L	0.77	EPA 351.2	0.20	0.05	10/26/12 08:08	10/29/12 12:30	1
Nitrate+Nitrite (N)	mg/L	0.76	EPA 300.0	0.08	0.02		10/17/12 01:36	1

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

November 2, 2012
Work Order: 1211978

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**TA4-PZ-09-TU16**						
Matrix		**Groundwater**						
SAL Sample Number		**1211978-26**						
Date/Time Collected		**10/15/12 09:40**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/15/12 15:40**						
Field Parameters								
pH	SU	5.3	DEP FT1100	0.1	0.1		10/15/12 09:40	1
Water Temperature	°C	27.0	DEP FT1400	0.1	0.1		10/15/12 09:40	1
Specific conductance	umhos/cm	190	DEP FT1200	0.1	0.1		10/15/12 09:40	1
Dissolved Oxygen	mg/L	0.6	DEP FT1500	0.1	0.1		10/15/12 09:40	1
Inorganics								
Ammonia as N	mg/L	0.019 I	EPA 350.1	0.040	0.009		10/18/12 14:13	1
Ammonium as NH4	mg/L	0.02 I	EPA 350.1	0.05	0.01		10/29/12 16:31	1
Chloride	mg/L	4.6	EPA 300.0	0.20	0.050		10/17/12 01:36	1
Nitrate (as N)	mg/L	8.8	EPA 300.0	0.04	0.01		10/17/12 01:36	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/17/12 01:36	1
Total Kjeldahl Nitrogen	mg/L	2.0	EPA 351.2	0.20	0.05	10/26/12 08:08	10/29/12 12:32	1
Nitrate+Nitrite (N)	mg/L	8.8	EPA 300.0	0.08	0.02		10/17/12 01:36	1

Sample Description		**TA4-PZ-16-TU16**						
Matrix		**Groundwater**						
SAL Sample Number		**1211978-27**						
Date/Time Collected		**10/15/12 09:59**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/15/12 15:40**						
Field Parameters								
pH	SU	5.2	DEP FT1100	0.1	0.1		10/15/12 09:59	1
Water Temperature	°C	26.4	DEP FT1400	0.1	0.1		10/15/12 09:59	1
Specific conductance	umhos/cm	242	DEP FT1200	0.1	0.1		10/15/12 09:59	1
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		10/15/12 09:59	1
Inorganics								
Ammonia as N	mg/L	0.014 I	EPA 350.1	0.040	0.009		10/23/12 14:15	1
Ammonium as NH4	mg/L	0.02 I	EPA 350.1	0.05	0.01		10/29/12 16:31	1
Chloride	mg/L	4.8	EPA 300.0	0.20	0.050		10/17/12 01:36	1
Nitrate (as N)	mg/L	1.5	EPA 300.0	0.04	0.01		10/17/12 01:36	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/17/12 01:36	1
Total Kjeldahl Nitrogen	mg/L	0.70	EPA 351.2	0.20	0.05	10/26/12 08:08	10/29/12 12:40	1
Nitrate+Nitrite (N)	mg/L	1.5	EPA 300.0	0.08	0.02		10/17/12 01:36	1

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

November 2, 2012
Work Order: 1211978

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21602 - alkalinity										
Blank (BJ21602-BLK1)					Prepared & Analyzed: 10/16/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
Blank (BJ21602-BLK2)					Prepared & Analyzed: 10/16/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
LCS (BJ21602-BS1)					Prepared & Analyzed: 10/16/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		
LCS (BJ21602-BS2)					Prepared & Analyzed: 10/16/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		
Matrix Spike (BJ21602-MS1)		**Source: 1211978-02**			Prepared & Analyzed: 10/16/12					
Total Alkalinity	190	8.0	2.0	mg/L	120	75	95	80-120		
Matrix Spike (BJ21602-MS2)		**Source: 1211987-01**			Prepared & Analyzed: 10/16/12					
Total Alkalinity	260	8.0	2.0	mg/L	120	140	95	80-120		
Matrix Spike Dup (BJ21602-MSD1)		**Source: 1211978-02**			Prepared & Analyzed: 10/16/12					
Total Alkalinity	190	8.0	2.0	mg/L	120	75	95	80-120	0	26
Matrix Spike Dup (BJ21602-MSD2)		**Source: 1211987-01**			Prepared & Analyzed: 10/16/12					
Total Alkalinity	250	8.0	2.0	mg/L	120	140	86	80-120	4	26
Batch BJ21618 - Ion Chromatography 300.0 Prep										
Blank (BJ21618-BLK1)					Prepared & Analyzed: 10/16/12					
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						
Sulfate	0.20 U	0.60	0.20	mg/L						

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

November 2, 2012
Work Order: 1211978

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21618 - Ion Chromatography 300.0 Prep										
LCS (BJ21618-BS1)					Prepared & Analyzed: 10/16/12					
Nitrate (as N)	1.66	0.04	0.01	mg/L	1.7		98	85-115		
Sulfate	8.74	0.60	0.20	mg/L	9.0		97	85-115		
Nitrite (as N)	1.37	0.04	0.01	mg/L	1.4		98	85-115		
Fluoride	0.893	0.040	0.010	mg/L	0.90		99	85-115		
Orthophosphate as P	0.910	0.040	0.010	mg/L	0.90		101	85-115		
Chloride	2.79	0.20	0.050	mg/L	3.0		93	85-115		
LCS Dup (BJ21618-BSD1)					Prepared & Analyzed: 10/16/12					
Sulfate	8.62	0.60	0.20	mg/L	9.0		96	85-115	1	200
Nitrite (as N)	1.39	0.04	0.01	mg/L	1.4		99	85-115	1	200
Orthophosphate as P	0.893	0.040	0.010	mg/L	0.90		99	85-115	2	200
Fluoride	0.887	0.040	0.010	mg/L	0.90		99	85-115	0.7	200
Chloride	2.84	0.20	0.050	mg/L	3.0		95	85-115	2	200
Nitrate (as N)	1.65	0.04	0.01	mg/L	1.7		97	85-115	0.6	200
Matrix Spike (BJ21618-MS1)		**Source: 1211976-03**			Prepared & Analyzed: 10/16/12					
Sulfate	84.0	0.60	0.20	mg/L	9.0	75.5	94	85-115		
Orthophosphate as P	1.28	0.040	0.010	mg/L	0.90	0.385	99	85-115		
Nitrite (as N)	1.41	0.04	0.01	mg/L	1.4	ND	101	85-115		
Nitrate (as N)	8.02	0.04	0.01	mg/L	1.7	6.25	104	85-115		
Chloride	39.5 +O	0.20	0.050	mg/L	3.0	50.6	NR	80-120		
Fluoride	1.21	0.040	0.010	mg/L	0.90	0.356	95	85-115		
Matrix Spike (BJ21618-MS2)		**Source: 1211978-08**			Prepared & Analyzed: 10/16/12					
Chloride	7.84	0.20	0.050	mg/L	3.0	4.51	111	80-120		
Orthophosphate as P	0.866	0.040	0.010	mg/L	0.90	ND	96	85-115		
Sulfate	42.3	0.60	0.20	mg/L	9.0	32.6	108	85-115		
Nitrate (as N)	7.38	0.04	0.01	mg/L	1.7	5.47	112	85-115		
Fluoride	1.02	0.040	0.010	mg/L	0.90	0.105	102	85-115		
Nitrite (as N)	1.42	0.04	0.01	mg/L	1.4	ND	101	85-115		

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

November 2, 2012
Work Order: 1211978

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21619 - Ion Chromatography 300.0 Prep										
Blank (BJ21619-BLK1)					Prepared & Analyzed: 10/17/12					
Chloride	0.050 U	0.20	0.050	mg/L						
Sulfate	0.20 U	0.60	0.20	mg/L						
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
Orthophosphate as P	0.010 U	0.040	0.010	mg/L						
Fluoride	0.010 U	0.040	0.010	mg/L						
LCS (BJ21619-BS1)					Prepared & Analyzed: 10/17/12					
Fluoride	0.883	0.040	0.010	mg/L	0.90		98	85-115		
Chloride	2.79	0.20	0.050	mg/L	3.0		93	85-115		
Nitrite (as N)	1.38	0.04	0.01	mg/L	1.4		99	85-115		
Nitrate (as N)	1.66	0.04	0.01	mg/L	1.7		98	85-115		
Sulfate	8.69	0.60	0.20	mg/L	9.0		97	85-115		
Orthophosphate as P	0.880	0.040	0.010	mg/L	0.90		98	85-115		
LCS Dup (BJ21619-BSD1)					Prepared & Analyzed: 10/17/12					
Chloride	2.81	0.20	0.050	mg/L	3.0		94	85-115	0.7	200
Orthophosphate as P	0.893	0.040	0.010	mg/L	0.90		99	85-115	1	200
Fluoride	0.884	0.040	0.010	mg/L	0.90		98	85-115	0.1	200
Nitrite (as N)	1.40	0.04	0.01	mg/L	1.4		100	85-115	1	200
Nitrate (as N)	1.66	0.04	0.01	mg/L	1.7		98	85-115	0	200
Sulfate	8.73	0.60	0.20	mg/L	9.0		97	85-115	0.5	200
Matrix Spike (BJ21619-MS1)		**Source: 1211978-18**			Prepared & Analyzed: 10/17/12					
Nitrate (as N)	16.8	0.04	0.01	mg/L	1.7	15.3	88	85-115		
Chloride	11.5	0.20	0.050	mg/L	3.0	8.28	107	80-120		
Fluoride	0.856	0.040	0.010	mg/L	0.90	ND	95	85-115		
Nitrite (as N)	1.42	0.04	0.01	mg/L	1.4	ND	101	85-115		
Sulfate	29.5	0.60	0.20	mg/L	9.0	20.0	106	85-115		
Orthophosphate as P	0.826	0.040	0.010	mg/L	0.90	ND	92	85-115		

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

November 2, 2012
Work Order: 1211978

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21619 - Ion Chromatography 300.0 Prep										
Matrix Spike (BJ21619-MS2)		**Source: 1211978-27**			Prepared & Analyzed: 10/17/12					
Nitrite (as N)	1.41	0.04	0.01	mg/L	1.4	ND	101	85-115		
Fluoride	0.854	0.040	0.010	mg/L	0.90	ND	95	85-115		
Orthophosphate as P	0.826	0.040	0.010	mg/L	0.90	ND	92	85-115		
Nitrate (as N)	3.19	0.04	0.01	mg/L	1.7	1.49	100	85-115		
Chloride	7.79	0.20	0.050	mg/L	3.0	4.78	100	80-120		
Sulfate	80.2	0.60	0.20	mg/L	9.0	72.1	90	85-115		
Batch BJ21635 - TOC prep										
Blank (BJ21635-BLK1)					Prepared & Analyzed: 10/16/12					
Total Organic Carbon	0.50 U	1.0	0.50	mg/L						
LCS (BJ21635-BS1)					Prepared & Analyzed: 10/16/12					
Total Organic Carbon	9.23	1.0	0.50	mg/L	10		92	90-110		
Matrix Spike (BJ21635-MS1)		**Source: 1211987-03**			Prepared & Analyzed: 10/16/12					
Total Organic Carbon	10.6	1.0	0.50	mg/L	10	ND	106	85-115		
Matrix Spike Dup (BJ21635-MSD1)		**Source: 1211987-03**			Prepared & Analyzed: 10/16/12					
Total Organic Carbon	10.9	1.0	0.50	mg/L	10	ND	109	85-115	3	10
Batch BJ21809 - Ammonia by SEAL										
Blank (BJ21809-BLK1)					Prepared & Analyzed: 10/18/12					
Ammonia as N	0.009 U	0.040	0.009	mg/L						

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

November 2, 2012
Work Order: 1211978

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21809 - Ammonia by SEAL										
LCS (BJ21809-BS1)					Prepared & Analyzed: 10/18/12					
Ammonia as N	0.48	0.040	0.009	mg/L	0.50		95	90-110		
Matrix Spike (BJ21809-MS1)		**Source: 1211978-25**			Prepared & Analyzed: 10/18/12					
Ammonia as N	0.50	0.040	0.009	mg/L	0.50	ND	99	90-110		
Matrix Spike (BJ21809-MS2)		**Source: 1211983-01**			Prepared & Analyzed: 10/18/12					
Ammonia as N	0.46	0.040	0.009	mg/L	0.50	ND	92	90-110		
Matrix Spike Dup (BJ21809-MSD1)		**Source: 1211978-25**			Prepared & Analyzed: 10/18/12					
Ammonia as N	0.48	0.040	0.009	mg/L	0.50	ND	95	90-110	4	10
Matrix Spike Dup (BJ21809-MSD2)		**Source: 1211983-01**			Prepared & Analyzed: 10/18/12					
Ammonia as N	0.47	0.040	0.009	mg/L	0.50	ND	95	90-110	3	10
Batch BJ21811 - Digestion for TP by EPA 365.2/SM4500PE										
Blank (BJ21811-BLK1)					Prepared: 10/18/12 Analyzed: 10/22/12					
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						
LCS (BJ21811-BS1)					Prepared: 10/18/12 Analyzed: 10/22/12					
Phosphorous - Total as P	0.750	0.040	0.010	mg/L	0.80		94	90-110		
Matrix Spike (BJ21811-MS1)		**Source: 1211978-03**			Prepared: 10/18/12 Analyzed: 10/22/12					
Phosphorous - Total as P	12.6	0.40	0.10	mg/L	10	1.86	107	75-125		
Matrix Spike (BJ21811-MS2)		**Source: 1211981-03**			Prepared: 10/18/12 Analyzed: 10/22/12					
Phosphorous - Total as P	1.28	0.040	0.010	mg/L	1.0	0.332	95	75-125		

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

November 2, 2012
Work Order: 1211978

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21811 - Digestion for TP by EPA 365.2/SM4500PE										
Matrix Spike Dup (BJ21811-MSD1)		**Source: 1211978-03**			Prepared: 10/18/12 Analyzed: 10/22/12					
Phosphorous - Total as P	12.5	0.40	0.10	mg/L	10	1.86	107	75-125	0.7	25
Matrix Spike Dup (BJ21811-MSD2)		**Source: 1211981-03**			Prepared: 10/18/12 Analyzed: 10/22/12					
Phosphorous - Total as P	1.29	0.040	0.010	mg/L	1.0	0.332	96	75-125	0.3	25
Batch BJ22307 - Ammonia by SEAL										
Blank (BJ22307-BLK1)					Prepared & Analyzed: 10/23/12					
Ammonia as N	0.009 U	0.040	0.009	mg/L						
LCS (BJ22307-BS1)					Prepared & Analyzed: 10/23/12					
Ammonia as N	0.48	0.040	0.009	mg/L	0.50		97	90-110		
Matrix Spike (BJ22307-MS1)		**Source: 1211978-27**			Prepared & Analyzed: 10/23/12					
Ammonia as N	0.54	0.040	0.009	mg/L	0.50	0.014	104	90-110		
Matrix Spike (BJ22307-MS2)		**Source: 1212338-01**			Prepared & Analyzed: 10/23/12					
Ammonia as N	0.57	0.040	0.009	mg/L	0.50	0.034	107	90-110		
Matrix Spike Dup (BJ22307-MSD1)		**Source: 1211978-27**			Prepared & Analyzed: 10/23/12					
Ammonia as N	0.52	0.040	0.009	mg/L	0.50	0.014	100	90-110	4	10
Matrix Spike Dup (BJ22307-MSD2)		**Source: 1212338-01**			Prepared & Analyzed: 10/23/12					
Ammonia as N	0.52	0.040	0.009	mg/L	0.50	0.034	98	90-110	8	10
Batch BJ22308 - Ammonia by SEAL										
Blank (BJ22308-BLK1)					Prepared & Analyzed: 10/23/12					
Ammonia as N	0.009 U	0.040	0.009	mg/L						

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

November 2, 2012
Work Order: 1211978

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22308 - Ammonia by SEAL										
LCS (BJ22308-BS1)					Prepared & Analyzed: 10/23/12					
Ammonia as N	0.49	0.040	0.009	mg/L	0.50		99	90-110		
Matrix Spike (BJ22308-MS1)		**Source: 1211978-05**			Prepared & Analyzed: 10/23/12					
Ammonia as N	0.54	0.040	0.009	mg/L	0.50	ND	109	90-110		
Matrix Spike (BJ22308-MS2)		**Source: 1211978-15**			Prepared & Analyzed: 10/23/12					
Ammonia as N	0.53	0.040	0.009	mg/L	0.50	ND	106	90-110		
Matrix Spike Dup (BJ22308-MSD1)		**Source: 1211978-05**			Prepared & Analyzed: 10/23/12					
Ammonia as N	0.52	0.040	0.009	mg/L	0.50	ND	104	90-110	5	10
Matrix Spike Dup (BJ22308-MSD2)		**Source: 1211978-15**			Prepared & Analyzed: 10/23/12					
Ammonia as N	0.51	0.040	0.009	mg/L	0.50	ND	103	90-110	3	10
Batch BJ22310 - Ion Chromatography 300.0 Prep										
Blank (BJ22310-BLK1)					Prepared & Analyzed: 10/24/12					
Chloride	0.050 U	0.20	0.050	mg/L						
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
LCS (BJ22310-BS1)					Prepared & Analyzed: 10/24/12					
Chloride	2.87	0.20	0.050	mg/L	3.0		96	85-115		
Nitrate (as N)	1.68	0.04	0.01	mg/L	1.7		99	85-115		
LCS Dup (BJ22310-BSD1)					Prepared & Analyzed: 10/24/12					
Chloride	2.87	0.20	0.050	mg/L	3.0		96	85-115	0	200
Nitrate (as N)	1.67	0.04	0.01	mg/L	1.7		98	85-115	0.6	200

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

November 2, 2012
Work Order: 1211978

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22310 - Ion Chromatography 300.0 Prep										
Matrix Spike (BJ22310-MS1)		**Source: 1211978-06**			Prepared & Analyzed: 10/24/12					
Chloride	91.3	0.20	0.050	mg/L	30	61.6	99	80-120		
Nitrate (as N)	36.2	0.04	0.01	mg/L	17	19.0	101	85-115		
Batch BJ22319 - COD prep										
Blank (BJ22319-BLK1)					Prepared & Analyzed: 10/23/12					
Chemical Oxygen Demand	10 U	25	10	mg/L						
LCS (BJ22319-BS1)					Prepared & Analyzed: 10/23/12					
Chemical Oxygen Demand	49	25	10	mg/L	50		98	90-110		
Matrix Spike (BJ22319-MS1)		**Source: 1211969-07**			Prepared & Analyzed: 10/23/12					
Chemical Oxygen Demand	56	25	10	mg/L	50	11	90	85-115		
Matrix Spike Dup (BJ22319-MSD1)		**Source: 1211969-07**			Prepared & Analyzed: 10/23/12					
Chemical Oxygen Demand	56	25	10	mg/L	50	11	90	85-115	0	32
Batch BJ22416 - Digestion for TP by EPA 365.2/SM4500PE										
Blank (BJ22416-BLK1)					Prepared: 10/24/12 Analyzed: 10/25/12					
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						
LCS (BJ22416-BS1)					Prepared: 10/24/12 Analyzed: 10/25/12					
Phosphorous - Total as P	0.779	0.040	0.010	mg/L	0.80		97	90-110		
Matrix Spike (BJ22416-MS1)		**Source: 1211976-17**			Prepared: 10/24/12 Analyzed: 10/25/12					
Phosphorous - Total as P	13.6	0.40	0.10	mg/L	10	3.55	100	75-125		

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

November 2, 2012
Work Order: 1211978

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22416 - Digestion for TP by EPA 365.2/SM4500PE										
Matrix Spike (BJ22416-MS2)		**Source: 1212358-01**			Prepared: 10/24/12 Analyzed: 10/25/12					
Phosphorous - Total as P	1.02	0.040	0.010	mg/L	1.0	0.0678	95	75-125		
Matrix Spike Dup (BJ22416-MSD1)		**Source: 1211976-17**			Prepared: 10/24/12 Analyzed: 10/25/12					
Phosphorous - Total as P	13.3	0.40	0.10	mg/L	10	3.55	97	75-125	3	25
Matrix Spike Dup (BJ22416-MSD2)		**Source: 1212358-01**			Prepared: 10/24/12 Analyzed: 10/25/12					
Phosphorous - Total as P	1.01	0.040	0.010	mg/L	1.0	0.0678	94	75-125	0.8	25
Batch BJ22441 - Digestion for TKN by EPA 351.2										
Blank (BJ22441-BLK1)					Prepared: 10/24/12 Analyzed: 10/26/12					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
LCS (BJ22441-BS1)					Prepared: 10/24/12 Analyzed: 10/26/12					
Total Kjeldahl Nitrogen	2.56	0.20	0.05	mg/L	2.5		101	90-110		
Matrix Spike (BJ22441-MS1)		**Source: 1211976-12**			Prepared: 10/24/12 Analyzed: 10/26/12					
Total Kjeldahl Nitrogen	5.73	0.20	0.05	mg/L	2.5	3.21	99	90-110		
Matrix Spike (BJ22441-MS2)		**Source: 1211978-07**			Prepared: 10/24/12 Analyzed: 10/26/12					
Total Kjeldahl Nitrogen	4.56	0.20	0.05	mg/L	2.5	2.05	99	90-110		
Matrix Spike Dup (BJ22441-MSD1)		**Source: 1211976-12**			Prepared: 10/24/12 Analyzed: 10/26/12					
Total Kjeldahl Nitrogen	5.72	0.20	0.05	mg/L	2.5	3.21	99	90-110	0.2	20
Matrix Spike Dup (BJ22441-MSD2)		**Source: 1211978-07**			Prepared: 10/24/12 Analyzed: 10/26/12					
Total Kjeldahl Nitrogen	4.69	0.20	0.05	mg/L	2.5	2.05	104	90-110	3	20

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

November 2, 2012
Work Order: 1211978

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22442 - Digestion for TKN by EPA 351.2										
Blank (BJ22442-BLK1)					Prepared: 10/24/12 Analyzed: 10/26/12					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
LCS (BJ22442-BS1)					Prepared: 10/24/12 Analyzed: 10/26/12					
Total Kjeldahl Nitrogen	2.68	0.20	0.05	mg/L	2.5		106	90-110		
Matrix Spike (BJ22442-MS1)		**Source: 1212375-01**			Prepared: 10/24/12 Analyzed: 10/26/12					
Total Kjeldahl Nitrogen	3.12	0.20	0.05	mg/L	2.5	0.432	106	90-110		
Matrix Spike Dup (BJ22442-MSD1)		**Source: 1212375-01**			Prepared: 10/24/12 Analyzed: 10/26/12					
Total Kjeldahl Nitrogen	3.04	0.20	0.05	mg/L	2.5	0.432	103	90-110	3	20
Batch BJ22503 - COD prep										
Blank (BJ22503-BLK1)					Prepared & Analyzed: 10/24/12					
Chemical Oxygen Demand	10 U	25	10	mg/L						
LCS (BJ22503-BS1)					Prepared & Analyzed: 10/24/12					
Chemical Oxygen Demand	54	25	10	mg/L	50		108	90-110		
Matrix Spike (BJ22503-MS1)		**Source: 1211978-12**			Prepared & Analyzed: 10/24/12					
Chemical Oxygen Demand	63	25	10	mg/L	50	17	92	85-115		
Matrix Spike Dup (BJ22503-MSD1)		**Source: 1211978-12**			Prepared & Analyzed: 10/24/12					
Chemical Oxygen Demand	63	25	10	mg/L	50	17	92	85-115	0	32
Batch BJ22604 - Digestion for TKN by EPA 351.2										
Blank (BJ22604-BLK1)					Prepared: 10/26/12 Analyzed: 10/29/12					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						

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

November 2, 2012
Work Order: 1211978

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22604 - Digestion for TKN by EPA 351.2										
LCS (BJ22604-BS1)					Prepared: 10/26/12	Analyzed: 10/29/12				
Total Kjeldahl Nitrogen	2.53	0.20	0.05	mg/L	2.5		100	90-110		
Matrix Spike (BJ22604-MS1)		**Source: 1211978-17**			Prepared: 10/26/12	Analyzed: 10/29/12				
Total Kjeldahl Nitrogen	5.32	0.20	0.05	mg/L	2.5	2.72	103	90-110		
Matrix Spike (BJ22604-MS2)		**Source: 1211979-03**			Prepared: 10/26/12	Analyzed: 10/29/12				
Total Kjeldahl Nitrogen	7.38	0.20	0.05	mg/L	2.5	5.08	91	90-110		
Matrix Spike Dup (BJ22604-MSD1)		**Source: 1211978-17**			Prepared: 10/26/12	Analyzed: 10/29/12				
Total Kjeldahl Nitrogen	5.42	0.20	0.05	mg/L	2.5	2.72	107	90-110	2	20
Matrix Spike Dup (BJ22604-MSD2)		**Source: 1211979-03**			Prepared: 10/26/12	Analyzed: 10/29/12				
Total Kjeldahl Nitrogen	7.61	0.20	0.05	mg/L	2.5	5.08	100	90-110	3	20
Batch BJ22605 - Digestion for TKN by EPA 351.2										
Blank (BJ22605-BLK1)					Prepared: 10/26/12	Analyzed: 10/29/12				
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
LCS (BJ22605-BS1)					Prepared: 10/26/12	Analyzed: 10/29/12				
Total Kjeldahl Nitrogen	2.39	0.20	0.05	mg/L	2.5		94	90-110		
Matrix Spike (BJ22605-MS1)		**Source: 1211978-15**			Prepared: 10/26/12	Analyzed: 10/29/12				
Total Kjeldahl Nitrogen	4.73	0.20	0.05	mg/L	2.5	2.29	97	90-110		
Matrix Spike Dup (BJ22605-MSD1)		**Source: 1211978-15**			Prepared: 10/26/12	Analyzed: 10/29/12				
Total Kjeldahl Nitrogen	4.98	0.20	0.05	mg/L	2.5	2.29	106	90-110	5	20

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

November 2, 2012
Work Order: 1211978

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22910 - Ammonia by SEAL										
Blank (BJ22910-BLK1)					Prepared & Analyzed: 10/29/12					
Ammonia as N	0.009 U	0.040	0.009	mg/L						
LCS (BJ22910-BS1)					Prepared & Analyzed: 10/29/12					
Ammonia as N	0.49	0.040	0.009	mg/L	0.50		98	90-110		
Matrix Spike (BJ22910-MS1)		**Source: 1211976-17**			Prepared & Analyzed: 10/29/12					
Ammonia as N	0.54	0.040	0.009	mg/L	0.50	0.043	99	90-110		
Matrix Spike (BJ22910-MS2)		**Source: 1212352-01**			Prepared & Analyzed: 10/29/12					
Ammonia as N	1.1	0.040	0.009	mg/L	0.50	0.56	105	90-110		
Matrix Spike Dup (BJ22910-MSD1)		**Source: 1211976-17**			Prepared & Analyzed: 10/29/12					
Ammonia as N	0.53	0.040	0.009	mg/L	0.50	0.043	97	90-110	1	10
Matrix Spike Dup (BJ22910-MSD2)		**Source: 1212352-01**			Prepared & Analyzed: 10/29/12					
Ammonia as N	1.1	0.040	0.009	mg/L	0.50	0.56	108	90-110	1	10

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

November 2, 2012
Work Order: 1211978

Inorganic, Dissolved - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21636 - DOC prep										
Blank (BJ21636-BLK1)					Prepared & Analyzed: 10/17/12					
Dissolved Organic Carbon	0.50 U	1.0	0.50	mg/L						
LCS (BJ21636-BS1)					Prepared & Analyzed: 10/17/12					
Dissolved Organic Carbon	9.22	1.0	0.50	mg/L	10		92	90-110		
Matrix Spike (BJ21636-MS1)		**Source: 1211987-03**			Prepared & Analyzed: 10/17/12					
Dissolved Organic Carbon	9.36	1.0	0.50	mg/L	10	ND	94	85-125		
Matrix Spike Dup (BJ21636-MSD1)		**Source: 1211987-03**			Prepared & Analyzed: 10/17/12					
Dissolved Organic Carbon	8.61	1.0	0.50	mg/L	10	ND	86	85-125	8	25

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

November 2, 2012
Work Order: 1211978

Metals - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21824 - Metals Preparation for EPA Method 200.7										
Blank (BJ21824-BLK1)					Prepared: 10/18/12 Analyzed: 10/19/12					
Iron	0.020 U	0.10	0.020	mg/L						
Calcium	0.042 U	0.50	0.042	mg/L						
Potassium	0.010 U	0.050	0.010	mg/L						
Magnesium	0.020 U	0.50	0.020	mg/L						
Sodium	0.33 I	0.50	0.13	mg/L						
Boron	0.050 U	0.10	0.050	mg/L						
Manganese	0.0010 U	0.010	0.0010	mg/L						
LCS (BJ21824-BS1)					Prepared: 10/18/12 Analyzed: 10/19/12					
Boron	0.40	0.10	0.050	mg/L	0.40		99	85-115		
Magnesium	21	0.50	0.020	mg/L	20		103	85-115		
Sodium	21	0.50	0.13	mg/L	20		106	85-115		
Manganese	0.41	0.010	0.0010	mg/L	0.40		103	85-115		
Calcium	21	0.50	0.042	mg/L	20		104	85-115		
Iron	8.5	0.10	0.020	mg/L	8.0		107	85-115		
Potassium	20	0.050	0.010	mg/L	20		100	85-115		
Matrix Spike (BJ21824-MS1)		**Source: 1211971-02**			Prepared: 10/18/12 Analyzed: 10/19/12					
Boron	0.54	0.10	0.050	mg/L	0.40	0.065	119	70-130		
Calcium	35	0.50	0.042	mg/L	20	14	102	70-130		
Sodium	31	0.50	0.13	mg/L	20	11	100	70-130		
Potassium	24	0.050	0.010	mg/L	20	4.0	98	70-130		
Iron	8.6	0.10	0.020	mg/L	8.0	0.049	107	70-130		
Manganese	0.44	0.010	0.0010	mg/L	0.40	0.025	104	70-130		
Magnesium	24	0.50	0.020	mg/L	20	3.4	102	70-130		
Matrix Spike (BJ21824-MS2)		**Source: 1211971-06**			Prepared: 10/18/12 Analyzed: 10/19/12					
Boron	0.65	0.10	0.050	mg/L	0.40	0.18	118	70-130		
Manganese	0.42	0.010	0.0010	mg/L	0.40	0.012	101	70-130		
Magnesium	29	0.50	0.020	mg/L	20	8.3	101	70-130		
Potassium	27	0.050	0.010	mg/L	20	8.4	94	70-130		
Calcium	46	0.50	0.042	mg/L	20	26	99	70-130		
Sodium	57	0.50	0.13	mg/L	20	37	98	70-130		
Iron	8.4	0.10	0.020	mg/L	8.0	0.036	105	70-130		

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

November 2, 2012
Work Order: 1211978

Metals - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21824 - Metals Preparation for EPA Method 200.7										
Matrix Spike Dup (BJ21824-MSD1)		**Source: 1211971-02**			Prepared: 10/18/12 Analyzed: 10/19/12					
Magnesium	24	0.50	0.020	mg/L	20	3.4	103	70-130	0.8	30
Calcium	35	0.50	0.042	mg/L	20	14	103	70-130	0.3	30
Boron	0.54	0.10	0.050	mg/L	0.40	0.065	119	70-130	0.5	30
Potassium	24	0.050	0.010	mg/L	20	4.0	98	70-130	0.4	30
Manganese	0.44	0.010	0.0010	mg/L	0.40	0.025	103	70-130	0.4	30
Sodium	32	0.50	0.13	mg/L	20	11	103	70-130	2	30
Iron	8.7	0.10	0.020	mg/L	8.0	0.049	108	70-130	1	30
Matrix Spike Dup (BJ21824-MSD2)		**Source: 1211971-06**			Prepared: 10/18/12 Analyzed: 10/19/12					
Magnesium	28	0.50	0.020	mg/L	20	8.3	101	70-130	0.2	30
Potassium	28	0.050	0.010	mg/L	20	8.4	96	70-130	2	30
Calcium	46	0.50	0.042	mg/L	20	26	98	70-130	0.5	30
Iron	8.5	0.10	0.020	mg/L	8.0	0.036	105	70-130	0.7	30
Sodium	58	0.50	0.13	mg/L	20	37	103	70-130	2	30
Boron	0.68	0.10	0.050	mg/L	0.40	0.18	126	70-130	5	30
Manganese	0.42	0.010	0.0010	mg/L	0.40	0.012	101	70-130	0.09	30
Batch BJ21825 - Metals Preparation for EPA Method 200.7										
Blank (BJ21825-BLK1)					Prepared: 10/22/12 Analyzed: 10/24/12					
Iron	0.020 U	0.10	0.020	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						
Potassium	0.010 U	0.050	0.010	mg/L						
Calcium	0.042 U	0.50	0.042	mg/L						
Boron	0.050 U	0.10	0.050	mg/L						

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

November 2, 2012
Work Order: 1211978

Metals - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21825 - Metals Preparation for EPA Method 200.7										
LCS (BJ21825-BS1)					Prepared: 10/22/12 Analyzed: 10/23/12					
Iron	9.1	0.10	0.020	mg/L	8.0		114	85-115		
Manganese	0.41	0.010	0.0010	mg/L	0.40		104	85-115		
Sodium	22	0.50	0.13	mg/L	20		110	85-115		
Boron	0.43	0.10	0.050	mg/L	0.40		107	85-115		
Calcium	20	0.50	0.042	mg/L	20		101	85-115		
Magnesium	20	0.50	0.020	mg/L	20		101	85-115		
Potassium	20	0.050	0.010	mg/L	20		102	85-115		
Matrix Spike (BJ21825-MS1)		**Source: 1212109-07**			Prepared: 10/22/12 Analyzed: 10/23/12					
Magnesium	27	0.50	0.020	mg/L	20	7.5	96	70-130		
Calcium	56	0.50	0.042	mg/L	20	37	94	70-130		
Sodium	290	0.50	0.13	mg/L	20	270	91	70-130		
Manganese	0.41	0.010	0.0010	mg/L	0.40	0.0075	101	70-130		
Potassium	99	0.050	0.010	mg/L	20	80	97	70-130		
Iron	8.2	0.10	0.020	mg/L	8.0	0.053	102	70-130		
Boron	0.48	0.10	0.050	mg/L	0.40	ND	121	70-130		
Matrix Spike (BJ21825-MS2)		**Source: 1212214-01**			Prepared: 10/22/12 Analyzed: 10/23/12					
Iron	8.8	0.10	0.020	mg/L	8.0	0.037	109	70-130		
Potassium	42	0.050	0.010	mg/L	20	20	108	70-130		
Sodium	530	5.0	1.3	mg/L	20	360	890	70-130		
Calcium	95	0.50	0.042	mg/L	20	72	114	70-130		
Boron	0.74	0.10	0.050	mg/L	0.40	0.27	117	70-130		
Magnesium	57	0.50	0.020	mg/L	20	35	110	70-130		
Manganese	0.42	0.010	0.0010	mg/L	0.40	0.0016	106	70-130		
Matrix Spike Dup (BJ21825-MSD1)		**Source: 1212109-07**			Prepared: 10/22/12 Analyzed: 10/23/12					
Boron	0.48	0.10	0.050	mg/L	0.40	ND	121	70-130	0.1	30
Iron	8.3	0.10	0.020	mg/L	8.0	0.053	103	70-130	0.9	30
Sodium	300	0.50	0.13	mg/L	20	270	143	70-130	3	30
Calcium	57	0.50	0.042	mg/L	20	37	100	70-130	2	30
Potassium	110	0.050	0.010	mg/L	20	80	139	70-130	8	30
Manganese	0.41	0.010	0.0010	mg/L	0.40	0.0075	101	70-130	0.01	30
Magnesium	27	0.50	0.020	mg/L	20	7.5	98	70-130	2	30

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

November 2, 2012
Work Order: 1211978

Metals - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21825 - Metals Preparation for EPA Method 200.7										
Matrix Spike Dup (BJ21825-MSD2)		**Source: 1212214-01**			Prepared: 10/22/12 Analyzed: 10/23/12					
Magnesium	56	0.50	0.020	mg/L	20	35	104	70-130	2	30
Calcium	93	0.50	0.042	mg/L	20	72	104	70-130	2	30
Manganese	0.42	0.010	0.0010	mg/L	0.40	0.0016	104	70-130	2	30
Potassium	41	0.050	0.010	mg/L	20	20	104	70-130	2	30
Boron	0.73	0.10	0.050	mg/L	0.40	0.27	114	70-130	2	30
Iron	8.6	0.10	0.020	mg/L	8.0	0.037	107	70-130	2	30
Sodium	520	5.0	1.3	mg/L	20	360	820	70-130	3	30

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

November 2, 2012
Work Order: 1211978

* 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.

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

Questions regarding this report should be directed to :

Kathryn Nordmark
Telephone (813) 855-1844 FAX (813) 855-2218
Kathryn@southernanalyticallabs.com

or to Client Services (clientservices@southernanalyticallabs.com).

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

1211978

Client Name	Contact / Phone:
Hazen and Sawyer	
Project Name / Location: S&GW Test Facility SE #3 (TA4)	
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	250mL P, H_2SO_4 TKN, NH_4	1LP, Cool NOx, Cl	250mL P, H_2SO_4 TKN, NH_4, COD, TP	1LP, Cool NOx, Cl, Alkalinity	1LP, Cool NOx, Cl, Alkalinity, F, OP, SO_4	250mLaG, Cool DOC	40mLaV, HCl TOC	250mL P, HNO_3 B, Ca, Fe, Mg, Mn, K, Na					Field pH	Field Temperature	Field Conductivity	Field DO
01	TA4-PAN-12-N not sampled			GW		X	1	1														
02	TA4-LY-24-C	10/5/12	0935	GW		X			1	1									6.4	26.2	461	4.7
03	TA4-LY-12-S w 10/15/12		0950	GW		X			1		1	1		1					6.8	26.6	364	7.6
04	~~TA4-LY-12-S-DUP~~ TA2-LY-42-S-DUP		~~0955~~ 1245	GW		X			1		1	1		1								
05	TA4-LY-24-S		1005	GW		X	1	1											6.4	26.4	527	6.6
06	TA4-LY-42-S		1020	GW		X	1	1											6.1	26.9	617	5.7
07	TA4-PZ-11-EF2		1200	GW		X			1	1									3.90	27.2	188.5	1.42
08	TA4-PZ-10-H5		1233	GW		X			1	1									3.97	27.4	178.6	1.21
09	TA4-PZ-10-J5		1418	GW		X			1	1									3.96	27.6	283.9	2.16
10	TA4-PZ-10-K5		1414	GW		X			1		1	1	2	1					4.3	27.4	334.2	1.25
11	TA4-PZ-11-L2		1224	GW		X			1		1	1	2	1					4.5	27.2	266.7	0.92
12	TA4-PZ-11-L3		1240	GW		X			1	1									4.4	27.5	286.8	0.92

Containers Prepared/ Relinquished:	Date/Time:	Received:	Date/Time:
D. Chamberlain	10-12-12 10:30		1030 10/2/12
Relinquished:	Date/Time: 1540 10/15/12	Received: K Nudmenk	Date/Time: 10/15/12 1540
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

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

Instructions / Remarks:

1211978

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

1211978

Client Name	Contact / Phone:
Hazen and Sawyer	
Project Name / Location: S&GW Test Facility SE #3 (TA4)	
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	250mL P, H_2SO_4 TKN, NH_4	1LP, Cool NOx, Cl	250mL P, H_2SO_4 TKN, NH_4, COD, TP	1LP, Cool NOx, Cl, Alkalinity	1LP, Cool NOx, Cl, Alkalinity, F, OP, SO_4	250mLaG, Cool DOC	40mLaV, HCl TOC	250mL P, HNO_3 B, Ca, Fe, Mg, Mn, K, Na					Field pH	Field Temperature	Field Conductivity	Field DO
13	TA4-PZ-11-L4	10/5/12	1330	GW		X			1		1	1	2	1					9.4	27.4	337.6	1.57
14	TA4-PZ-11-L5		1346	GW		X			1	1									9.3	27.1	340.8	0.94
15	TA4-PZ-11-L6		1401	GW		X			1	1									9.3	27.1	330.6	0.70
16	TA4-PZ-09-M4		1300	GW		X			1	1									6.3	27.3	518	0.65
17	TA4-PZ-16-M4		1316	GW		X	1	1											5.2	26.7	225.7	0.13
18	TA4-PZ-09-N7		1056	GW		X			1	1									5.2	27.4	259.1	1.93
19	TA4-PZ-16-N7		1114	GW		X	1	1											5.1	26.7	271.0	0.12
20	TA4-PZ-09-I7		1302	GW		X	1	1											4.95	27.9	257.2	0.99
21	TA4-PZ-16-I7		1342	GW		X	1	1											4.68	26.6	213.9	0.18
22	TA4-PZ-09-L8		1147	GW		X	1	1											6.2	27.2	294.4	0.45
23	TA4-PZ-16-L8		1205	GW		X	1	1											5.1	26.6	271.7	0.18
24	TA4-PZ-09-TU14		1019	GW		X	1	1											4.6	27.0	197.0	0.69

Relinquished:	Date/Time:	Received:	Date/Time:
Containers Prepared/ Relinquished: J. Chambers	10-12-12 11:00		1100 10/12/12
Relinquished:	1540 10/15/12	Received: K Mudmeck	1540 10/15/12
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

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

Instructions / Remarks:

1211978

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

1211978

Client Name: Hazen and Sawyer	Contact / Phone:
Project Name / Location: S&GW Test Facility SE #3 (TA4)	
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	250mL P, H_2SO_4 TKN, NH_4	1LP, Cool NOx, Cl	250mL P, H_2SO_4 TKN, NH_4, COD, TP	1LP, Cool NOx, Cl, Alkalinity	1LP, Cool NOx, Cl, Alkalinity, F, OP, SO_4	250mLaG, Cool DOC	40mLaV, HCl TOC	250mL P, HNO_3 B, Ca, Fe, Mg, Mn, K, Na					Field pH	Field Temperature	Field Conductivity	Field DO
25	TA4-PZ-15-TU14	10/5/12	1033	GW		X	1	1											5.1	26.6	205.8	0.19
26	TA4-PZ-09-TU16		0940	GW		X	1	1											5.3	27.0	189.8	0.63
27	TA4-PZ-16-TU16		0959	GW		X	1	1											5.2	26.4	241.9	0.18

Containers Prepared/ Relinquished:	Date/Time:	Received:	Date/Time:
J. Chambers	10-12-12 11:00		1100 10/12/12
Relinquished:	Date/Time: 1540 10/15/12	Received: K Mudmerch	Date/Time: 10/15/12 1540
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

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

Instructions / Remarks:

1211978

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	10/15/12 9:35am	SAL Project #	1211978	Project Name	S&GW Test Facility SE #3
Well Number	TA4-LY-24-C	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		1/4 WELL VOLUME		3 WELL VOLUMES		5 WELL VOLUMES	

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

PUMP VOLUME		TUBING LEGNTH	.	FLOW CELL VOLUME		EQUIPMENT VOLUME	

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

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
9:35am	1200mL	10kPa			6.4	26.2	461	4.7		none	none

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	HJS			SAMPLER(S) SIGNATURES:	Joseph H		
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-VOCS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?	Y N N/A	LIST PRESERVATIVES ADDED					
WEATHER CONDITIONS	Clear Sunny						
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

Revised By: 09/25/09 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	10/15/12 9:50am	SAL Project #	1211978	Project Name	S&GW Test Facility SE #3
Well Number	TA4-LY-12-S	Sample ID	03	GPS LAT	
				GPS LONG	

PURGING DATA

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

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

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

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

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

PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME		EQUIPMENT VOLUME	

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

INST. ID					SAL-SAM-63-_____	SAL-SAM-65-_____	SAL-SAM-63-_____	SAL-SAM-55-__	SAL-SAM-0_____		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
9:50am	600 mL				6.8	26.6	364.4	7.6		clear	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)	HOS			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-VOCS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?	Y N N/A	LIST PRESERVATIVES ADDED					
WEATHER CONDITIONS	clear sunny 70s						
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

Revised Date: 09/25/09 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	10/15/12 12:45pm	SAL Project #	1211978	Project Name	S&GW Test Facility SE #3
Well Number	~~TA3-LY-12-3-DUP~~	Sample ID	04	GPS LAT	
				GPS LONG	

TA2-LY-42-5-DUP

PURGING DATA

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

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

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

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

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

PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME		EQUIPMENT VOLUME	

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

INST. ID					SAL-SAM-63-_____	SAL-SAM-65-_____	SAL-SAM-63-_____	SAL-SAM-55-__	SAL-SAM-0_____		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
12:45pm	2000mL	15kPa			5.7	28.5	433	4.5		clear	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)		HJS				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-VOCS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?		Y N N/A	LIST PRESERVATIVES ADDED						
WEATHER CONDITIONS		Clear sunny 80s							
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

Revised Date: 09/25/09		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	10/15/12 10:05am	SAL Project #	1211978	Project Name	S&GW Test Facility SE #3
Well Number	TA4-LY-24-S	Sample ID	05	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)		WELL CAPACITY (gal/ft)		Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)		REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)	TUBING CAPACITY (gal/ft)	
Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)									
WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =									
ONE WELL VOLUME			1/4 WELL VOLUME		3 WELL VOLUMES			5 WELL VOLUMES	
EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME									
PUMP VOLUME			TUBING LEGNTH		FLOW CELL VOLUME			EQUIPMENT VOLUME	
INITIAL TUBING LEGNTH IN WELL (FEET)			FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START		PURGE TIME END	TOTAL PURGED	
INST. ID					SAL-SAM-63-_____	SAL-SAM - 65-_____	SAL-SAM-63-_____	SAL-SAM-55-__	SAL-SAM-0_____
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)
10:05am	~1250ml				6.4	26.4	527	6.6	

										COLOR (Describe)	ODOR (Describe)
										clear	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)		H&S				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-VOCS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?		Y N N/A	LIST PRESERVATIVES ADDED						
WEATHER CONDITIONS		clear sunny 70s							
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: 09/25/09 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	10/15/12 10:20am	SAL Project #	1211978	Project Name	S&GW Test Facility SE #3
Well Number	TA4-LY-42-S	Sample ID	06	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)		WELL CAPACITY (gal/ft)		Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)		PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)		REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	
Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)										
WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =										
ONE WELL VOLUME			1/4 WELL VOLUME		3 WELL VOLUMES			5 WELL VOLUMES		
EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME										
PUMP VOLUME			TUBING LEGNTH		FLOW CELL VOLUME			EQUIPMENT VOLUME		
INITIAL TUBING LEGNTH IN WELL (FEET)			FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START		PURGE TIME END		TOTAL PURGED	
INST. ID					SAL-SAM-63-_____	SAL-SAM - 65-_____	SAL-SAM-63-_____	SAL-SAM-55-__	SAL-SAM-0_____	
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
10:20am					6.1	26.9	617	5.7		Clear	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)		H&S			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-VOCS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?		Y N N/A	LIST PRESERVATIVES ADDED						
WEATHER CONDITIONS		Clear sunny 70s							
COMMENTS									

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

TUBING MATERIAL CODES: PP= Polypropylene, P[illegible] = Non-inert Plastic, TL= Teflon Lined, TT= Teflon

Revised Date: 09/25/09 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	10/5/12	SAL Project #	1211978	Project Name	S&GW Test Facility SE #3
Well Number	TA4-PZ-11-EF2	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)	7.75	PURGE PUMP CODE (PP) GP IBP
TOTAL WELL DEPTH (Feet)	14.81	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	0.2824	1/4 WELL VOLUME		3 WELL VOLUMES	0.8472	5 WELL VOLUMES		

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

PUMP VOLUME	.10	TUBING LEGNTH		FLOW CELL VOLUME		EQUIPMENT VOLUME		

INITIAL TUBING LEGNTH IN WELL (FEET)	9'	FINAL TUBING LEGNTH IN WELL (FEET)	10'	PURGE TIME START	1140	PURGE TIME END		TOTAL PURGED	
INST. ID				SAL-SAM-63-01	SAL-SAM-65-01	SAL-SAM-63-01	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)
1143	.30	.30	.10	7.75	4.14	27.6	182.7	3.43	157	Cloudy brown	
1146	.30	.60	.10		4.00	27.3	184.3	3.05	59.9		
1149	.30	.90	.10		3.94	27.2	184.6	2.55	28.8	clear	
1152	.30	1.20	.10		3.93	27.3	185.9	1.66	20.2		
1155	.30	1.50	.10		3.90	27.2	188.3	1.42	14.9	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:	IG		
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)	.1	
SAMPLING INITIATED	1200	SAMPLING ENDED	1205	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	Partly Cloudy NE 5-10								
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	10/15/12	SAL Project #	1211978	Project Name	S&GW Test Facility SE #3
Well Number	TA4-PZ-10-H5	Sample ID	08	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1"	WELL CAPACITY (gal/ft)	.04	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	7.76	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	0.2824	1/4 WELL VOLUME		3 WELL VOLUMES	.8472	5 WELL VOLUMES	

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

PUMP VOLUME	.10	TUBING LEGNTH		FLOW CELL VOLUME		EQUIPMENT VOLUME	

INITIAL TUBING LEGNTH IN WELL (FEET)	9'	FINAL TUBING LEGNTH IN WELL (FEET)	12'	PURGE TIME START	1220	PURGE TIME END	1232	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)
1223	.30	.30	.10	7.76	4.03	27.7	172.3	2.13	34.9	Cloudy brown	
1226	.30	.60	.10		3.99	27.4	176.8	1.65	29.8		
1229	.30	.90	.10		3.98	27.3	178.2	1.45	15.0	clear	
1232	.30	1.20	.10		3.97	27.4	178.6	1.21	10.8	clear	
1235	.30	1.50	.10								

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:	IG J. [illegible]		
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)	.1	
SAMPLING INITIATED	1233	SAMPLING ENDED	1236	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	Partly Cloudy NE 5-10								
COMMENTS									

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

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

Reviewed By: Date:

Revision Date 09/25/09

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled		SAL Project #	1211978	Project Name	S&GW Test Facility SE #3
Well Number	TA4-PZ-10-J5	Sample ID	09	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1"	WELL CAPACITY (gal/ft)	.04	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	7.80	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	.2800	1/4 WELL VOLUME		3 WELL VOLUMES	.8400	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	1402	PURGE TIME END	1417	TOTAL PURGED	1.50

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
INST. ID					SAL-SAM-63-01	SAL-SAM-65-01	SAL-SAM-63-01	SAL-SAM-55-02	SAL-SAM-03		
1405	.3	.3	.10	7.80	4.06	27.7	312.5	3.01	86.4	Cloudy white	
1408	.3	.6	.10		4.01	27.6	307.2	2.77	72.3		
1411	.3	.9	.10		4.00	27.6	302.9	2.55	13.7	clear	
1414	.3	1.2	.10		3.99	27.6	298.0	2.28	11.3		
1417	.3	1.5	.10		3.96	27.6	283.9	2.16	6.18		

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAV					SAMPLER(S) SIGNATURES:	J. Hell - IG		
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	1418	SAMPLING ENDED	1419	FIELD CLEANED	Y N	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Sunny N 5 88°F								
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	101512	SAL Project #	1211978	Project Name	S&GW Test Facility SE #3
Well Number	TA4-~~PANW2-N~~ PZ-10-K5		10	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)	7.82	PURGE PUMP CODE (PP) GP IBP
TOTAL WELL DEPTH (Feet)	14.75	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	0.277	1/4 WELL VOLUME		3 WELL VOLUMES	0.831	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	1413	TOTAL PURGED	0.90
INST. ID	X	X	X	X	SAL-SAM-63-08	SAL-SAM-65-08	SAL-SAM-63-08	SAL-SAM-55-08	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	7.96	4.4	27.4	335.7	2.12	58.2	CLOUDY	NONE
1410	0.30	0.60	|	|	4.3	27.4	334.7	1.37	55.9	|	
1413	0.30	0.90	|	|	4.3	27.4	334.2	1.25	54.7	|	

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	1414	SAMPLING ENDED	1415	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-VOCS 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, [illegible] IP= Non-inert Plastic, TL= Teflon Lined, TT= Teflon

Revised Date: 09/25/09 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	101512	SAL Project #	1211978	Project Name	S&GW Test Facility SE #3
Well Number	TA4-PZ-11-L2		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)	7.82	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	14.72	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	0.276	1/4 WELL VOLUME		3 WELL VOLUMES	0.828	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	1214	PURGE TIME END	1223	TOTAL PURGED	0.90
INST. ID				SAL-SAM-63-08	SAL-SAM-65-08	SAL-SAM-63-08	SAL-SAM-55-08	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)
1217	0.30	0.30	0.10	14.88	5.0	27.4	256.5	1.28	11.8	CLEAR	NONE
1220	0.30	0.60	/	/	4.9	27.4	265.1	1.12	9.37	/	/
1223	0.30	0.90	/	/	4.8	27.2	266.7	0.92	8.27	/	/

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	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	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:

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	101512	SAL Project #	1211978	Project Name	S&GW Test Facility SE #3
Well Number	TA4-PZ-11-L3		12	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)	7.85	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	14.70	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	0.274	1/4 WELL VOLUME		3 WELL VOLUMES	0.822		5 WELL VOLUMES			
EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME										
PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME			EQUIPMENT VOLUME			
INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START	1230	PURGE TIME END	1239	TOTAL PURGED	0.90	
INST. ID	X	X	X	X	SAL-SAM-63-08	SAL-SAM-65-08	SAL-SAM-63-08	SAL-SAM-55-08	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)
1233	0.30	0.30	0.10	7.96	4.5	27.7	298.8	1.87	19.2	CLEAR	NONE
1236	0.30	0.60	|	|	4.4	27.5	290.8	1.14	19.0	|	|
1239	0.30	0.90	|	|	4.4	27.5	286.8	0.92	18.7	|	|

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	1240	SAMPLING ENDED	1241	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	101512	SAL Project #	1211978	Project Name	S&GW Test Facility SE #3
Well Number	TA4-PZ-11-L4		13	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)	7.84	PURGE PUMP CODE (PP) GP IBP
TOTAL WELL DEPTH (Feet)	14.70	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	0.274	1/4 WELL VOLUME		3 WELL VOLUMES	0.823	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	1320	PURGE TIME END	1329	TOTAL PURGED	0.90

INST. ID					SAL-SAM-63-08	SAL-SAM-65-08	SAL-SAM-63-08	SAL-SAM-55-08	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)
1323	0.30	0.30	0.10	7.92	4.6	27.6	330.8	2.02	12.4	CLEAR	NONE
1326	0.30	0.60	|	|	4.5	27.6	335.2	1.68	9.87	|	
1329	0.30	0.90	|	|	4.4	27.4	337.6	1.57	8.50	|	

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL					SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP (TL) TT			SAMPLE TUBING LEGNTH IN WELL (FEET)				SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED	1330	SAMPLING ENDED	1331	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	101512	SAL Project #	1211978	Project Name	S&GW Test Facility SE #3
Well Number	TA4-PZ-11-L5		14	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)	7.84	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	14.75	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	0.276	1/4 WELL VOLUME		3 WELL VOLUMES	0.829	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	1336	PURGE TIME END	1345	TOTAL PURGED	0.90	
INST. ID				SAL-SAM-63-08	SAL-SAM-65-08	SAL-SAM-63-08	SAL-SAM-55-08	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)
1339	0.30	0.30	0.10	7.94	4.3	27.3	333.6	1.32	24.8	CLEAR	NONE
1342	0.30	0.60			4.3	27.2	337.4	0.96	24.0		
1345	0.30	0.90			4.3	27.1	340.1	0.94	23.5		

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	1346	SAMPLING ENDED	1347	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	101512	SAL Project #	1211978	Project Name	S&GW Test Facility SE #3
Well Number	TA4-PZ-11-L6		15	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)	7.80	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	14.75	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	0.278	1/4 WELL VOLUME		3 WELL VOLUMES	0.834	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	X	X	X	X	SAL-SAM-63-08	SAL-SAM-65-08	SAL-SAM-63-08	SAL-SAM-55-08	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	7.96	4.3	27.1	334.6	0.92	24.8	CLEAR	NONE
1357	0.30	0.60	|	|	4.3	27.1	331.3	0.75	24.2	|	|
1400	0.30	0.90	|	|	4.3	27.1	330.6	0.70	22.2	|	|

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	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, 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	10/5/12	SAL Project #	1211978	Project Name	S&GW Test Facility SE #3
Well Number	TA4-PZ-09-M4		16	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)	4.23	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	9.85	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)				TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	

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

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

ONE WELL VOLUME	0.224	1/4 WELL VOLUME		3 WELL VOLUMES	0.674	5 WELL VOLUMES			

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

PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME			EQUIPMENT VOLUME		
INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START	1247	PURGE TIME END	1259	TOTAL PURGED	1.50

INST. ID					SAL-SAM-63-08	SAL-SAM-65-08	SAL-SAM-63-08	SAL-SAM-55-08	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)
1247	0.30	0.30	0.10	4.54	5.5	28.4	570	1.55	MAX	BROWN	NONE
1250	0.30	0.60		4.72	5.7	28.4	570	1.41			
1253	0.30	0.90			6.3	27.5	564	0.70	174	CLOUDY	
1256	0.30	1.20			6.3	27.5	556	0.69	82.4		
1259	0.30	1.50			6.3	27.3	518	0.65	23.9		

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	1300	SAMPLING ENDED	1301	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	101512	SAL Project #	1211978	Project Name	S&GW Test Facility SE #3
Well Number	TA4-PZ-16-M4		17	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)	4.92	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	17.25	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	0.493	1/4 WELL VOLUME	0.123	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	1304	PURGE TIME END	1315	TOTAL PURGED	1.10	
INST. ID				SAL-SAM-63-08	SAL-SAM-65-08	SAL-SAM-63-08	SAL-SAM-55-08	SAL-SAM-01		

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
1309	0.50	0.50	0.10	5.04	5.2	26.7	229.8	0.18	6.04	CLEAR	NONE
1312	0.30	0.80	/	/	5.2	26.7	227.7	0.13	3.67	/	/
1315	0.30	1.10	/	/	5.2	26.7	225.7	0.13	3.09	/	/

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL				SAMPLER(S) SIGNATURES:				
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	1316	SAMPLING ENDED	1317	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	101512	SAL Project #	1211978	Project Name	S&GW Test Facility SE #3
Well Number	TA4-PZ-09-N7		18	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)	4.23	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	9.85	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)				TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	

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

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

ONE WELL VOLUME	0.224	1/4 WELL VOLUME		3 WELL VOLUMES	0.674	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	1040	PURGE TIME END	1055	TOTAL PURGED	1.50

INST. ID					SAL-SAM-63-08	SAL-SAM-65-08	SAL-SAM-63-08	SAL-SAM-55-08	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)
1043	0.30	0.30	0.10	4.52	5.2	27.5	239.0	2.46	MAX	BROWN	NONE
1046	0.30	0.60			5.1	27.3	252.5	2.40			
1049	0.30	0.90			5.2	27.4	261.3	2.38		CLOUDY	
1052	0.30	1.20			5.2	27.4	261.4	2.24			
1055	0.30	1.50			5.2	27.4	259.1	1.93	584		

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	1056	SAMPLING ENDED	1057	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	101512	SAL Project #	1211978	Project Name	S&GW Test Facility SE #3
Well Number	TA4-PZ-16-N7		19	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)	4.20	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	17.25	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	0.522	1/4 WELL VOLUME	0.130	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	1058	PURGE TIME END	1113	TOTAL PURGED	3.00

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
INST. ID	X	X	X	X	SAL-SAM-63-08	SAL-SAM-65-08	SAL-SAM-63-08	SAL-SAM-55-08	SAL-SAM-01	X	X
1101	0.60	0.60	0.20	4.34	5.2	27.1	223.9	0.60	MAX	BROWN	NONE
1104	0.60	1.20			5.1	26.8	220.1	0.19	853		
1107	0.60	1.80			5.1	26.8	220.2	0.18	254	CLOUDY	
1110	0.60	2.40			5.1	26.8	220.3	0.18	140		
1113	0.60	3.00			5.1	26.7	221.0	0.12	32.9		

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	1114	SAMPLING ENDED	1115	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	10/15/12	SAL Project #	1211978	Project Name	S&GW Test Facility SE #3
Well Number	TA4-PZ-09-I7		20	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1"	WELL CAPACITY (gal/ft)	.04	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	4.13	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	9.9	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	

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

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

ONE WELL VOLUME	.2308	1/4 WELL VOLUME		3 WELL VOLUMES	.6924	5 WELL VOLUMES			

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

PUMP VOLUME	.10	TUBING LEGNTH		FLOW CELL VOLUME		EQUIPMENT VOLUME			
INITIAL TUBING LEGNTH IN WELL (FEET)	5'	FINAL TUBING LEGNTH IN WELL (FEET)	9'	PURGE TIME START	1245	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)
1248	.30	.30	.10	4.13	4.91	28.6	251.9	1.88	398	White	
1251	.30	.60	.10		4.95	28.4	250.8	1.67	323		
1254	.30	.90	.10		4.95	28.2	244.7	1.35	86.5	Cloudy	
1257	.30	1.20	.10		4.95	28.0	241.1	1.11	28.4		
1300	.30	1.50	.10		4.95	27.9	237.2	.99	16.4	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:	IG J. Hill		
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)	.10	
SAMPLING INITIATED	1302	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	Partly Cloudy NE 5 86°F								
COMMENTS									

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

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

Reviewed By: Date:

Revision Date 09/25/09

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled		SAL Project #	1211978	Project Name	S&GW Test Facility SE #3
Well Number	TA4-PZ-16-I7		21	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1"	WELL CAPACITY (gal/ft)	.04	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	4.56	PURGE PUMP CODE: PP GP IBP
TOTAL WELL DEPTH (Feet)	17.32	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	.5104	1/4 WELL VOLUME		3 WELL VOLUMES	1.5312	5 WELL VOLUMES	

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

PUMP VOLUME	.1	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)
1320	.5	.5	.1-.15	4.56	4.76	27.3	216.3	.35	159	Cloudy white	
1325	.5	1.0			4.72	27.0	214.8	.22	182		
1330	.5	1.5			4.70	26.7	214.1	.19	184	Cloudy white	
1335	.5	2.0			4.69	26.7	214.0	.19	105		
1340	.5	2.5			4.68	26.6	213.9	.18	61.3	Cloudy White	

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:	IG J. Hall		
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)	.1	
SAMPLING INITIATED	1342	SAMPLING ENDED	1345	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	Partly Sunny								
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	101512	SAL Project #	1211978	Project Name	S&GW Test Facility SE #3
Well Number	TA4-PZ-09-L8		22	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)	4.00	PURGE PUMP CODE (PP) GP IBP
TOTAL WELL DEPTH (Feet)	9.85	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)

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

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

ONE WELL VOLUME	0.234	1/4 WELL VOLUME		3 WELL VOLUMES	0.702	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	1131	PURGE TIME END	1146	TOTAL PURGED	1.50
INST. ID	X	X	X	X	SAL-SAM-63-08	SAL-SAM-65-08	SAL-SAM-63-08	SAL-SAM-55-08	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)
1134	0.30	0.30	0.10	4.12	5.7	27.5	304.4	1.13	MAX	CLOUDY	NONE
1137	0.30	0.60			6.1	27.3	308.2	0.57	24.6		
1140	0.30	0.90			6.2	27.2	304.4	0.47	51.7		
1143	0.30	1.20			6.2	27.2	301.7	0.47	27.2		
1146	0.30	1.50			6.2	27.2	294.4	0.45	20.2		

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	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	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:

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	101512	SAL Project #	1211978	Project Name	S&GW Test Facility SE #3
Well Number	TA4-PZ-16-L8		23	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)	4.30	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	17.25	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	0.518	1/4 WELL VOLUME	0.1295	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	1149	PURGE TIME END	1204	TOTAL PURGED	3.00	
INST. ID	X	X	X	X	SAL-SAM-63-08	SAL-SAM-65-08	SAL-SAM-63-08	SAL-SAM-55-08	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)
1152	0.60	0.60	0.20	4.39	6.1	27.3	235.8	1.56	545	CLOUDY	NONE
1155	0.60	1.20			5.4	26.7	220.9	0.27	509		
1158	0.60	1.80			5.2	26.6	220.9	0.27	393		
1201	0.60	2.40			5.1	26.6	221.6	0.20	172		
1204	0.60	3.00			5.1	26.6	221.7	0.19	79.3		

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	1205	SAMPLING ENDED	1206	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:

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	10/15/12	SAL Project #	1211978	Project Name	S&GW Test Facility SE #3
Well Number	TA4-PZ-09-TU14		~~25~~ 24	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)	3.87	PURGE PUMP CODE (PP) GP IBP
TOTAL WELL DEPTH (Feet)	9.85	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)

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

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

ONE WELL VOLUME	0.239	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	1003	PURGE TIME END	1018	TOTAL PURGED	1.50
INST. ID	X	X	X	X	SAL-SAM-63-08	SAL-SAM-65-08	SAL-SAM-63-08	SAL-SAM-55-08	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)
1006	0.30	0.30	0.10	4.02	4.8	27.0	203.7	1.40	MAX	BROWN	NONE
1009	0.30	0.60	|	|	4.7	27.0	202.9	1.11	|	|	|
1012	0.30	0.90	|	|	4.6	27.0	198.9	0.88	168	CLOUDY	|
1015	0.30	1.20	|	|	4.6	26.9	197.9	0.75	49.5	|	|
1018	0.30	1.50			4.6	27.0	197.6	0.69	33.1	|	

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL			SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP (TL) TT		SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED	1019	SAMPLING ENDED	1020	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	101512	SAL Project #	1211978	Project Name	S&GW Test Facility SE #3
Well Number	TA4-PZ-16-TU14		25	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)	4.66	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	17.25	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	0.503	1/4 WELL VOLUME	0.125	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	1021	PURGE TIME END	1032	TOTAL PURGED	1.10	
INST. ID	X	X	X	X	SAL-SAM-63-08	SAL-SAM-65-08	SAL-SAM-63-08	SAL-SAM-55-08	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)
1026	0.50	0.50	0.10	4.82	5.0	26.7	222.7	0.36	36.8	CLEAR	NONE
1029	0.30	0.80	/	/	5.1	26.7	224.6	0.19	35.2	/	/
1032	0.30	1.10	/	/	5.1	26.6	225.8	0.17	34.7	/	/

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	1033	SAMPLING ENDED	1034	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	10 15 12	SAL Project #	1211978	Project Name	S&GW Test Facility SE #3
Well Number	TA4-PZ-09-TU16		26	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)	4.14	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	9.85	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	

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

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

ONE WELL VOLUME	0.22	1/4 WELL VOLUME		3 WELL VOLUMES	0.685	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	0924	PURGE TIME END	0939	TOTAL PURGED	1.50
INST. ID				SAL-SAM-63-08	SAL-SAM-65-08	SAL-SAM-63-08	SAL-SAM-55-08	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)
0927	0.30	0.30	0.10	4.38	5.9	27.0	208.9	1.08	MAX	BROWN	NONE
0930	0.30	0.60			5.8	27.0	208.6	0.95	MAX		
0933	0.30	0.90			5.4	27.0	199.2	0.71	649		
0936	0.30	1.20			5.3	27.0	191.8	0.59	433	CLOUDY	
0939	0.30	1.50			5.3	27.0	189.8	0.63	290		

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	0940	SAMPLING ENDED	0941	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	101512	SAL Project #	1211978	Project Name	S&GW Test Facility SE #3
Well Number	TA4-PZ-16-TU16		27	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)	4.30	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	17.25	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	0.518	1/4 WELL VOLUME	0.129	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	0943	PURGE TIME END	0958	TOTAL PURGED	3.00	
INST. ID	X	X	X	X	SAL-SAM-63-08	SAL-SAM-65-08	SAL-SAM-63-08	SAL-SAM-55-08	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)
0946	0.60	0.60	0.20	4.35	5.3	26.8	234.0	1.25	MAX	BROWN	NONE
0949	0.60	1.20			5.2	26.5	241.6	0.24			
0952	0.60	1.80			5.2	26.5	241.3	0.22	464	CLOUDY	
0955	0.60	2.40			5.2	26.5	241.6	0.19	186		
0958	0.60	3.00			5.2	26.4	241.9	0.18	117		

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL			SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP (TL) TT		SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED	0959	SAMPLING ENDED	1000	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

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

November 2, 2012
Work Order: 1211983

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**PZ01-BKG-09**						
Matrix		**Groundwater**						
SAL Sample Number		**1211983-01**						
Date/Time Collected		**10/16/12 14:55**						
Collected by		**Josephine Edeback-Hirst**						
Date/Time Received		**10/17/12 14:25**						
Field Parameters								
pH	SU	4.7	DEP FT1100	0.1	0.1	10/30/12 10:24	10/16/12 14:55	1
Water Temperature	°C	29.1	DEP FT1400	0.1	0.1	10/30/12 10:24	10/16/12 14:55	1
Specific conductance	umhos/cm	53	DEP FT1200	0.1	0.1	10/30/12 10:24	10/16/12 14:55	1
Dissolved Oxygen	mg/L	3.4	DEP FT1500	0.1	0.1	10/30/12 10:24	10/16/12 14:55	1
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/18/12 14:37	1
Ammonium as NH4	mg/L	0.005 U	EPA 350.1	0.01	0.005	10/24/12 15:45	10/24/12 15:47	1
Chloride	mg/L	5.7	EPA 300.0	0.20	0.050		10/18/12 12:00	1
Nitrate (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/18/12 12:00	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/18/12 12:00	1
Total Kjeldahl Nitrogen	mg/L	0.38	EPA 351.2	0.20	0.05	10/26/12 08:08	10/29/12 12:53	1
Nitrate+Nitrite (N)	mg/L	0.02 U	EPA 300.0	0.08	0.02		10/18/12 12:00	1
Sample Description		**LY01-BKG-24**						
Matrix		**Groundwater**						
SAL Sample Number		**1211983-02**						
Date/Time Collected		**10/15/12 09:15**						
Collected by		**Josephine Edeback-Hirst**						
Date/Time Received		**10/17/12 14:25**						
Field Parameters								
pH	SU	6.3	DEP FT1100	0.1	0.1	10/30/12 10:24	10/16/12 13:05	1
Water Temperature	°C	26.8	DEP FT1400	0.1	0.1	10/30/12 10:24	10/16/12 13:05	1
Specific conductance	umhos/cm	107	DEP FT1200	0.1	0.1	10/30/12 10:24	10/16/12 13:05	1
Dissolved Oxygen	mg/L	6.7	DEP FT1500	0.1	0.1	10/30/12 10:24	10/16/12 13:05	1
Inorganics								
Ammonia as N	mg/L	0.010 I	EPA 350.1	0.040	0.009		10/18/12 14:39	1
Ammonium as NH4	mg/L	0.01	EPA 350.1	0.01	0.005	10/24/12 15:45	10/24/12 15:47	1
Chloride	mg/L	2.9	EPA 300.0	0.20	0.050		10/17/12 09:49	1
Nitrate (as N)	mg/L	0.01 U,Q	EPA 300.0	0.04	0.01		10/17/12 09:49	1
Nitrite (as N)	mg/L	0.01 U,Q	EPA 300.0	0.04	0.01		10/17/12 09:49	1
Total Kjeldahl Nitrogen	mg/L	1.5	EPA 351.2	0.20	0.05	10/26/12 08:08	10/29/12 12:55	1
Nitrate+Nitrite (N)	mg/L	0.02 U	EPA 300.0	0.08	0.02		10/17/12 09:49	1

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

November 2, 2012
Work Order: 1211983

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**LY02-BKG-42**						
Matrix		**Groundwater**						
SAL Sample Number		**1211983-03**						
Date/Time Collected		**10/16/12 15:10**						
Collected by		**Client**						
Date/Time Received		**10/17/12 14:25**						
Field Parameters								
pH	SU	6.7	DEP FT1100	0.1	0.1	10/30/12 10:24	10/16/12 15:10	1
Water Temperature	°C	32.6	DEP FT1400	0.1	0.1	10/30/12 10:24	10/16/12 15:10	1
Specific conductance	umhos/cm	512	DEP FT1200	0.1	0.1	10/30/12 10:24	10/16/12 15:10	1
Dissolved Oxygen	mg/L	5.7	DEP FT1500	0.1	0.1	10/30/12 10:24	10/16/12 15:10	1
Inorganics								
Ammonia as N	mg/L	0.26 I	EPA 350.1	0.40	0.095		10/30/12 11:52	10
Ammonium as NH4	mg/L	0.33	EPA 350.1	0.05	0.01		10/31/12 14:47	1
Chloride	mg/L	12	EPA 300.0	0.20	0.050		10/29/12 15:57	1
Total Kjeldahl Nitrogen	mg/L	9.8	EPA 351.2	0.20	0.05	10/29/12 16:41	10/31/12 11:01	1.98

Sample Description		**PZ04-BKG-09**						
Matrix		**Groundwater**						
SAL Sample Number		**1211983-04**						
Date/Time Collected		**10/16/12 09:35**						
Collected by		**Josephine Edeback-Hirst**						
Date/Time Received		**10/17/12 14:25**						
Field Parameters								
pH	SU	5.5	DEP FT1100	0.1	0.1	10/30/12 10:24	10/16/12 09:35	1
Water Temperature	°C	26.5	DEP FT1400	0.1	0.1	10/30/12 10:24	10/16/12 09:35	1
Specific conductance	umhos/cm	105	DEP FT1200	0.1	0.1	10/30/12 10:24	10/16/12 09:35	1
Dissolved Oxygen	mg/L	2.6	DEP FT1500	0.1	0.1	10/30/12 10:24	10/16/12 09:35	1
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/18/12 14:41	1
Ammonium as NH4	mg/L	0.005 U	EPA 350.1	0.01	0.005	10/24/12 15:45	10/24/12 15:47	1
Chloride	mg/L	1.0	EPA 300.0	0.20	0.050		10/18/12 01:54	1
Nitrate (as N)	mg/L	1.0	EPA 300.0	0.04	0.01		10/18/12 01:54	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/18/12 01:54	1
Total Kjeldahl Nitrogen	mg/L	1.4	EPA 351.2	0.20	0.05	10/26/12 08:06	10/29/12 09:44	1
Nitrate+Nitrite (N)	mg/L	1.0	EPA 300.0	0.08	0.02		10/18/12 01:54	1

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

November 2, 2012
Work Order: 1211983

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**PZ05-BKG-09**						
Matrix		**Groundwater**						
SAL Sample Number		**1211983-05**						
Date/Time Collected		**10/17/12 09:02**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/17/12 14:25**						
Field Parameters								
pH	SU	5.3	DEP FT1100	0.1	0.1		10/17/12 09:02	1
Water Temperature	°C	25.9	DEP FT1400	0.1	0.1		10/17/12 09:02	1
Specific conductance	umhos/cm	66	DEP FT1200	0.1	0.1		10/17/12 09:02	1
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		10/17/12 09:02	1
Inorganics								
Ammonia as N	mg/L	0.014 I	EPA 350.1	0.040	0.009		10/18/12 14:43	1
Ammonium as NH4	mg/L	0.02	EPA 350.1	0.01	0.005	10/24/12 15:45	10/24/12 15:47	1
Chloride	mg/L	3.1	EPA 300.0	0.20	0.050		10/18/12 17:38	1
Nitrate (as N)	mg/L	0.64	EPA 300.0	0.04	0.01		10/18/12 17:38	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/18/12 17:38	1
Total Kjeldahl Nitrogen	mg/L	1.2	EPA 351.2	0.20	0.05	10/26/12 08:06	10/29/12 09:46	1
Nitrate+Nitrite (N)	mg/L	0.64	EPA 300.0	0.08	0.02		10/18/12 17:38	1

Sample Description		**PZ24-BKG-26**						
Matrix		**Groundwater**						
SAL Sample Number		**1211983-06**						
Date/Time Collected		**10/17/12 11:41**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/17/12 14:25**						
Field Parameters								
pH	SU	5.1	DEP FT1100	0.1	0.1		10/17/12 11:41	1
Water Temperature	°C	25.4	DEP FT1400	0.1	0.1		10/17/12 11:41	1
Specific conductance	umhos/cm	283	DEP FT1200	0.1	0.1		10/17/12 11:41	1
Dissolved Oxygen	mg/L	0.5	DEP FT1500	0.1	0.1		10/17/12 11:41	1
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/18/12 14:44	1
Ammonium as NH4	mg/L	0.005 U	EPA 350.1	0.01	0.005	10/24/12 15:45	10/24/12 15:47	1
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10		10/24/12 08:30	1
Chloride	mg/L	16	EPA 300.0	0.20	0.050		10/18/12 17:38	1
Nitrate (as N)	mg/L	9.3	EPA 300.0	0.04	0.01		10/18/12 17:38	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/18/12 17:38	1
Phosphorous - Total as P	mg/L	0.066	SM 4500P-E	0.040	0.010	10/18/12 11:01	10/22/12 13:43	1
Total Alkalinity	mg/L	5.2 I	SM 2320B	8.0	2.0		10/22/12 09:45	1
Total Kjeldahl Nitrogen	mg/L	1.0	EPA 351.2	0.20	0.05	10/26/12 08:06	10/29/12 11:03	1
Nitrate+Nitrite (N)	mg/L	9.3	EPA 300.0	0.08	0.02		10/18/12 17:38	1

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

November 2, 2012
Work Order: 1211983

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**PZ24-BKG-26 DUP**						
Matrix		**Groundwater**						
SAL Sample Number		**1211983-07**						
Date/Time Collected		**10/17/12 11:46**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/17/12 14:25**						
Field Parameters								
pH	SU	5.1	DEP FT1100	0.1	0.1		10/17/12 11:46	1
Water Temperature	°C	25.4	DEP FT1400	0.1	0.1		10/17/12 11:46	1
Specific conductance	umhos/cm	283	DEP FT1200	0.1	0.1		10/17/12 11:46	1
Dissolved Oxygen	mg/L	0.5	DEP FT1500	0.1	0.1		10/17/12 11:46	1
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/18/12 14:46	1
Ammonium as NH4	mg/L	0.005 U	EPA 350.1	0.01	0.005	10/24/12 15:45	10/24/12 15:47	1
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10		10/24/12 08:30	1
Chloride	mg/L	15	EPA 300.0	0.20	0.050		10/19/12 02:25	1
Nitrate (as N)	mg/L	9.1	EPA 300.0	0.04	0.01		10/19/12 02:25	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/19/12 02:25	1
Phosphorous - Total as P	mg/L	0.058	SM 4500P-E	0.040	0.010	10/18/12 11:01	10/22/12 13:44	1
Total Alkalinity	mg/L	4.2 I	SM 2320B	8.0	2.0		10/22/12 09:45	1
Total Kjeldahl Nitrogen	mg/L	1.1	EPA 351.2	0.20	0.05	10/26/12 08:06	10/29/12 11:05	1
Nitrate+Nitrite (N)	mg/L	9.1	EPA 300.0	0.08	0.02		10/19/12 02:25	1

Sample Description		**PZ29-BKG09**						
Matrix		**Groundwater**						
SAL Sample Number		**1211983-08**						
Date/Time Collected		**10/16/12 10:05**						
Collected by		**Josephine Edeback-Hirst**						
Date/Time Received		**10/17/12 14:25**						
Field Parameters								
pH	SU	4.9	DEP FT1100	0.1	0.1		10/30/12 10:24	1
Water Temperature	°C	26.9	DEP FT1400	0.1	0.1		10/30/12 10:24	1
Specific conductance	umhos/cm	214	DEP FT1200	0.1	0.1		10/30/12 10:24	1
Dissolved Oxygen	mg/L	1.1	DEP FT1500	0.1	0.1		10/30/12 10:24	1
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/18/12 14:48	1
Ammonium as NH4	mg/L	0.005 U	EPA 350.1	0.01	0.005	10/24/12 15:45	10/24/12 15:47	1
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10		10/24/12 08:30	1
Chloride	mg/L	6.4	EPA 300.0	0.20	0.050		10/18/12 01:54	1
Nitrate (as N)	mg/L	4.7	EPA 300.0	0.04	0.01		10/18/12 01:54	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/18/12 01:54	1
Phosphorous - Total as P	mg/L	0.10	SM 4500P-E	0.040	0.010	10/18/12 11:01	10/22/12 13:45	1
Total Alkalinity	mg/L	3.2 I	SM 2320B	8.0	2.0		10/22/12 09:45	1

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

November 2, 2012
Work Order: 1211983

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**PZ29-BKG09**						
Matrix		**Groundwater**						
SAL Sample Number		**1211983-08**						
Date/Time Collected		**10/16/12 10:05**						
Collected by		**Josephine Edeback-Hirst**						
Date/Time Received		**10/17/12 14:25**						
Total Kjeldahl Nitrogen	mg/L	1.5	EPA 351.2	0.20	0.05	10/26/12 08:06	10/29/12 09:51	1
Nitrate+Nitrite (N)	mg/L	4.7	EPA 300.0	0.08	0.02		10/18/12 01:54	1
Sample Description		**PZ30-BKG-16**						
Matrix		**Groundwater**						
SAL Sample Number		**1211983-09**						
Date/Time Collected		**10/16/12 10:46**						
Collected by		**Josephine Edeback-Hirst**						
Date/Time Received		**10/17/12 14:25**						
Field Parameters								
pH	SU	5.6	DEP FT1100	0.1	0.1		10/30/12 10:24	1
Water Temperature	°C	26.7	DEP FT1400	0.1	0.1		10/30/12 10:24	1
Specific conductance	umhos/cm	288	DEP FT1200	0.1	0.1		10/30/12 10:24	1
Dissolved Oxygen	mg/L	2.4	DEP FT1500	0.1	0.1		10/30/12 10:24	1
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/18/12 14:49	1
Ammonium as NH4	mg/L	0.005 U	EPA 350.1	0.01	0.005	10/24/12 15:45	10/24/12 15:47	1
Chemical Oxygen Demand	mg/L	15 I	EPA 410.4	25	10		10/24/12 08:30	1
Chloride	mg/L	15	EPA 300.0	0.20	0.050		10/18/12 09:50	1
Nitrate (as N)	mg/L	9.5	EPA 300.0	0.04	0.01		10/18/12 09:50	1
Nitrite (as N)	mg/L	0.01 I	EPA 300.0	0.04	0.01		10/18/12 09:50	1
Phosphorous - Total as P	mg/L	0.048	SM 4500P-E	0.040	0.010	10/18/12 11:01	10/22/12 13:47	1
Total Alkalinity	mg/L	7.4 I	SM 2320B	8.0	2.0		10/22/12 09:45	1
Total Kjeldahl Nitrogen	mg/L	1.4	EPA 351.2	0.20	0.05	10/26/12 08:06	10/29/12 09:53	1
Nitrate+Nitrite (N)	mg/L	9.5	EPA 300.0	0.08	0.02		10/18/12 09:50	1
Sample Description		**PZ31-BKG-26**						
Matrix		**Groundwater**						
SAL Sample Number		**1211983-10**						
Date/Time Collected		**10/16/12 11:10**						
Collected by		**Josephine Edeback-Hirst**						
Date/Time Received		**10/17/12 14:25**						
Field Parameters								
pH	SU	5.1	DEP FT1100	0.1	0.1		10/30/12 10:24	1
Water Temperature	°C	26.3	DEP FT1400	0.1	0.1		10/30/12 10:24	1
Specific conductance	umhos/cm	325	DEP FT1200	0.1	0.1		10/30/12 10:24	1

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

November 2, 2012
Work Order: 1211983

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**PZ31-BKG-26**						
Matrix		**Groundwater**						
SAL Sample Number		**1211983-10**						
Date/Time Collected		**10/16/12 11:10**						
Collected by		**Josephine Edeback-Hirst**						
Date/Time Received		**10/17/12 14:25**						
Dissolved Oxygen	mg/L	3.7	DEP FT1500	0.1	0.1		10/30/12 10:24	1
Inorganics								
Ammonia as N	mg/L	0.13	EPA 350.1	0.040	0.009		10/23/12 14:17	1
Ammonium as NH4	mg/L	0.16	EPA 350.1	0.01	0.005	10/24/12 15:45	10/24/12 15:47	1
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10		10/24/12 12:30	1
Chloride	mg/L	19	EPA 300.0	0.20	0.050		10/18/12 09:50	1
Nitrate (as N)	mg/L	13	EPA 300.0	0.04	0.01		10/18/12 09:50	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/18/12 09:50	1
Phosphorous - Total as P	mg/L	0.053	SM 4500P-E	0.040	0.010	10/18/12 11:01	10/22/12 13:48	1
Total Alkalinity	mg/L	4.2 I	SM 2320B	8.0	2.0		10/22/12 09:45	1
Total Kjeldahl Nitrogen	mg/L	1.2	EPA 351.2	0.20	0.05	10/26/12 08:06	10/29/12 11:06	1
Nitrate+Nitrite (N)	mg/L	13	EPA 300.0	0.08	0.02		10/18/12 09:50	1
Sample Description		**PZ31-BKG-26 DUP**						
Matrix		**Groundwater**						
SAL Sample Number		**1211983-11**						
Date/Time Collected		**10/16/12 11:12**						
Collected by		**Josephine Edeback-Hirst**						
Date/Time Received		**10/17/12 14:25**						
Field Parameters								
pH	SU	5.1	DEP FT1100	0.1	0.1		10/30/12 10:24	1
Water Temperature	°C	26.3	DEP FT1400	0.1	0.1		10/30/12 10:24	1
Specific conductance	umhos/cm	325	DEP FT1200	0.1	0.1		10/30/12 10:24	1
Dissolved Oxygen	mg/L	3.7	DEP FT1500	0.1	0.1		10/30/12 10:24	1
Inorganics								
Ammonia as N	mg/L	0.14	EPA 350.1	0.040	0.009		10/23/12 14:19	1
Ammonium as NH4	mg/L	0.17	EPA 350.1	0.01	0.005	10/24/12 15:45	10/24/12 15:47	1
Chemical Oxygen Demand	mg/L	15 I	EPA 410.4	25	10		10/24/12 12:30	1
Chloride	mg/L	20	EPA 300.0	0.20	0.050		10/18/12 09:50	1
Nitrate (as N)	mg/L	14	EPA 300.0	0.04	0.01		10/18/12 09:50	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/18/12 09:50	1
Phosphorous - Total as P	mg/L	0.054	SM 4500P-E	0.040	0.010	10/18/12 11:01	10/22/12 14:46	1
Total Alkalinity	mg/L	4.2 I	SM 2320B	8.0	2.0		10/22/12 09:45	1
Total Kjeldahl Nitrogen	mg/L	1.3	EPA 351.2	0.20	0.05	10/26/12 08:06	10/29/12 11:07	1
Nitrate+Nitrite (N)	mg/L	14	EPA 300.0	0.08	0.02		10/18/12 09:50	1

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

November 2, 2012
Work Order: 1211983

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**PZ32-BKG-09**						
Matrix		**Groundwater**						
SAL Sample Number		**1211983-12**						
Date/Time Collected		**10/16/12 11:35**						
Collected by		**Josephine Edeback-Hirst**						
Date/Time Received		**10/17/12 14:25**						
Field Parameters								
pH	SU	4.5	DEP FT1100	0.1	0.1		10/30/12 10:24	1
Water Temperature	°C	27.6	DEP FT1400	0.1	0.1		10/30/12 10:24	1
Specific conductance	umhos/cm	163	DEP FT1200	0.1	0.1		10/30/12 10:24	1
Dissolved Oxygen	mg/L	3.1	DEP FT1500	0.1	0.1		10/30/12 10:24	1
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/18/12 13:09	1
Ammonium as NH4	mg/L	0.005 U	EPA 350.1	0.01	0.005	10/24/12 15:45	10/24/12 15:47	1
Chemical Oxygen Demand	mg/L	11 I	EPA 410.4	25	10		10/24/12 12:30	1
Chloride	mg/L	4.0	EPA 300.0	0.20	0.050		10/18/12 09:50	1
Nitrate (as N)	mg/L	3.8	EPA 300.0	0.04	0.01		10/18/12 09:50	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/18/12 09:50	1
Phosphorous - Total as P	mg/L	0.018 I	SM 4500P-E	0.040	0.010	10/18/12 11:01	10/22/12 13:50	1
Total Alkalinity	mg/L	2.0 U	SM 2320B	8.0	2.0		10/22/12 09:45	1
Total Kjeldahl Nitrogen	mg/L	1.1	EPA 351.2	0.20	0.05	10/26/12 08:06	10/29/12 09:58	1
Nitrate+Nitrite (N)	mg/L	3.8	EPA 300.0	0.08	0.02		10/18/12 09:50	1
Sample Description		**PZ33-BKG-16**						
Matrix		**Groundwater**						
SAL Sample Number		**1211983-13**						
Date/Time Collected		**10/16/12 12:01**						
Collected by		**Josephine Edeback-Hirst**						
Date/Time Received		**10/17/12 14:25**						
Field Parameters								
pH	SU	5.1	DEP FT1100	0.1	0.1		10/30/12 10:24	1
Water Temperature	°C	27.2	DEP FT1400	0.1	0.1		10/30/12 10:24	1
Specific conductance	umhos/cm	342	DEP FT1200	0.1	0.1		10/30/12 10:24	1
Dissolved Oxygen	mg/L	1.5	DEP FT1500	0.1	0.1		10/30/12 10:24	1
Inorganics								
Ammonia as N	mg/L	0.059	EPA 350.1	0.040	0.009		10/18/12 13:11	1
Ammonium as NH4	mg/L	0.08	EPA 350.1	0.01	0.005	10/24/12 15:45	10/24/12 15:47	1
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10		10/24/12 12:30	1
Chloride	mg/L	16	EPA 300.0	0.20	0.050		10/18/12 12:00	1
Nitrate (as N)	mg/L	17	EPA 300.0	0.04	0.01		10/18/12 12:00	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/18/12 12:00	1
Phosphorous - Total as P	mg/L	0.012 I	SM 4500P-E	0.040	0.010	10/18/12 11:01	10/22/12 13:51	1
Total Alkalinity	mg/L	4.2 I	SM 2320B	8.0	2.0		10/22/12 09:45	1

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

November 2, 2012
Work Order: 1211983

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**PZ33-BKG-16**						
Matrix		**Groundwater**						
SAL Sample Number		**1211983-13**						
Date/Time Collected		**10/16/12 12:01**						
Collected by		**Josephine Edeback-Hirst**						
Date/Time Received		**10/17/12 14:25**						
Total Kjeldahl Nitrogen	mg/L	2.5	EPA 351.2	0.20	0.05	10/26/12 08:06	10/29/12 09:59	1
Nitrate+Nitrite (N)	mg/L	17	EPA 300.0	0.08	0.02		10/18/12 12:00	1
Sample Description		**PZ34-BKG-26**						
Matrix		**Groundwater**						
SAL Sample Number		**1211983-14**						
Date/Time Collected		**10/16/12 13:05**						
Collected by		**Josephine Edeback-Hirst**						
Date/Time Received		**10/17/12 14:25**						
Field Parameters								
pH	SU	5.6	DEP FT1100	0.1	0.1		10/30/12 10:24	1
Water Temperature	°C	26.8	DEP FT1400	0.1	0.1		10/30/12 10:24	1
Specific conductance	umhos/cm	316	DEP FT1200	0.1	0.1		10/30/12 10:24	1
Dissolved Oxygen	mg/L	2.8	DEP FT1500	0.1	0.1		10/30/12 10:24	1
Inorganics								
Ammonia as N	mg/L	0.11	EPA 350.1	0.040	0.009		10/18/12 13:14	1
Ammonium as NH4	mg/L	0.14	EPA 350.1	0.01	0.005	10/24/12 15:45	10/24/12 15:47	1
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10		10/24/12 12:30	1
Chloride	mg/L	22	EPA 300.0	0.20	0.050		10/18/12 12:00	1
Nitrate (as N)	mg/L	5.1	EPA 300.0	0.04	0.01		10/18/12 12:00	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/18/12 12:00	1
Phosphorous - Total as P	mg/L	0.65	SM 4500P-E	0.040	0.010	10/18/12 11:01	10/22/12 13:53	1
Total Alkalinity	mg/L	9.4	SM 2320B	8.0	2.0		10/22/12 09:45	1
Total Kjeldahl Nitrogen	mg/L	3.7	EPA 351.2	0.20	0.05	10/26/12 08:06	10/29/12 10:08	1
Nitrate+Nitrite (N)	mg/L	5.1	EPA 300.0	0.08	0.02		10/18/12 12:00	1
Sample Description		**PZ35-BKG09**						
Matrix		**Groundwater**						
SAL Sample Number		**1211983-15**						
Date/Time Collected		**10/17/12 09:29**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/17/12 14:25**						
Field Parameters								
pH	SU	6.6	DEP FT1100	0.1	0.1		10/17/12 09:29	1
Water Temperature	°C	26.1	DEP FT1400	0.1	0.1		10/17/12 09:29	1
Specific conductance	umhos/cm	473	DEP FT1200	0.1	0.1		10/17/12 09:29	1

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

November 2, 2012
Work Order: 1211983

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**PZ35-BKG09**						
Matrix		**Groundwater**						
SAL Sample Number		**1211983-15**						
Date/Time Collected		**10/17/12 09:29**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/17/12 14:25**						
Dissolved Oxygen	mg/L	1.5	DEP FT1500	0.1	0.1		10/17/12 09:29	1
Inorganics								
Ammonia as N	mg/L	0.011 I	EPA 350.1	0.040	0.009		10/18/12 13:16	1
Ammonium as NH4	mg/L	0.01	EPA 350.1	0.01	0.005	10/24/12 15:45	10/24/12 15:47	1
Chloride	mg/L	9.2	EPA 300.0	0.20	0.050		10/19/12 02:25	1
Nitrate (as N)	mg/L	3.0	EPA 300.0	0.04	0.01		10/19/12 02:25	1
Nitrite (as N)	mg/L	0.06	EPA 300.0	0.04	0.01		10/19/12 02:25	1
Total Alkalinity	mg/L	110	SM 2320B	8.0	2.0		10/22/12 09:45	1
Total Kjeldahl Nitrogen	mg/L	2.2	EPA 351.2	0.20	0.05	10/26/12 08:06	10/29/12 10:10	1
Nitrate+Nitrite (N)	mg/L	3.1	EPA 300.0	0.08	0.02		10/19/12 02:25	1
Sample Description		**PZ36-BKG-16**						
Matrix		**Groundwater**						
SAL Sample Number		**1211983-16**						
Date/Time Collected		**10/17/12 09:46**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/17/12 14:25**						
Field Parameters								
pH	SU	5.1	DEP FT1100	0.1	0.1		10/17/12 09:46	1
Water Temperature	°C	26.0	DEP FT1400	0.1	0.1		10/17/12 09:46	1
Specific conductance	umhos/cm	321	DEP FT1200	0.1	0.1		10/17/12 09:46	1
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		10/17/12 09:46	1
Inorganics								
Ammonia as N	mg/L	0.013 I	EPA 350.1	0.040	0.009		10/18/12 13:18	1
Ammonium as NH4	mg/L	0.02	EPA 350.1	0.01	0.005	10/24/12 15:45	10/24/12 15:47	1
Chloride	mg/L	15	EPA 300.0	0.20	0.050		10/19/12 02:25	1
Nitrate (as N)	mg/L	14	EPA 300.0	0.04	0.01		10/19/12 02:25	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/19/12 02:25	1
Total Alkalinity	mg/L	3.2 I	SM 2320B	8.0	2.0		10/22/12 09:45	1
Total Kjeldahl Nitrogen	mg/L	2.3	EPA 351.2	0.20	0.05	10/26/12 08:06	10/29/12 10:11	1
Nitrate+Nitrite (N)	mg/L	14	EPA 300.0	0.08	0.02		10/19/12 02:25	1

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

November 2, 2012
Work Order: 1211983

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**PZ37-BKG-26**						
Matrix		**Groundwater**						
SAL Sample Number		**1211983-17**						
Date/Time Collected		**10/17/12 10:07**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/17/12 14:25**						
Field Parameters								
pH	SU	5.0	DEP FT1100	0.1	0.1		10/17/12 10:07	1
Water Temperature	°C	25.4	DEP FT1400	0.1	0.1		10/17/12 10:07	1
Specific conductance	umhos/cm	331	DEP FT1200	0.1	0.1		10/17/12 10:07	1
Dissolved Oxygen	mg/L	0.1	DEP FT1500	0.1	0.1		10/17/12 10:07	1
Inorganics								
Ammonia as N	mg/L	0.014 I	EPA 350.1	0.040	0.009		10/18/12 13:20	1
Ammonium as NH4	mg/L	0.02	EPA 350.1	0.01	0.005	10/24/12 15:45	10/24/12 15:47	1
Chemical Oxygen Demand	mg/L	11 I	EPA 410.4	25	10		10/24/12 12:30	1
Chloride	mg/L	17	EPA 300.0	0.20	0.050		10/19/12 02:25	1
Nitrate (as N)	mg/L	14	EPA 300.0	0.04	0.01		10/19/12 02:25	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/19/12 02:25	1
Phosphorous - Total as P	mg/L	0.45	SM 4500P-E	0.040	0.010	10/18/12 11:01	10/22/12 13:54	1
Total Alkalinity	mg/L	4.2 I	SM 2320B	8.0	2.0		10/22/12 09:45	1
Total Kjeldahl Nitrogen	mg/L	2.4	EPA 351.2	0.20	0.05	10/26/12 08:06	10/29/12 10:12	1
Nitrate+Nitrite (N)	mg/L	14	EPA 300.0	0.08	0.02		10/19/12 02:25	1

Sample Description		**PZ38-BKG09**						
Matrix		**Groundwater**						
SAL Sample Number		**1211983-18**						
Date/Time Collected		**10/17/12 10:32**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/17/12 14:25**						
Field Parameters								
pH	SU	5.9	DEP FT1100	0.1	0.1		10/17/12 10:32	1
Water Temperature	°C	26.0	DEP FT1400	0.1	0.1		10/17/12 10:32	1
Specific conductance	umhos/cm	196	DEP FT1200	0.1	0.1		10/17/12 10:32	1
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		10/17/12 10:32	1
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/18/12 13:22	1
Ammonium as NH4	mg/L	0.005 U	EPA 350.1	0.01	0.005	10/24/12 15:45	10/24/12 15:47	1
Chloride	mg/L	6.5	EPA 300.0	0.20	0.050		10/19/12 02:25	1
Nitrate (as N)	mg/L	0.56	EPA 300.0	0.04	0.01		10/19/12 02:25	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/19/12 02:25	1
Total Alkalinity	mg/L	21	SM 2320B	8.0	2.0		10/22/12 09:45	1
Total Kjeldahl Nitrogen	mg/L	1.0	EPA 351.2	0.20	0.05	10/26/12 08:06	10/29/12 10:14	1
Nitrate+Nitrite (N)	mg/L	0.56	EPA 300.0	0.08	0.02		10/19/12 02:25	1

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

November 2, 2012
Work Order: 1211983

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**PZ39-BKG-16**						
Matrix		**Groundwater**						
SAL Sample Number		**1211983-19**						
Date/Time Collected		**10/17/12 10:48**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/17/12 14:25**						
Field Parameters								
pH	SU	5.8	DEP FT1100	0.1	0.1		10/17/12 10:48	1
Water Temperature	°C	25.6	DEP FT1400	0.1	0.1		10/17/12 10:48	1
Specific conductance	umhos/cm	226	DEP FT1200	0.1	0.1		10/17/12 10:48	1
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		10/17/12 10:48	1
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/18/12 13:24	1
Ammonium as NH4	mg/L	0.005 U	EPA 350.1	0.01	0.005	10/24/12 15:45	10/24/12 15:47	1
Chloride	mg/L	5.8	EPA 300.0	0.20	0.050		10/19/12 02:25	1
Nitrate (as N)	mg/L	2.0	EPA 300.0	0.04	0.01		10/19/12 02:25	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/19/12 02:25	1
Total Alkalinity	mg/L	32	SM 2320B	8.0	2.0		10/22/12 09:45	1
Total Kjeldahl Nitrogen	mg/L	1.7	EPA 351.2	0.20	0.05	10/26/12 08:06	10/29/12 10:15	1
Nitrate+Nitrite (N)	mg/L	2.0	EPA 300.0	0.08	0.02		10/19/12 02:25	1
Sample Description		**PZ40-BKG-26**						
Matrix		**Groundwater**						
SAL Sample Number		**1211983-20**						
Date/Time Collected		**10/17/12 11:13**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/17/12 14:25**						
Field Parameters								
pH	SU	5.2	DEP FT1100	0.1	0.1		10/17/12 11:13	1
Water Temperature	°C	24.9	DEP FT1400	0.1	0.1		10/17/12 11:13	1
Specific conductance	umhos/cm	310	DEP FT1200	0.1	0.1		10/17/12 11:13	1
Dissolved Oxygen	mg/L	0.1	DEP FT1500	0.1	0.1		10/17/12 11:13	1
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/18/12 13:26	1
Ammonium as NH4	mg/L	0.005 U	EPA 350.1	0.01	0.005	10/24/12 15:45	10/24/12 15:47	1
Chloride	mg/L	13	EPA 300.0	0.20	0.050		10/25/12 17:00	1
Nitrate (as N)	mg/L	9.6 Q	EPA 300.0	0.04	0.01		10/25/12 17:00	1
Nitrite (as N)	mg/L	0.01 U,Q	EPA 300.0	0.04	0.01		10/25/12 17:00	1
Total Alkalinity	mg/L	4.2 I	SM 2320B	8.0	2.0		10/22/12 09:45	1
Total Kjeldahl Nitrogen	mg/L	2.0	EPA 351.2	0.20	0.05	10/26/12 08:06	10/29/12 10:16	1
Nitrate+Nitrite (N)	mg/L	9.6	EPA 300.0	0.08	0.02		10/25/12 17:00	1

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

November 2, 2012
Work Order: 1211983

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21620 - Ion Chromatography 300.0 Prep										
Blank (BJ21620-BLK1)					Prepared & Analyzed: 10/17/12					
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 (BJ21620-BS1)					Prepared & Analyzed: 10/17/12					
Nitrite (as N)	1.39	0.04	0.01	mg/L	1.4		99	85-115		
Chloride	2.81	0.20	0.050	mg/L	3.0		94	85-115		
Nitrate (as N)	1.66	0.04	0.01	mg/L	1.7		98	85-115		
LCS Dup (BJ21620-BSD1)					Prepared & Analyzed: 10/17/12					
Nitrate (as N)	1.66	0.04	0.01	mg/L	1.7		98	85-115	0	200
Nitrite (as N)	1.40	0.04	0.01	mg/L	1.4		100	85-115	0.7	200
Chloride	2.81	0.20	0.050	mg/L	3.0		94	85-115	0	200
Matrix Spike (BJ21620-MS1)		**Source: 1212083-04**			Prepared & Analyzed: 10/17/12					
Nitrite (as N)	1.46	0.04	0.01	mg/L	1.4	ND	104	85-115		
Nitrate (as N)	1.71	0.04	0.01	mg/L	1.7	0.0318	99	85-115		
Chloride	21.5	0.20	0.050	mg/L	3.0	18.5	100	80-120		
Matrix Spike (BJ21620-MS2)		**Source: 1212086-02**			Prepared & Analyzed: 10/17/12					
Chloride	47.5 +O	0.20	0.050	mg/L	3.0	47.4	3	80-120		
Nitrite (as N)	1.29	0.04	0.01	mg/L	1.4	ND	92	85-115		
Nitrate (as N)	6.79	0.04	0.01	mg/L	1.7	4.86	114	85-115		
Batch BJ21707 - Ion Chromatography 300.0 Prep										
Blank (BJ21707-BLK1)					Prepared & Analyzed: 10/18/12					
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						

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

November 2, 2012
Work Order: 1211983

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21707 - Ion Chromatography 300.0 Prep										
LCS (BJ21707-BS1)					Prepared & Analyzed: 10/18/12					
Nitrate (as N)	1.65	0.04	0.01	mg/L	1.7		97	85-115		
Nitrite (as N)	1.37	0.04	0.01	mg/L	1.4		98	85-115		
Chloride	2.77	0.20	0.050	mg/L	3.0		92	85-115		
LCS Dup (BJ21707-BSD1)					Prepared & Analyzed: 10/18/12					
Nitrite (as N)	1.38	0.04	0.01	mg/L	1.4		99	85-115	0.7	200
Chloride	2.79	0.20	0.050	mg/L	3.0		93	85-115	0.7	200
Nitrate (as N)	1.68	0.04	0.01	mg/L	1.7		99	85-115	2	200
Matrix Spike (BJ21707-MS1)		**Source: 1211976-02**			Prepared & Analyzed: 10/18/12					
Nitrate (as N)	52.9	0.04	0.01	mg/L	17	35.2	104	85-115		
Nitrite (as N)	14.5	0.04	0.01	mg/L	14	ND	104	85-115		
Chloride	80.8	0.20	0.050	mg/L	30	49.6	104	80-120		
Matrix Spike (BJ21707-MS2)		**Source: 1211983-08**			Prepared & Analyzed: 10/18/12					
Nitrite (as N)	1.44	0.04	0.01	mg/L	1.4	ND	103	85-115		
Nitrate (as N)	6.53	0.04	0.01	mg/L	1.7	4.74	105	85-115		
Chloride	9.39	0.20	0.050	mg/L	3.0	6.38	100	80-120		
Batch BJ21708 - Ion Chromatography 300.0 Prep										
Blank (BJ21708-BLK1)					Prepared & Analyzed: 10/18/12					
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 (BJ21708-BS1)					Prepared & Analyzed: 10/18/12					
Chloride	2.83	0.20	0.050	mg/L	3.0		94	85-115		
Nitrate (as N)	1.68	0.04	0.01	mg/L	1.7		99	85-115		
Nitrite (as N)	1.43	0.04	0.01	mg/L	1.4		102	85-115		

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

November 2, 2012
Work Order: 1211983

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21708 - Ion Chromatography 300.0 Prep										
LCS Dup (BJ21708-BSD1)					Prepared & Analyzed: 10/18/12					
Chloride	2.76	0.20	0.050	mg/L	3.0		92	85-115	3	200
Nitrate (as N)	1.66	0.04	0.01	mg/L	1.7		98	85-115	1	200
Nitrite (as N)	1.37	0.04	0.01	mg/L	1.4		98	85-115	4	200
Matrix Spike (BJ21708-MS1)		**Source: 1211879-08**			Prepared & Analyzed: 10/18/12					
Chloride	1,300	0.20	0.050	mg/L	300	976	108	80-120		
Nitrate (as N)	173	0.04	0.01	mg/L	170	ND	102	85-115		
Nitrite (as N)	145	0.04	0.01	mg/L	140		104	85-115		
Matrix Spike (BJ21708-MS2)		**Source: 1212008-02**			Prepared & Analyzed: 10/18/12					
Nitrite (as N)	1,410	0.04	0.01	mg/L	1400		101	85-115		
Chloride	3,340	0.20	0.050	mg/L	3000	77.5	109	80-120		
Nitrate (as N)	1,710	0.04	0.01	mg/L	1700	0.280	101	85-115		
Batch BJ21808 - Ammonia by SEAL										
Blank (BJ21808-BLK1)					Prepared & Analyzed: 10/18/12					
Ammonia as N	0.009 U	0.040	0.009	mg/L						
LCS (BJ21808-BS1)					Prepared & Analyzed: 10/18/12					
Ammonia as N	0.47	0.040	0.009	mg/L	0.50		94	90-110		
Matrix Spike (BJ21808-MS1)		**Source: 1211983-12**			Prepared & Analyzed: 10/18/12					
Ammonia as N	0.48	0.040	0.009	mg/L	0.50	ND	96	90-110		
Matrix Spike (BJ21808-MS2)		**Source: 1211987-01**			Prepared & Analyzed: 10/18/12					
Ammonia as N	0.46	0.040	0.009	mg/L	0.50	ND	92	90-110		

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

November 2, 2012
Work Order: 1211983

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21808 - Ammonia by SEAL										
Matrix Spike Dup (BJ21808-MSD1)		**Source: 1211983-12**			Prepared & Analyzed: 10/18/12					
Ammonia as N	0.45	0.040	0.009	mg/L	0.50	ND	90	90-110	6	10
Matrix Spike Dup (BJ21808-MSD2)		**Source: 1211987-01**			Prepared & Analyzed: 10/18/12					
Ammonia as N	0.46	0.040	0.009	mg/L	0.50	ND	91	90-110	1	10
Batch BJ21809 - Ammonia by SEAL										
Blank (BJ21809-BLK1)					Prepared & Analyzed: 10/18/12					
Ammonia as N	0.009 U	0.040	0.009	mg/L						
LCS (BJ21809-BS1)					Prepared & Analyzed: 10/18/12					
Ammonia as N	0.48	0.040	0.009	mg/L	0.50		95	90-110		
Matrix Spike (BJ21809-MS1)		**Source: 1211978-25**			Prepared & Analyzed: 10/18/12					
Ammonia as N	0.50	0.040	0.009	mg/L	0.50	ND	99	90-110		
Matrix Spike (BJ21809-MS2)		**Source: 1211983-01**			Prepared & Analyzed: 10/18/12					
Ammonia as N	0.46	0.040	0.009	mg/L	0.50	ND	92	90-110		
Matrix Spike Dup (BJ21809-MSD1)		**Source: 1211978-25**			Prepared & Analyzed: 10/18/12					
Ammonia as N	0.48	0.040	0.009	mg/L	0.50	ND	95	90-110	4	10
Matrix Spike Dup (BJ21809-MSD2)		**Source: 1211983-01**			Prepared & Analyzed: 10/18/12					
Ammonia as N	0.47	0.040	0.009	mg/L	0.50	ND	95	90-110	3	10
Batch BJ21810 - Digestion for TP by EPA 365.2/SM4500PE										
Blank (BJ21810-BLK1)					Prepared: 10/18/12 Analyzed: 10/22/12					
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						

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

November 2, 2012
Work Order: 1211983

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21810 - Digestion for TP by EPA 365.2/SM4500PE										
LCS (BJ21810-BS1)					Prepared: 10/18/12 Analyzed: 10/22/12					
Phosphorous - Total as P	0.760	0.040	0.010	mg/L	0.80		95	90-110		
Matrix Spike (BJ21810-MS1)		**Source: 1211983-08**			Prepared: 10/18/12 Analyzed: 10/22/12					
Phosphorous - Total as P	1.05	0.040	0.010	mg/L	1.0	0.105	94	75-125		
Matrix Spike (BJ21810-MS2)		**Source: 1212079-01**			Prepared: 10/18/12 Analyzed: 10/22/12					
Phosphorous - Total as P	1.43	0.040	0.010	mg/L	1.0	0.447	98	75-125		
Matrix Spike Dup (BJ21810-MSD1)		**Source: 1211983-08**			Prepared: 10/18/12 Analyzed: 10/22/12					
Phosphorous - Total as P	1.08	0.040	0.010	mg/L	1.0	0.105	98	75-125	3	25
Matrix Spike Dup (BJ21810-MSD2)		**Source: 1212079-01**			Prepared: 10/18/12 Analyzed: 10/22/12					
Phosphorous - Total as P	1.45	0.040	0.010	mg/L	1.0	0.447	100	75-125	1	25
Batch BJ21815 - Ion Chromatography 300.0 Prep										
Blank (BJ21815-BLK1)					Prepared & Analyzed: 10/18/12					
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 (BJ21815-BS1)					Prepared & Analyzed: 10/18/12					
Nitrate (as N)	1.67	0.04	0.01	mg/L	1.7		98	85-115		
Chloride	2.84	0.20	0.050	mg/L	3.0		95	85-115		
Nitrite (as N)	1.41	0.04	0.01	mg/L	1.4		101	85-115		
LCS Dup (BJ21815-BSD1)					Prepared & Analyzed: 10/18/12					
Chloride	2.79	0.20	0.050	mg/L	3.0		93	85-115	2	200
Nitrite (as N)	1.37	0.04	0.01	mg/L	1.4		98	85-115	3	200
Nitrate (as N)	1.65	0.04	0.01	mg/L	1.7		97	85-115	1	200

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

November 2, 2012
Work Order: 1211983

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21815 - Ion Chromatography 300.0 Prep										
Matrix Spike (BJ21815-MS1)		**Source: 1211976-19**			Prepared & Analyzed: 10/18/12					
Nitrite (as N)	1.34	0.04	0.01	mg/L	1.4	ND	96	85-115		
Chloride	15.9	0.20	0.050	mg/L	3.0	13.0	97	80-120		
Nitrate (as N)	10.4	0.04	0.01	mg/L	1.7	8.64	104	85-115		
Matrix Spike (BJ21815-MS2)		**Source: 1211983-06**			Prepared & Analyzed: 10/18/12					
Nitrate (as N)	11.1	0.04	0.01	mg/L	1.7	9.29	106	85-115		
Nitrite (as N)	1.39	0.04	0.01	mg/L	1.4	ND	99	85-115		
Chloride	18.9	0.20	0.050	mg/L	3.0	15.7	107	80-120		
Batch BJ21816 - Ion Chromatography 300.0 Prep										
Blank (BJ21816-BLK1)					Prepared & Analyzed: 10/19/12					
Chloride	0.050 U	0.20	0.050	mg/L						
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
LCS (BJ21816-BS1)					Prepared & Analyzed: 10/19/12					
Nitrate (as N)	1.66	0.04	0.01	mg/L	1.7		98	85-115		
Chloride	2.80	0.20	0.050	mg/L	3.0		93	85-115		
Nitrite (as N)	1.39	0.04	0.01	mg/L	1.4		99	85-115		
LCS Dup (BJ21816-BSD1)					Prepared & Analyzed: 10/19/12					
Nitrate (as N)	1.66	0.04	0.01	mg/L	1.7		98	85-115	0	200
Chloride	2.80	0.20	0.050	mg/L	3.0		93	85-115	0	200
Nitrite (as N)	1.41	0.04	0.01	mg/L	1.4		101	85-115	1	200
Matrix Spike (BJ21816-MS1)		**Source: 1212151-02**			Prepared & Analyzed: 10/19/12					
Nitrite (as N)	1.36	0.04	0.01	mg/L	1.4	0.0183	96	85-115		
Chloride	44.4 +O	0.20	0.050	mg/L	3.0	44.2	7	80-120		
Nitrate (as N)	1.93	0.04	0.01	mg/L	1.7	0.333	94	85-115		

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

November 2, 2012
Work Order: 1211983

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21816 - Ion Chromatography 300.0 Prep										
Matrix Spike (BJ21816-MS2)		**Source: 1212028-01**			Prepared & Analyzed: 10/19/12					
Nitrite (as N)	14.4	0.04	0.01	mg/L	14	ND	103	85-115		
Nitrate (as N)	17.1	0.04	0.01	mg/L	17	ND	101	85-115		
Chloride	148	0.20	0.050	mg/L	30	115	110	80-120		
Batch BJ22228 - alkalinity										
Blank (BJ22228-BLK1)					Prepared & Analyzed: 10/22/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
Blank (BJ22228-BLK2)					Prepared & Analyzed: 10/22/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
LCS (BJ22228-BS1)					Prepared & Analyzed: 10/22/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		
LCS (BJ22228-BS2)					Prepared & Analyzed: 10/22/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		
Matrix Spike (BJ22228-MS1)		**Source: 1211981-05**			Prepared & Analyzed: 10/22/12					
Total Alkalinity	250	8.0	2.0	mg/L	120	130	95	80-120		
Matrix Spike (BJ22228-MS2)		**Source: 1212157-01**			Prepared & Analyzed: 10/22/12					
Total Alkalinity	230	8.0	2.0	mg/L	120	110	95	80-120		
Matrix Spike Dup (BJ22228-MSD1)		**Source: 1211981-05**			Prepared & Analyzed: 10/22/12					
Total Alkalinity	250	8.0	2.0	mg/L	120	130	95	80-120	0	26

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

November 2, 2012
Work Order: 1211983

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22228 - alkalinity										
Matrix Spike Dup (BJ22228-MSD2)		**Source: 1212157-01**			Prepared & Analyzed: 10/22/12					
Total Alkalinity	230	8.0	2.0	mg/L	120	110	95	80-120	0	26
Batch BJ22307 - Ammonia by SEAL										
Blank (BJ22307-BLK1)					Prepared & Analyzed: 10/23/12					
Ammonia as N	0.009 U	0.040	0.009	mg/L						
LCS (BJ22307-BS1)					Prepared & Analyzed: 10/23/12					
Ammonia as N	0.48	0.040	0.009	mg/L	0.50		97	90-110		
Matrix Spike (BJ22307-MS1)		**Source: 1211978-27**			Prepared & Analyzed: 10/23/12					
Ammonia as N	0.54	0.040	0.009	mg/L	0.50	0.014	104	90-110		
Matrix Spike (BJ22307-MS2)		**Source: 1212338-01**			Prepared & Analyzed: 10/23/12					
Ammonia as N	0.57	0.040	0.009	mg/L	0.50	0.034	107	90-110		
Matrix Spike Dup (BJ22307-MSD1)		**Source: 1211978-27**			Prepared & Analyzed: 10/23/12					
Ammonia as N	0.52	0.040	0.009	mg/L	0.50	0.014	100	90-110	4	10
Matrix Spike Dup (BJ22307-MSD2)		**Source: 1212338-01**			Prepared & Analyzed: 10/23/12					
Ammonia as N	0.52	0.040	0.009	mg/L	0.50	0.034	98	90-110	8	10
Batch BJ22503 - COD prep										
Blank (BJ22503-BLK1)					Prepared & Analyzed: 10/24/12					
Chemical Oxygen Demand	10 U	25	10	mg/L						

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

November 2, 2012
Work Order: 1211983

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22503 - COD prep										
LCS (BJ22503-BS1)					Prepared & Analyzed: 10/24/12					
Chemical Oxygen Demand	54	25	10	mg/L	50		108	90-110		
Matrix Spike (BJ22503-MS1)		**Source: 1211978-12**			Prepared & Analyzed: 10/24/12					
Chemical Oxygen Demand	63	25	10	mg/L	50	17	92	85-115		
Matrix Spike Dup (BJ22503-MSD1)		**Source: 1211978-12**			Prepared & Analyzed: 10/24/12					
Chemical Oxygen Demand	63	25	10	mg/L	50	17	92	85-115	0	32
Batch BJ22504 - COD prep										
Blank (BJ22504-BLK1)					Prepared & Analyzed: 10/24/12					
Chemical Oxygen Demand	10 U	25	10	mg/L						
LCS (BJ22504-BS1)					Prepared & Analyzed: 10/24/12					
Chemical Oxygen Demand	54	25	10	mg/L	50		108	90-110		
Matrix Spike (BJ22504-MS1)		**Source: 1212355-02**			Prepared & Analyzed: 10/24/12					
Chemical Oxygen Demand	72	25	10	mg/L	50	20	104	85-115		
Matrix Spike Dup (BJ22504-MSD1)		**Source: 1212355-02**			Prepared & Analyzed: 10/24/12					
Chemical Oxygen Demand	65	25	10	mg/L	50	20	90	85-115	10	32
Batch BJ22517 - Ion Chromatography 300.0 Prep										
Blank (BJ22517-BLK1)					Prepared & Analyzed: 10/25/12					
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						
Chloride	0.050 U	0.20	0.050	mg/L						

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

November 2, 2012
Work Order: 1211983

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22517 - Ion Chromatography 300.0 Prep										
LCS (BJ22517-BS1)					Prepared & Analyzed: 10/25/12					
Chloride	2.85	0.20	0.050	mg/L	3.0		95	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		
LCS Dup (BJ22517-BSD1)					Prepared & Analyzed: 10/25/12					
Nitrate (as N)	1.67	0.04	0.01	mg/L	1.7		98	85-115	0.6	200
Nitrite (as N)	1.41	0.04	0.01	mg/L	1.4		101	85-115	0	200
Chloride	2.87	0.20	0.050	mg/L	3.0		96	85-115	0.7	200
Matrix Spike (BJ22517-MS1)		**Source: 1212486-02**			Prepared & Analyzed: 10/25/12					
Chloride	17.6	0.20	0.050	mg/L	3.0	14.8	93	80-120		
Nitrate (as N)	14.3	0.04	0.01	mg/L	1.7	12.8	88	85-115		
Nitrite (as N)	1.41	0.04	0.01	mg/L	1.4	ND	101	85-115		
Matrix Spike (BJ22517-MS2)		**Source: 1212359-05**			Prepared & Analyzed: 10/25/12					
Nitrite (as N)	1.41	0.04	0.01	mg/L	1.4	ND	101	85-115		
Chloride	10.8	0.20	0.050	mg/L	3.0	7.53	109	80-120		
Nitrate (as N)	1.67	0.04	0.01	mg/L	1.7	ND	98	85-115		
Batch BJ22603 - Digestion for TKN by EPA 351.2										
Blank (BJ22603-BLK1)					Prepared: 10/26/12 Analyzed: 10/29/12					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
LCS (BJ22603-BS1)					Prepared: 10/26/12 Analyzed: 10/29/12					
Total Kjeldahl Nitrogen	2.52	0.20	0.05	mg/L	2.5		99	90-110		

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

November 2, 2012
Work Order: 1211983

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22603 - Digestion for TKN by EPA 351.2										
Matrix Spike (BJ22603-MS1)		**Source: 1211983-04**			Prepared: 10/26/12	Analyzed: 10/29/12				
Total Kjeldahl Nitrogen	4.04	0.20	0.05	mg/L	2.5	1.42	103	90-110		
Matrix Spike (BJ22603-MS2)		**Source: 1211983-14**			Prepared: 10/26/12	Analyzed: 10/29/12				
Total Kjeldahl Nitrogen	6.23	0.20	0.05	mg/L	2.5	3.74	98	90-110		
Matrix Spike Dup (BJ22603-MSD1)		**Source: 1211983-04**			Prepared: 10/26/12	Analyzed: 10/29/12				
Total Kjeldahl Nitrogen	3.95	0.20	0.05	mg/L	2.5	1.42	100	90-110	2	20
Matrix Spike Dup (BJ22603-MSD2)		**Source: 1211983-14**			Prepared: 10/26/12	Analyzed: 10/29/12				
Total Kjeldahl Nitrogen	6.31	0.20	0.05	mg/L	2.5	3.74	101	90-110	1	20
Batch BJ22604 - Digestion for TKN by EPA 351.2										
Blank (BJ22604-BLK1)					Prepared: 10/26/12	Analyzed: 10/29/12				
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
LCS (BJ22604-BS1)					Prepared: 10/26/12	Analyzed: 10/29/12				
Total Kjeldahl Nitrogen	2.53	0.20	0.05	mg/L	2.5		100	90-110		
Matrix Spike (BJ22604-MS1)		**Source: 1211978-17**			Prepared: 10/26/12	Analyzed: 10/29/12				
Total Kjeldahl Nitrogen	5.32	0.20	0.05	mg/L	2.5	2.72	103	90-110		
Matrix Spike (BJ22604-MS2)		**Source: 1211979-03**			Prepared: 10/26/12	Analyzed: 10/29/12				
Total Kjeldahl Nitrogen	7.38	0.20	0.05	mg/L	2.5	5.08	91	90-110		
Matrix Spike Dup (BJ22604-MSD1)		**Source: 1211978-17**			Prepared: 10/26/12	Analyzed: 10/29/12				
Total Kjeldahl Nitrogen	5.42	0.20	0.05	mg/L	2.5	2.72	107	90-110	2	20

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

November 2, 2012
Work Order: 1211983

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22604 - Digestion for TKN by EPA 351.2										
Matrix Spike Dup (BJ22604-MSD2)		**Source: 1211979-03**			Prepared: 10/26/12 Analyzed: 10/29/12					
Total Kjeldahl Nitrogen	7.61	0.20	0.05	mg/L	2.5	5.08	100	90-110	3	20
Batch BJ22930 - Ion Chromatography 300.0 Prep										
Blank (BJ22930-BLK1)					Prepared & Analyzed: 10/29/12					
Chloride	0.050 U	0.20	0.050	mg/L						
LCS (BJ22930-BS1)					Prepared & Analyzed: 10/29/12					
Chloride	2.93	0.20	0.050	mg/L	3.0		98	85-115		
LCS Dup (BJ22930-BSD1)					Prepared & Analyzed: 10/29/12					
Chloride	2.92	0.20	0.050	mg/L	3.0		97	85-115	0.3	200
Matrix Spike (BJ22930-MS1)		**Source: 1211968-04**			Prepared & Analyzed: 10/29/12					
Chloride	81.6	0.20	0.050	mg/L	30	50.4	104	80-120		
Matrix Spike (BJ22930-MS2)		**Source: 1212597-01**			Prepared & Analyzed: 10/29/12					
Chloride	46.4 +O	0.20	0.050	mg/L	3.0	322	NR	80-120		
Batch BJ22945 - Digestion for TKN by EPA 351.2										
Blank (BJ22945-BLK1)					Prepared: 10/29/12 Analyzed: 10/31/12					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
LCS (BJ22945-BS1)					Prepared: 10/29/12 Analyzed: 10/31/12					
Total Kjeldahl Nitrogen	2.51	0.20	0.05	mg/L	2.5		99	90-110		

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

November 2, 2012
Work Order: 1211983

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22945 - Digestion for TKN by EPA 351.2										
Matrix Spike (BJ22945-MS1)		**Source: 1212462-02**			Prepared: 10/29/12 Analyzed: 10/31/12					
Total Kjeldahl Nitrogen	3.18	0.20	0.05	mg/L	2.5	0.600	102	90-110		
Matrix Spike (BJ22945-MS2)		**Source: 1212503-01**			Prepared: 10/29/12 Analyzed: 10/31/12					
Total Kjeldahl Nitrogen	2.63	0.20	0.05	mg/L	2.5	ND	104	90-110		
Matrix Spike Dup (BJ22945-MSD1)		**Source: 1212462-02**			Prepared: 10/29/12 Analyzed: 10/31/12					
Total Kjeldahl Nitrogen	3.32	0.20	0.05	mg/L	2.5	0.600	107	90-110	4	20
Matrix Spike Dup (BJ22945-MSD2)		**Source: 1212503-01**			Prepared: 10/29/12 Analyzed: 10/31/12					
Total Kjeldahl Nitrogen	2.49	0.20	0.05	mg/L	2.5	ND	98	90-110	5	20
Batch BJ23002 - Ammonia by SEAL										
Blank (BJ23002-BLK1)					Prepared & Analyzed: 10/30/12					
Ammonia as N	0.009 U	0.040	0.009	mg/L						
LCS (BJ23002-BS1)					Prepared & Analyzed: 10/30/12					
Ammonia as N	0.53	0.040	0.009	mg/L	0.50		105	90-110		
Matrix Spike (BJ23002-MS1)		**Source: 1212352-02**			Prepared & Analyzed: 10/30/12					
Ammonia as N	0.53	0.040	0.009	mg/L	0.50	0.056	96	90-110		
Matrix Spike (BJ23002-MS2)		**Source: 1212381-07**			Prepared & Analyzed: 10/30/12					
Ammonia as N	0.53	0.040	0.009	mg/L	0.50	0.063	93	90-110		
Matrix Spike Dup (BJ23002-MSD1)		**Source: 1212352-02**			Prepared & Analyzed: 10/30/12					
Ammonia as N	0.55	0.040	0.009	mg/L	0.50	0.056	98	90-110	2	10

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

November 2, 2012
Work Order: 1211983

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ23002 - Ammonia by SEAL										
Matrix Spike Dup (BJ23002-MSD2)		**Source: 1212381-07**			Prepared & Analyzed: 10/30/12					
Ammonia as N	0.53	0.040	0.009	mg/L	0.50	0.063	94	90-110	1	10

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

November 2, 2012
Work Order: 1211983

* 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.

Q Sample held beyond the accepted holding time.
+O Matrix spike source sample was over the reccommended range for the method.

Questions regarding this report should be directed to :

Kathryn Nordmark
Telephone (813) 855-1844 FAX (813) 855-2218
Kathryn@southernanalyticallabs.com

or to Client Services (clientservices@southernanalyticallabs.com).

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

1211983

Client Name: Hazen and Sawyer	Contact / Phone:
Project Name / Location: S&GW Test Facility SE #3 (BKG)	
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	250mL P, H_2SO_4 TKN, NH_4	1LP, Cool NOx, Cl	250mL P, H_2SO_4 TKN, NH_4, COD, TP	1LP, Cool NOx, Cl, Alkalinity	1LP, Cool NOx, Cl, Alkalinity, F, OP, SO_4	250mLaG, Cool DOC	40mLaV, HCl TOC	250mL P, HNO_3 B, Ca, Fe, Mg, Mn, K, Na					Field pH	Field Temperature	Field Conductivity	Field DO
01	PZ01-BKG-09	10/16/12	1955	GW		X	1	1											4.7	29.1	53.0	3.4
02	LY01-BKG-24	10/15/12	0915	GW		X	1	1											6.3	26.8	107	6.7
03	LY02-BKG-42	10/16/12	1510	GW		X	1	1											6.7	32.6	512	5.7
04	PZ04-BKG-09	10/16/12	0935	GW		X	1	1											5.5	26.5	105.3	2.6
05	PZ05-BKG-09	10/17/12	0902	GW		X	1	1											5.3	25.9	66.4	0.24
06	PZ24-BKG-26		1141	GW		X			1	1									5.1	25.4	283	0.46
07	PZ24-BKG-26 DUP		1146	GW		X			1	1									5.1	25.4	283	0.46
08	PZ29-BKG09	10/16/12	10:05	GW		X			1	1									4.9	26.9	214.4	1.1
09	PZ30-BKG-16	10/16/12	10:46	GW		X			1	1									5.6	26.7	288	2.4
10	PZ31-BKG-26	10/16/12	11:10	GW		X			1	1									5.1	26.3	325	3.7
11	PZ31-BKG-26 DUP	10/16/12	11:12	GW		X			1	1									5.1	26.3	325	3.7
12	PZ32-BKG09	10/16/12	11:35	GW		X			1	1									4.5	27.6	163	3.1

Relinquished	Date/Time	Received	Date/Time
Containers Prepared/ Relinquished: J. Chambers	Date/Time: 10-12-12 11:55	Received:	Date/Time: 1155 10/12/12
Relinquished:	Date/Time: 1520 10/16/12	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time: 1425 10-17-12	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

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

Instructions / Remarks:

1211983

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

1211983

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: S&GW Test Facility SE #3 (BKG)

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	250mL P, H_2SO_4 TKN, NH_4	1LP, Cool NOx, Cl	250mL P, H_2SO_4 TKN, NH_4, COD, TP	1LP, Cool NOx, Cl, Alkalinity	1LP, Cool NOx, Cl, Alkalinity, F, OP, SO_4	250mLaG, Cool DOC	40mLaV, HCl TOC	250mL P, HNO_3 B, Ca, Fe, Mg, Mn, K, Na					Field pH	Field Temperature	Field Conductivity	Field DO
13	PZ33-BKG-16	10/16/12	12:01	GW		X			1	1									5.1	27.2	342	1.5
14	PZ34-BKG-26	10/16/12	13:05	GW		X			1	1									5.6	26.8	316	2.8
15	PZ35-BKG09	10/17/12	0929	GW		X	1			1									6.6	26.1	472	1.57
16	PZ36-BKG-16		0946	GW		X	1			1									5.1	26.0	321.2	0.17
17	PZ37-BKG-26		1007	GW		X			1	1									5.0	25.4	331.3	0.12
18	PZ38-BKG09		1032	GW		X	1			1									5.9	26.0	396.2	0.24
19	PZ39-BKG-16		1048	GW		X	1			1									5.8	25.6	226.0	0.18
20	PZ40-BKG-26		1113	GW		X	1			1									5.2	24.9	305.6	0.12
																			~~5.8~~	~~24.9~~	~~305.6~~	~~0.12~~

Containers Prepared/ Relinquished:	Date/Time:	Received:	Date/Time:
G. Chambers	10-12-12 11:55		1155 101212
Relinquished:	Date/Time: 1530 101612	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

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

Instructions / Remarks:

1211983

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	10/16/12 14:55	SAL Project #	1211983	Project Name	S&GW Test Facility SE #3
Well Number	PZ01-BKG-09		01	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1.25"	WELL CAPACITY (gal/ft)		Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	4.97	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	1020mL	1/4 WELL VOLUME		3 WELL VOLUMES	3060mL	5 WELL VOLUMES	5100mL

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)
14:42	1000mL	1000mL			5.2	31.2	47.8	4.7	1.44	clear	none
14:47	1000mL	2000mL			4.8	29.9	52.0	3.7	1.09	clear	none
14:52	1000mL	3000mL			4.7	29.1	53.0	3.4	1.49	clear	none

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	HAS					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	clear sunny 80s								
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	10/15/12 09:15am	SAL Project #	1241983	Project Name	S&GW Test Facility SE #5
Well Number	LY01-BKG-24		02	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)		WELL CAPACITY (gal/ft)		Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)		PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)		REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	
Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)										
WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =										
ONE WELL VOLUME			1/4 WELL VOLUME		3 WELL VOLUMES			5 WELL VOLUMES		
EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME										
PUMP VOLUME			TUBING LEGNTH		FLOW CELL VOLUME			EQUIPMENT VOLUME		
INITIAL TUBING LEGNTH IN WELL (FEET)			FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START		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)
09:15am	~700mL				6.3	26.8	107	6.7		Clear	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)		HJS				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		clear sunny 70s							
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

Revised By: 09/25/09 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	10/16/12 15:10pm	SAL Project #	1211983	Project Name	S&GW Test Facility SE #5
Well Number	LY02-BKG-42		03	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)		WELL CAPACITY (gal/ft)		Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)		PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)		REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	
Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)										
WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =										
ONE WELL VOLUME			1/4 WELL VOLUME		3 WELL VOLUMES			5 WELL VOLUMES		
EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME										
PUMP VOLUME			TUBING LEGNTH		FLOW CELL VOLUME			EQUIPMENT VOLUME		
INITIAL TUBING LEGNTH IN WELL (FEET)			FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START		PURGE TIME END		TOTAL PURGED	
INST. ID				SAL-SAM-63-_____	SAL-SAM - 65-_____	SAL-SAM-63-_____	SAL-SAM-55-_____	SAL-SAM-0_____		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
15:10	<100mL				6.7	32.6	512	5.7		yellow	none

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)		HJS				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:		Contact:	
				Phone:	
Date Sampled	10/16/12 09:35am	SAL Project #	1211983	Project Name	S&GW Test Facility SE #3
Well Number	PZ04-BKG-09		04	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1.25"	WELL CAPACITY (gal/ft)		Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	4.87'	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	10'	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	1240 mL	1/4 WELL VOLUME		3 WELL VOLUMES	3720	5 WELL VOLUMES	6200

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

PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME		EQUIPMENT VOLUME	

INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)			PURGE TIME START	0920	PURGE TIME END	0935	TOTAL PURGED	
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)
0920	1200mL	1200mL			5.37	26.1	134.7	2.98	21.76	clear	
0925	1200 mL	2400mL			5.35	26.4	105.7	2.65	3.18	"	
0930	1200 mL	3600mL			5.48	26.5	105.3	2.55	2.48	"	
0935	1200 mL	4800mL									

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)	HdS					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	clear sunny 80s								
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	101712	SAL Project #	121983	Project Name	S&GW Test Facility SE #5
Well Number	PZ05-BKG-09		05	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1.25	WELL CAPACITY (gal/ft)	0.06	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	6.41	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	8.90	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	0.149	1/4 WELL VOLUME		3 WELL VOLUMES	0.448		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	0852	PURGE TIME END	0901	TOTAL PURGED	0.90	
INST. ID	X	X	X	X	SAL-SAM-63-08	SAL-SAM-65-08	SAL-SAM-63-08	SAL-SAM-55-08	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)
0855	0.30	0.30	0.10	6.65	5.3	25.7	66.2	0.38	8.91	CLEAR	NONE
0858	0.30	0.60	|	|	5.3	25.7	66.4	0.27	4.45	|	|
0901	0.30	0.90	|	|	5.3	25.9	66.4	0.24	2.84	|	|

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	0902	SAMPLING ENDED	0903	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-VOCS COLLECTED THROUGH TRAP?	Y N (N/A)
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Cloudy, 72°								
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

Revision Date: 09/25/09 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	101712	SAL Project #	1211983	Project Name	S&GW Test Facility SE #3
Well Number	PZ24-BKG-26		06	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	2.0	WELL CAPACITY (gal/ft)	0.1632	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	7.87	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	30.40	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	3.67	1/4 WELL VOLUME	0.919	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	1126	PURGE TIME END	1140	TOTAL PURGED	7.00
INST. ID	X	X	X	X	SAL-SAM-63-08	SAL-SAM-65-08	SAL-SAM-63-08	SAL-SAM-55-08	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)
1134	4.00	4.00	0.50	8.52	5.1	25.5	272.6	0.46	9.69	CLEAR	NONE
1137	1.50	5.50	|	|	5.1	25.4	278.7	0.45	5.15	|	|
1140	1.50	7.00	|	|	5.1	25.4	283.1	0.46	2.55	|	|

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL			SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT		SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED	1141	SAMPLING ENDED	1142	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, 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	101712	SAL Project #	1211983	Project Name	S&GW Test Facility SE #
Well Number	PZ24-BKG-26 DUP		07	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	2.0	WELL CAPACITY (gal/ft)	0.1632	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	7.87	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	30.40	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	3.67	1/4 WELL VOLUME	0.919	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	1126	PURGE TIME END	1140	TOTAL PURGED	7.00
INST. ID	X	X	X	X	SAL-SAM-63-08	SAL-SAM-65-08	SAL-SAM-63-08	SAL-SAM-55-08	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)
1134	4.00	4.00	0.50	8.52	5.1	25.5	272.6	0.46	9.69	CLEAR	NONE
1137	1.50	5.50	|	|						|	|
1140	1.50	7.00	|	|						|	|

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL				SAMPLER(S) SIGNATURES:				
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP (TL) TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	1145	SAMPLING ENDED	1146	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, 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	10/16/12 10:05am	SAL Project #	1211983	Project Name	S&GW Test Facility SE #3
Well Number	PZ-29-BKG09		08	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	3/4"	WELL CAPACITY (gal/ft)		Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)		PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)		REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	
Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)										
WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =										
ONE WELL VOLUME	400mL	1/4 WELL VOLUME			3 WELL VOLUMES	1200 mL		5 WELL VOLUMES	2000mL	
EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME										
PUMP VOLUME		TUBING LEGNTH			FLOW CELL VOLUME			EQUIPMENT VOLUME		
INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)			PURGE TIME START		PURGE TIME END		TOTAL PURGED	
INST. ID				SAL-SAM-63-____	SAL-SAM - 65-____	SAL-SAM-63-____	SAL-SAM-55-__	SAL-SAM-0____		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
9:50	1000mL				4.98	26.0	212.1	3.04	151.7		
9:55	2000mL	2000mL			4.85	26.8	215.1	1.15	19.56		
10:00	1000mL	3000mL			4.83	26.8	214.7	1.34	11.37		
10:05	1000mL	4000mL			4.90	26.9	214.4	1.10	3.69		
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)	HJS					SAMPLER(S) SIGNATURES:	[signature]		
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	Clear sunny 80s								
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	10/16/12 10:46 am	SAL Project #	1211983	Project Name	S&GW Test Facility SE #3
Well Number	PZ30-BKG-16		09	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)		WELL CAPACITY (gal/ft)		Screen Interval (Feet)	UNK To UNK	Static Depth to Water (Feet)	6.97	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	2000 mL	1/4 WELL VOLUME		3 WELL VOLUMES	6000 mL	5 WELL VOLUMES	10,000 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	6000 mL
INST. ID				SAL-SAM-63-____	SAL-SAM-65-____	SAL-SAM-63-____	SAL-SAM-55-__	SAL-SAM-0____	

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
10:35	2000 mL	2000 mL			5.50	26.9	283	2.74	39.15	Yellowish Cloudy	
10:40 am	↓	4000 mL			5.50	26.7	286	2.57	5.84	Clear	none
10:45 am		6000 mL			5.57	26.7	288	2.43	2.07	clear	none

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)		HOS				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		Clear Sunny 80s							
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	10/16/12 11:10 am	SAL Project #	1211983	Project Name	S&GW Test Facility SE #3
Well Number	PZ31-BKG-26		10	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)		WELL CAPACITY (gal/ft)		Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	3.65'	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	3770 ml (1 gal)	1/4 WELL VOLUME		3 WELL VOLUMES	3 gal	5 WELL VOLUMES	5 gal	

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)
10:58	1 gal	1 gal			5.09	26.4	324	2.94	117.8	brown	none
11:03	↓	2 gal			5.22	26.4	326	3.48	12.67	light brown	↓
11:08	↓	3 gal			5.07	26.3	325	3.68	3.28		

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

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

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

Reviewed By: Date:

Revision Date 09/25/09

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	10/16/12	SAL Project #	1211983	Project Name	S&GW Test Facility SE #3
Well Number	PZ31-BKG-26 DUP		MW 10/19/12 ~~07~~ 11	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)		WELL CAPACITY (gal/ft)		Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	3.65	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)		REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	
Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)										
WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =										
ONE WELL VOLUME	1 gal		1/4 WELL VOLUME		3 WELL VOLUMES	3 gal		5 WELL VOLUMES	5 gal	
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)
10:58	1 gal	1 gal			5.09	26.4	324	2.94	117.8		
11:03	↓	2 gal			5.22	26.4	326	3.48	12.67		
11:08	↓	3 gal			5.07	26.3	325	3.68	3.28		

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

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

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

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	10/16/12 11:35am	SAL Project #	1211983	Project Name	S&GW Test Facility SE #3
Well Number	PZ32-BKG-09		12	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)	7.80'	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	500mL	1/4 WELL VOLUME			3 WELL VOLUMES	1500mL		5 WELL VOLUMES	2500mL	
EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME										
PUMP VOLUME		TUBING LEGNTH			FLOW CELL VOLUME			EQUIPMENT VOLUME		
INITIAL TUBING LEGNTH IN WELL (FEET)			FINAL TUBING LEGNTH IN WELL (FEET)			PURGE TIME START		PURGE TIME END		TOTAL PURGED
INST. ID					SAL-SAM-63-____	SAL-SAM - 65-_____	SAL-SAM-63-_____	SAL-SAM-55-__	SAL-SAM-0_____	

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
11:23	1000mL	1000mL			4.5	28.1	165	2.7	362.5	brown	none
11:28	1000mL	2000mL			4.5	27.6	158.6	3.2	23.67	clear	↓
11:33	1000mL	3000mL			4.5	27.6	163.4	3.1	6.29	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)	HdS					SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED		SAMPLING ENDED		FIELD CLEANED	Y N	CLEANING STEPS			
FIELD FILTERED?	Y N	FILTER SIZE (μm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?	Y N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS									
COMMENTS									

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

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

Reviewed By: Date:

Revision Date 09/25/09

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	10/16/12 12:01 pm	SAL Project #	1211983	Project Name	S&GW Test Facility SE #3
Well Number	PZ33-BKG-16		13	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)		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	2000 mL		1/4 WELL VOLUME		3 WELL VOLUMES	6000 mL		5 WELL VOLUMES	10,000 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)
11:50	2000mL	2000mL			5.1	27.5	343	2.3	0.38	clear	none
11:55	↓	4000mL			5.0	27.3	342	1.8	0.05	↓	none
12:00		6000mL			5.1	27.2	342	1.5	0.26		

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

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

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

Reviewed By: Date:

Revision Date 09/25/09

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	10/16/12 13:05	SAL Project #	1211983	Project Name	S&GW Test Facility SE #3
Well Number	PZ34-BKG-26		14	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)	4.73	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	3600 mL 1 gal	1/4 WELL VOLUME		3 WELL VOLUMES	3 gal	5 WELL VOLUMES	5 gal	

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

PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME		EQUIPMENT VOLUME		

INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START		PURGE TIME END		TOTAL PURGED	
INST. ID				SAL-SAM-63-____	SAL-SAM-65-____	SAL-SAM-63-____	SAL-SAM-55-__	SAL-SAM-0____		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
12:52	1 gal	1 gal			5.3	27.2	308	~~2.0~~ 1.8	12.10	light brown	none
12:58	1 gal	2 gal			5.5	26.9	311	2.8	3.12	Clear	none
13:02	1 gal	3 gal			5.6	26.8	316	2.8	1.24	Clear	none

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)		H&S				SAMPLER(S) SIGNATURES:	[signature]		
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		clear sunny - hot!							
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	101712	SAL Project #	1211983	Project Name	S&GW Test Facility SE #3
Well Number	PZ35-BKG09		15	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)	4.54	PURGE PUMP CODE (PP) GP IBP
TOTAL WELL DEPTH (Feet)	9.85	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)
Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)									
WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =									
ONE WELL VOLUME	0.212	1/4 WELL VOLUME		3 WELL VOLUMES	0.637		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	0913	PURGE TIME END	0928	TOTAL PURGED	1.50
INST. ID				SAL-SAM-63-08	SAL-SAM-65-08	SAL-SAM-63-08	SAL-SAM-55-08	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)
0916	0.30	0.30	0.10	4.68	6.4	24.8	544	1.05	SMAX ~~BEIGE~~	BEIGE	NONE
0919	0.30	0.60	|	|	6.5	26.0	552	0.95	|	|	|
0922	0.30	0.90	|	|	6.6	26.0	547	1.21	353	CLOUDY	|
0925	0.30	1.20	|	|	6.6	26.1	512	1.52	135	|	|
0928	0.30	1.50	|	|	6.6	26.1	472.9	1.51	102	|	|

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	0929	SAMPLING ENDED	0930	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, 72°								
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	101717	SAL Project #	1211983	Project Name	S&GW Test Facility SE #3
Well Number	PZ36-BKG-16		16	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)	7.80	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	19.80	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	0.48	1/4 WELL VOLUME	0.12	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	0931	PURGE TIME END	0945	TOTAL PURGED	1.40
INST. ID	X	X	X	X	SAL-SAM-63-08	SAL-SAM-65-08	SAL-SAM-63-08	SAL-SAM-55-08	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)
0936	0.50	0.50	0.10	8.16	5.3	26.0	319.8	0.66	42.4	CLOUDY	NONE
0939	0.30	0.80	|	|	5.3	26.0	321.1	0.33	29.4	|	|
0942	0.30	1.10	|	|	5.2	26.0	321.4	0.23	28.8	|	|
0945	0.30	1.40	|	|	5.1	26.0	321.2	0.17	28.1	|	|

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL			SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP (TL) TT		SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED	0946	SAMPLING ENDED	0947	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, 74°						
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	101712	SAL Project #	1211983	Project Name	S&GW Test Facility SE #3
Well Number	PZ37-BKG-26		17	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)	3.70	PURGE PUMP CODE: PP GP IBP
TOTAL WELL DEPTH (Feet)	24.80	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	0.844	1/4 WELL VOLUME	0.211	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	0949	PURGE TIME END	1006	TOTAL PURGED	3.40
INST. ID				SAL-SAM-63-08	SAL-SAM-65-08	SAL-SAM-63-08	SAL-SAM-55-08	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)
0954	1.00	1.00	0.20	4.98	5.1	25.5	319.7	0.37	427	CLOUDY	NONE
0957	0.60	1.60			5.0	25.4	330.9	0.14	235		
1000	0.60	2.20			5.0	25.4	331.8	0.17	93.4		
1003	0.60	2.80			5.0	25.4	331.7	0.12	54.7		
1006	0.60	3.40			5.0	25.4	331.3	0.12	31.5		

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	1007	SAMPLING ENDED	1008	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, 74°								
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	101712	SAL Project #	1211983	Project Name	S&GW Test Facility SE #3
Well Number	PZ38-BKG-09		18	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)	3.43	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	9.85	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	

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

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

ONE WELL VOLUME	0.256	1/4 WELL VOLUME		3 WELL VOLUMES	0.770	5 WELL VOLUMES	

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

PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME		EQUIPMENT VOLUME	

INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START	1016	PURGE TIME END	1031	TOTAL PURGED	1.50
INST. ID				SAL-SAM-63-08	SAL-SAM-65-08	SAL-SAM-63-08	SAL-SAM-55-05	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	3.82	6.1	25.8	231.7	0.86	186	CLOUDY	NONE
1022	0.30	0.60			6.1	25.9	215.3	0.97	356		
1025	0.30	0.90			6.0	26.0	205.6	0.39	156		
1028	0.30	1.20			5.9	26.0	199.0	0.36	51.8		
1031	0.30	1.50			5.9	26.0	196.2	0.24	28.7		

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	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	Cloudy, 75°								
COMMENTS									

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

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

Reviewed By: Date:

Revision Date 09/25/09

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled	10/7/12	SAL Project #	1211983	Project Name	S&GW Test Facility SE #3
Well Number	PZ39-BKG-16		19	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)	6.62	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	19.78	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	0.526	1/4 WELL VOLUME	0.131	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	1035	PURGE TIME END	1047	TOTAL PURGED	1.20
INST. ID				SAL-SAM-63-08	SAL-SAM-65-08	SAL-SAM-63-08	SAL-SAM-55-08	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)
1041	0.60	0.60	0.10	6.88	5.8	25.6	222.5	0.31	18.5	CLEAR	NONE
1044	0.30	0.90	|	|	5.8	25.6	224.6	0.25	16.2	|	|
1047	0.30	1.20	|	|	5.8	25.6	226.0	0.18	4.72	|	|

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, 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	101712	SAL Project #	1211983	Project Name	S&GW Test Facility SE #3
Well Number	PZ40-BKG26		20	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)	3.12	PURGE PUMP CODE: PP GP IBP
TOTAL WELL DEPTH (Feet)	24.80	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	0.867	1/4 WELL VOLUME	0.216	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	1055	PURGE TIME END	1112	TOTAL PURGED	3.40

INST. ID					SAL-SAM-63-08	SAL-SAM-65-08	SAL-SAM-63-08	SAL-SAM-55-08	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)
1100	1.00	1.00	0.20	3.82	5.3	25.0	307.1	0.22	391	CLOUDY	NONE
1103	0.60	1.60			5.2	25.0	308.1	0.17	54.4		
1106	0.60	2.20			5.2	24.9	309.1	0.14	19.8	CLEAR	
1109	0.60	2.80			5.2	24.9	309.5	0.12	10.6		
1112	0.60	3.40			5.2	24.9	309.6	0.12	8.18		

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL				SAMPLER(S) SIGNATURES:				
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	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	Cloudy, 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

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

November 2, 2012
Work Order: 1211985

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**PZ-41**						
Matrix		**Groundwater**						
SAL Sample Number		**1211985-01**						
Date/Time Collected		**10/16/12 15:50**						
Collected by		**Josephine Edeback-Hirst**						
Date/Time Received		**10/16/12 15:30**						
Field Parameters								
pH	SU	5.0	DEP FT1100	0.1	0.1	10/30/12 10:23	10/16/12 15:50	1
Water Temperature	°C	27.8	DEP FT1400	0.1	0.1	10/30/12 10:23	10/16/12 15:50	1
Specific conductance	umhos/cm	901	DEP FT1200	0.1	0.1	10/30/12 10:23	10/16/12 15:50	1
Dissolved Oxygen	mg/L	6.8	DEP FT1500	0.1	0.1	10/30/12 10:23	10/16/12 15:50	1
Inorganics								
Ammonia as N	mg/L	0.021 I	EPA 350.1	0.040	0.009		10/29/12 12:46	1
Ammonium as NH4	mg/L	0.03 I	EPA 350.1	0.05	0.01		10/31/12 14:47	1
Chloride	mg/L	68	EPA 300.0	0.20	0.050		10/24/12 02:07	1
Nitrate (as N)	mg/L	51 Q	EPA 300.0	0.04	0.01		10/19/12 15:00	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/17/12 11:45	1
Total Kjeldahl Nitrogen	mg/L	8.4	EPA 351.2	0.20	0.05	10/26/12 16:02	10/30/12 10:59	9.62
Nitrate+Nitrite (N)	mg/L	51	EPA 300.0	0.08	0.02		10/19/12 15:00	1
Sample Description		**PZ-42**						
Matrix		**Groundwater**						
SAL Sample Number		**1211985-02**						
Date/Time Collected		**10/16/12 16:10**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/16/12 15:30**						
Field Parameters								
pH	SU	5.0	DEP FT1100	0.1	0.1	10/30/12 10:23	10/16/12 16:10	1
Water Temperature	°C	27.6	DEP FT1400	0.1	0.1	10/30/12 10:23	10/16/12 16:10	1
Specific conductance	umhos/cm	882	DEP FT1200	0.1	0.1	10/30/12 10:23	10/16/12 16:10	1
Dissolved Oxygen	mg/L	5.8	DEP FT1500	0.1	0.1	10/30/12 10:23	10/16/12 16:10	1
Inorganics								
Ammonia as N	mg/L	0.074	EPA 350.1	0.040	0.009		10/29/12 12:48	1
Ammonium as NH4	mg/L	0.10	EPA 350.1	0.05	0.01		10/31/12 14:47	1
Chloride	mg/L	73	EPA 300.0	0.20	0.050		10/18/12 15:00	1
Nitrate (as N)	mg/L	52	EPA 300.0	0.04	0.01		10/18/12 15:00	1
Nitrite (as N)	mg/L	0.05	EPA 300.0	0.04	0.01		10/18/12 12:00	1
Total Kjeldahl Nitrogen	mg/L	4.8	EPA 351.2	0.20	0.05	10/26/12 16:02	10/30/12 09:58	1
Nitrate+Nitrite (N)	mg/L	52	EPA 300.0	0.08	0.02		10/18/12 15:00	1

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

November 2, 2012
Work Order: 1211985

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**PZ-42**						
Matrix		**Groundwater**						
SAL Sample Number		**1211985-02RE1**						
Date/Time Collected		**10/16/12 16:10**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/16/12 15:30**						
Inorganics								
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/18/12 15:00	1
Nitrate+Nitrite (N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/18/12 15:00	1
Sample Description		**PZ-43**						
Matrix		**Groundwater**						
SAL Sample Number		**1211985-03**						
Date/Time Collected		**10/16/12 13:27**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/16/12 15:30**						
Field Parameters								
pH	SU	5.0	DEP FT1100	0.1	0.1		10/16/12 13:27	1
Water Temperature	°C	27.7	DEP FT1400	0.1	0.1		10/16/12 13:27	1
Specific conductance	umhos/cm	98	DEP FT1200	0.1	0.1		10/16/12 13:27	1
Dissolved Oxygen	mg/L	4.7	DEP FT1500	0.1	0.1		10/16/12 13:27	1
Inorganics								
Ammonia as N	mg/L	0.011 I	EPA 350.1	0.040	0.009		10/18/12 10:33	1
Ammonium as NH4	mg/L	0.01 U	EPA 350.1	0.05	0.01		10/31/12 14:47	1
Chloride	mg/L	1.7	EPA 300.0	0.20	0.050		10/17/12 17:07	1
Nitrate (as N)	mg/L	2.7	EPA 300.0	0.04	0.01		10/17/12 17:07	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/17/12 17:07	1
Total Kjeldahl Nitrogen	mg/L	1.4	EPA 351.2	0.20	0.05	10/26/12 16:02	10/30/12 10:00	1
Nitrate+Nitrite (N)	mg/L	2.7	EPA 300.0	0.08	0.02		10/17/12 17:07	1

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

November 2, 2012
Work Order: 1211985

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21706 - Ion Chromatography 300.0 Prep										
Blank (BJ21706-BLK1)					Prepared & Analyzed: 10/17/12					
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 (BJ21706-BS1)					Prepared & Analyzed: 10/17/12					
Chloride	3.07	0.20	0.050	mg/L	3.0		102	85-115		
Nitrite (as N)	1.41	0.04	0.01	mg/L	1.4		101	85-115		
Nitrate (as N)	1.66	0.04	0.01	mg/L	1.7		98	85-115		
LCS Dup (BJ21706-BSD1)					Prepared & Analyzed: 10/17/12					
Nitrite (as N)	1.37	0.04	0.01	mg/L	1.4		98	85-115	3	200
Chloride	2.77	0.20	0.050	mg/L	3.0		92	85-115	10	200
Nitrate (as N)	1.66	0.04	0.01	mg/L	1.7		98	85-115	0	200
Matrix Spike (BJ21706-MS1)		**Source: 1211971-10**			Prepared & Analyzed: 10/17/12					
Nitrite (as N)	1.40	0.04	0.01	mg/L	1.4	ND	100	85-115		
Nitrate (as N)	17.1	0.04	0.01	mg/L	1.7	15.3	106	85-115		
Chloride	31.2	0.20	0.050	mg/L	3.0	28.1	103	80-120		
Matrix Spike (BJ21706-MS2)		**Source: 1211971-20**			Prepared & Analyzed: 10/17/12					
Chloride	33.1 +O	0.20	0.050	mg/L	3.0	30.6	83	80-120		
Nitrite (as N)	1.43	0.04	0.01	mg/L	1.4	ND	102	85-115		
Nitrate (as N)	15.0	0.04	0.01	mg/L	1.7	13.5	88	85-115		
Batch BJ21711 - Ammonia by SEAL										
Blank (BJ21711-BLK1)					Prepared & Analyzed: 10/18/12					
Ammonia as N	0.009 U	0.040	0.009	mg/L						

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

November 2, 2012
Work Order: 1211985

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21711 - Ammonia by SEAL										
LCS (BJ21711-BS1)					Prepared & Analyzed: 10/18/12					
Ammonia as N	0.48	0.040	0.009	mg/L	0.50		96	90-110		
Matrix Spike (BJ21711-MS1)		**Source: 1211887-07**			Prepared & Analyzed: 10/18/12					
Ammonia as N	0.51	0.040	0.009	mg/L	0.50	0.043	94	90-110		
Matrix Spike (BJ21711-MS2)		**Source: 1212006-07**			Prepared & Analyzed: 10/18/12					
Ammonia as N	0.52	0.040	0.009	mg/L	0.50	0.031	98	90-110		
Matrix Spike Dup (BJ21711-MSD1)		**Source: 1211887-07**			Prepared & Analyzed: 10/18/12					
Ammonia as N	0.50	0.040	0.009	mg/L	0.50	0.043	91	90-110	2	10
Matrix Spike Dup (BJ21711-MSD2)		**Source: 1212006-07**			Prepared & Analyzed: 10/18/12					
Ammonia as N	0.52	0.040	0.009	mg/L	0.50	0.031	98	90-110	0.1	10
Batch BJ21816 - Ion Chromatography 300.0 Prep										
Blank (BJ21816-BLK1)					Prepared & Analyzed: 10/19/12					
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						
LCS (BJ21816-BS1)					Prepared & Analyzed: 10/19/12					
Nitrite (as N)	1.39	0.04	0.01	mg/L	1.4		99	85-115		
LCS Dup (BJ21816-BSD1)					Prepared & Analyzed: 10/19/12					
Nitrite (as N)	1.41	0.04	0.01	mg/L	1.4		101	85-115	1	200
Matrix Spike (BJ21816-MS1)		**Source: 1212151-02**			Prepared & Analyzed: 10/19/12					
Nitrite (as N)	1.36	0.04	0.01	mg/L	1.4	0.0183	96	85-115		

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

November 2, 2012
Work Order: 1211985

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21816 - Ion Chromatography 300.0 Prep										
Matrix Spike (BJ21816-MS2)		**Source: 1212028-01**			Prepared & Analyzed: 10/19/12					
Nitrite (as N)	14.4	0.04	0.01	mg/L	14	ND	103	85-115		
Batch BJ21920 - Ion Chromatography 300.0 Prep										
Blank (BJ21920-BLK1)					Prepared & Analyzed: 10/21/12					
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
Chloride	0.050 U	0.20	0.050	mg/L						
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						
LCS (BJ21920-BS1)					Prepared & Analyzed: 10/21/12					
Nitrite (as N)	1.38	0.04	0.01	mg/L	1.4		99	85-115		
Chloride	2.84	0.20	0.050	mg/L	3.0		95	85-115		
Nitrate (as N)	1.69	0.04	0.01	mg/L	1.7		99	85-115		
LCS Dup (BJ21920-BSD1)					Prepared & Analyzed: 10/21/12					
Nitrate (as N)	1.69	0.04	0.01	mg/L	1.7		99	85-115	0	200
Chloride	2.95	0.20	0.050	mg/L	3.0		98	85-115	4	200
Nitrite (as N)	1.43	0.04	0.01	mg/L	1.4		102	85-115	4	200
Matrix Spike (BJ21920-MS1)		**Source: 1212306-01**			Prepared & Analyzed: 10/21/12					
Chloride	47.5 +O	0.20	0.050	mg/L	3.0	47.5	0	80-120		
Nitrate (as N)	1.72	0.04	0.01	mg/L	1.7	ND	101	85-115		
Nitrite (as N)	1.33	0.04	0.01	mg/L	1.4	ND	95	85-115		
Matrix Spike (BJ21920-MS2)		**Source: 1211985-02**			Prepared & Analyzed: 10/21/12					
Nitrite (as N)	14.6	0.04	0.01	mg/L	14	ND	104	85-115		
Nitrate (as N)	69.9	0.04	0.01	mg/L	17	51.9	106	85-115		
Chloride	105	0.20	0.050	mg/L	30	73.4	105	80-120		

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

November 2, 2012
Work Order: 1211985

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21939 - Ion Chromatography 300.0 Prep										
Blank (BJ21939-BLK1)					Prepared & Analyzed: 10/21/12					
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						
LCS (BJ21939-BS1)					Prepared & Analyzed: 10/21/12					
Nitrite (as N)	1.38	0.04	0.01	mg/L	1.4		99	85-115		
LCS Dup (BJ21939-BSD1)					Prepared & Analyzed: 10/21/12					
Nitrite (as N)	1.37	0.04	0.01	mg/L	1.4		98	85-115	0.7	200
Matrix Spike (BJ21939-MS1)		**Source: 1211985-01**			Prepared & Analyzed: 10/21/12					
Nitrate (as N)	27.1 +O	0.04	0.01	mg/L	1.7	51.1	NR	85-115		
Nitrite (as N)	1.36	0.04	0.01	mg/L	1.4	ND	97	85-115		
Chloride	41.0 +O	0.20	0.050	mg/L	3.0	67.5	NR	80-120		
Batch BJ22310 - Ion Chromatography 300.0 Prep										
Blank (BJ22310-BLK1)					Prepared & Analyzed: 10/24/12					
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
Chloride	0.050 U	0.20	0.050	mg/L						
LCS (BJ22310-BS1)					Prepared & Analyzed: 10/24/12					
Nitrate (as N)	1.68	0.04	0.01	mg/L	1.7		99	85-115		
Chloride	2.87	0.20	0.050	mg/L	3.0		96	85-115		
LCS Dup (BJ22310-BSD1)					Prepared & Analyzed: 10/24/12					
Chloride	2.87	0.20	0.050	mg/L	3.0		96	85-115	0	200
Nitrate (as N)	1.67	0.04	0.01	mg/L	1.7		98	85-115	0.6	200

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

November 2, 2012
Work Order: 1211985

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22310 - Ion Chromatography 300.0 Prep										
Matrix Spike (BJ22310-MS1)		**Source: 1211978-06**			Prepared & Analyzed: 10/24/12					
Nitrate (as N)	36.2	0.04	0.01	mg/L	17	18.3	105	85-115		
Chloride	91.3	0.20	0.050	mg/L	30	61.6	99	80-120		
Batch BJ22645 - Digestion for TKN by EPA 351.2										
Blank (BJ22645-BLK1)					Prepared: 10/26/12 Analyzed: 10/30/12					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
LCS (BJ22645-BS1)					Prepared: 10/26/12 Analyzed: 10/30/12					
Total Kjeldahl Nitrogen	2.71	0.20	0.05	mg/L	2.5		107	90-110		
Matrix Spike (BJ22645-MS1)		**Source: 1211985-03**			Prepared: 10/26/12 Analyzed: 10/30/12					
Total Kjeldahl Nitrogen	3.88	0.20	0.05	mg/L	2.5	1.41	97	90-110		
Matrix Spike (BJ22645-MS2)		**Source: 1212356-06**			Prepared: 10/26/12 Analyzed: 10/30/12					
Total Kjeldahl Nitrogen	3.95	0.20	0.05	mg/L	2.5	1.61	92	90-110		
Matrix Spike Dup (BJ22645-MSD1)		**Source: 1211985-03**			Prepared: 10/26/12 Analyzed: 10/30/12					
Total Kjeldahl Nitrogen	3.86	0.20	0.05	mg/L	2.5	1.41	97	90-110	0.6	20
Matrix Spike Dup (BJ22645-MSD2)		**Source: 1212356-06**			Prepared: 10/26/12 Analyzed: 10/30/12					
Total Kjeldahl Nitrogen	3.97	0.20	0.05	mg/L	2.5	1.61	93	90-110	0.4	20
Batch BJ22910 - Ammonia by SEAL										
Blank (BJ22910-BLK1)					Prepared & Analyzed: 10/29/12					
Ammonia as N	0.009 U	0.040	0.009	mg/L						

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

November 2, 2012
Work Order: 1211985

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22910 - Ammonia by SEAL										
LCS (BJ22910-BS1)					Prepared & Analyzed: 10/29/12					
Ammonia as N	0.49	0.040	0.009	mg/L	0.50		98	90-110		
Matrix Spike (BJ22910-MS1)		**Source: 1211976-17**			Prepared & Analyzed: 10/29/12					
Ammonia as N	0.54	0.040	0.009	mg/L	0.50	0.043	99	90-110		
Matrix Spike (BJ22910-MS2)		**Source: 1212352-01**			Prepared & Analyzed: 10/29/12					
Ammonia as N	1.1	0.040	0.009	mg/L	0.50	0.56	105	90-110		
Matrix Spike Dup (BJ22910-MSD1)		**Source: 1211976-17**			Prepared & Analyzed: 10/29/12					
Ammonia as N	0.53	0.040	0.009	mg/L	0.50	0.043	97	90-110	1	10
Matrix Spike Dup (BJ22910-MSD2)		**Source: 1212352-01**			Prepared & Analyzed: 10/29/12					
Ammonia as N	1.1	0.040	0.009	mg/L	0.50	0.56	108	90-110	1	10

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

November 2, 2012
Work Order: 1211985

* 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.

Q	Sample held beyond the accepted holding time.
+O	Matrix spike source sample was over the reccommended range for the method.

Questions regarding this report should be directed to :

Kathryn Nordmark
Telephone (813) 855-1844 FAX (813) 855-2218
Kathryn@southernanalyticallabs.com

or to Client Services (clientservices@southernanalyticallabs.com).

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

1211985

Client Name	Contact / Phone:
Hazen and Sawyer	
Project Name / Location: S&GW Test Facility SE #3 (PZ41-50)	
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	250mL P, H_2SO_4 TKN, NH_4	1LP, Cool NOx, Cl	250mL P, H_2SO_4 TKN, NH_4, COD, TP	1LP, Cool NOx, Cl, Alkalinity	1LP, Cool NOx, Cl, Alkalinity, F, OP, SO_4	250mLaG, Cool DOC	40mLaV, HCl TOC	250mL P, HNO_3 B, Ca, Fe, Mg, Mn, K, Na					Field pH	Field Temperature	Field Conductivity	Field DO
01	PZ-41	10/16/12	1550	GW		X	1	1														
02	PZ-42	↓	1610	GW		X	1	1														
03	PZ-43	↓	1327	GW		X	1	1														
04	PZ-44 not sampled			GW		X	1	1														
05	PZ-45			GW		X	1	1														
06	PZ-46			GW		X	1	1														
07	PZ-47			GW		X	1	1														
08	PZ-48			GW		X	1	1														
09	PZ-49			GW		X	1	1														
10	PZ-50			GW		X	1	1														

Containers Prepared/ Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time: 1530 10/16/12	Received: K Muehlmann	Date/Time: 10/16/12 1530
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

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

Instructions / Remarks:

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	10/16/12 15:50	SAL Project #	1211985	Project Name	S&GW Test Facility SE #3
Well Number	PZ-41		01	GPS LAT	
				GPS LONG	

PURGING DATA

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

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

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

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

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

PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME		EQUIPMENT VOLUME	

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

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
15:38	1000mL	1000mL			5.0	29.0	904	6.6	7.20		
15:43	1000mL	2000mL			5.1	28.7	902	6.8	2.19		
15:48	1000mL	3000mL			5.0	27.8	901	6.8	2.62		

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)		HdS				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-VOCS 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

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	10/16/12 16:10pm	SAL Project #	1211985	Project Name	S&GW Test Facility SE #3
Well Number	PZ-42		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)		PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)		REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)				TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	
Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)											
WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =											
ONE WELL VOLUME			1/4 WELL VOLUME		3 WELL VOLUMES				5 WELL VOLUMES		
EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME											
PUMP VOLUME			TUBING LEGNTH		FLOW CELL VOLUME				EQUIPMENT VOLUME		
INITIAL TUBING LEGNTH IN WELL (FEET)			FINAL TUBING LEGNTH IN WELL (FEET)			PURGE TIME START		PURGE TIME END		TOTAL PURGED	
INST. ID					SAL-SAM-63-_____	SAL-SAM - 65-_____	SAL-SAM-63-_____	SAL-SAM-55-__	SAL-SAM-0_____		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
15:58	1000mL	1000mL			5.0	28.0	934	5.9	9.26	clear	none
16:02	1000mL	2000mL			5.0	27.7	897	5.8	5.12	clear	none
16:06	1000mL	3000mL			5.0	27.6	882	5.8	3.87	clear	none

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)		H&S				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

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	10/16/12 13:27pm	SAL Project #	1211985	Project Name	S&GW Test Facility SE #3
Well Number	PZ-43		03	GPS LAT	
				GPS LONG	

PURGING DATA

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

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

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

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

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

PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME		EQUIPMENT VOLUME	

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

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
13:18	1000mL	1000mL			5.3	28.0	99.0	4.6	4.53	clear	none
13:22	1000mL	2000mL			5.1	27.5	98.1	4.7	1.67	"	"
13:26	1000mL	3000mL			5.0	27.7	98.1	4.7	1.34	"	"

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)		HAS				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-VOCS 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= Polvethvlene. NP= Non-inert Plastic, TL= Teflon Lined, TT= Teflon

Revised Date: 09/25/09

Date:

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

November 2, 2012
Work Order: 1212356

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**PZ-44**						
Matrix		**Groundwater**						
SAL Sample Number		**1212356-01**						
Date/Time Collected		**10/23/12 11:50**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/23/12 16:45**						
Field Parameters								
pH	SU	4.6	DEP FT1100	0.1	0.1		10/23/12 11:50	1
Water Temperature	°C	28.5	DEP FT1400	0.1	0.1		10/23/12 11:50	1
Specific conductance	umhos/cm	831	DEP FT1200	0.1	0.1		10/23/12 11:50	1
Dissolved Oxygen	mg/L	2.8	DEP FT1500	0.1	0.1		10/23/12 11:50	1
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/30/12 11:12	1
Ammonium as NH4	mg/L	0.01 U	EPA 350.1	0.05	0.01		10/31/12 14:47	1
Chloride	mg/L	67	EPA 300.0	0.20	0.050		10/24/12 17:40	1
Nitrate (as N)	mg/L	48	EPA 300.0	0.04	0.01		10/24/12 17:40	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/24/12 17:40	1
Total Kjeldahl Nitrogen	mg/L	3.9	EPA 351.2	0.20	0.05	10/26/12 16:02	10/30/12 10:26	1
Nitrate+Nitrite (N)	mg/L	48	EPA 300.0	0.08	0.02		10/24/12 17:40	1
Sample Description		**PZ-45**						
Matrix		**Groundwater**						
SAL Sample Number		**1212356-02**						
Date/Time Collected		**10/23/12 12:10**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/23/12 16:45**						
Field Parameters								
pH	SU	4.6	DEP FT1100	0.1	0.1		10/23/12 12:10	1
Water Temperature	°C	28.3	DEP FT1400	0.1	0.1		10/23/12 12:10	1
Specific conductance	umhos/cm	371	DEP FT1200	0.1	0.1		10/23/12 12:10	1
Dissolved Oxygen	mg/L	3.5	DEP FT1500	0.1	0.1		10/23/12 12:10	1
Inorganics								
Ammonia as N	mg/L	0.052	EPA 350.1	0.040	0.009		10/30/12 11:14	1
Ammonium as NH4	mg/L	0.07	EPA 350.1	0.05	0.01		10/31/12 14:47	1
Chloride	mg/L	22	EPA 300.0	0.20	0.050		10/24/12 17:40	1
Nitrate (as N)	mg/L	13	EPA 300.0	0.04	0.01		10/24/12 17:40	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/24/12 17:40	1
Total Kjeldahl Nitrogen	mg/L	2.5	EPA 351.2	0.20	0.05	10/26/12 16:02	10/30/12 10:27	1
Nitrate+Nitrite (N)	mg/L	13	EPA 300.0	0.08	0.02		10/24/12 17:40	1

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

November 2, 2012
Work Order: 1212356

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**PZ-46**						
Matrix		**Groundwater**						
SAL Sample Number		**1212356-03**						
Date/Time Collected		**10/25/12 10:55**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/25/12 14:48**						
Field Parameters								
pH	SU	4.6	DEP FT1100	0.1	0.1		10/25/12 10:55	1
Water Temperature	°C	26.7	DEP FT1400	0.1	0.1		10/25/12 10:55	1
Specific conductance	umhos/cm	730	DEP FT1200	0.1	0.1		10/25/12 10:55	1
Dissolved Oxygen	mg/L	1.2	DEP FT1500	0.1	0.1		10/25/12 10:55	1
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/30/12 11:16	1
Ammonium as NH4	mg/L	0.01 U	EPA 350.1	0.05	0.01		10/31/12 14:47	1
Chloride	mg/L	60	EPA 300.0	0.20	0.050		10/26/12 17:29	1
Nitrate (as N)	mg/L	41	EPA 300.0	0.04	0.01		10/26/12 17:29	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/26/12 17:29	1
Total Kjeldahl Nitrogen	mg/L	2.6	EPA 351.2	0.20	0.05	10/26/12 16:02	10/30/12 10:28	1
Nitrate+Nitrite (N)	mg/L	41	EPA 300.0	0.08	0.02		10/26/12 17:29	1
Sample Description		**PZ-47**						
Matrix		**Groundwater**						
SAL Sample Number		**1212356-04**						
Date/Time Collected		**10/25/12 11:55**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/25/12 14:48**						
Field Parameters								
pH	SU	4.8	DEP FT1100	0.1	0.1		10/25/12 11:55	1
Water Temperature	°C	27.0	DEP FT1400	0.1	0.1		10/25/12 11:55	1
Specific conductance	umhos/cm	313	DEP FT1200	0.1	0.1		10/25/12 11:55	1
Dissolved Oxygen	mg/L	1.7	DEP FT1500	0.1	0.1		10/25/12 11:55	1
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/30/12 11:18	1
Ammonium as NH4	mg/L	0.01 U	EPA 350.1	0.05	0.01		10/31/12 14:47	1
Chloride	mg/L	23	EPA 300.0	0.20	0.050		10/26/12 17:29	1
Nitrate (as N)	mg/L	6.9	EPA 300.0	0.04	0.01		10/26/12 17:29	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/26/12 17:29	1
Total Kjeldahl Nitrogen	mg/L	1.1	EPA 351.2	0.20	0.05	10/26/12 16:02	10/30/12 10:30	1
Nitrate+Nitrite (N)	mg/L	6.9	EPA 300.0	0.08	0.02		10/26/12 17:29	1

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

November 2, 2012
Work Order: 1212356

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**PZ-48**						
Matrix		**Groundwater**						
SAL Sample Number		**1212356-05**						
Date/Time Collected		**10/25/12 11:20**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/25/12 14:48**						
Field Parameters								
pH	SU	4.7	DEP FT1100	0.1	0.1		10/25/12 11:20	1
Water Temperature	°C	26.7	DEP FT1400	0.1	0.1		10/25/12 11:20	1
Specific conductance	umhos/cm	195	DEP FT1200	0.1	0.1		10/25/12 11:20	1
Dissolved Oxygen	mg/L	0.3	DEP FT1500	0.1	0.1		10/25/12 11:20	1
Inorganics								
Ammonia as N	mg/L	0.013 I	EPA 350.1	0.040	0.009		10/30/12 11:20	1
Ammonium as NH4	mg/L	0.02 I	EPA 350.1	0.05	0.01		10/31/12 14:47	1
Chloride	mg/L	8.9	EPA 300.0	0.20	0.050		10/26/12 17:29	1
Nitrate (as N)	mg/L	2.3	EPA 300.0	0.04	0.01		10/26/12 17:29	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/26/12 17:29	1
Total Kjeldahl Nitrogen	mg/L	0.75	EPA 351.2	0.20	0.05	10/26/12 16:02	10/30/12 10:31	1
Nitrate+Nitrite (N)	mg/L	2.3	EPA 300.0	0.08	0.02		10/26/12 17:29	1

Sample Description		**PZ-49**						
Matrix		**Groundwater**						
SAL Sample Number		**1212356-06**						
Date/Time Collected		**10/25/12 10:15**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/25/12 14:48**						
Field Parameters								
pH	SU	4.6	DEP FT1100	0.1	0.1		10/25/12 10:15	1
Water Temperature	°C	26.4	DEP FT1400	0.1	0.1		10/25/12 10:15	1
Specific conductance	umhos/cm	434	DEP FT1200	0.1	0.1		10/25/12 10:15	1
Dissolved Oxygen	mg/L	2.6	DEP FT1500	0.1	0.1		10/25/12 10:15	1
Inorganics								
Ammonia as N	mg/L	0.013 I	EPA 350.1	0.040	0.009		10/30/12 11:21	1
Ammonium as NH4	mg/L	0.02 I	EPA 350.1	0.05	0.01		10/31/12 14:47	1
Chloride	mg/L	32	EPA 300.0	0.20	0.050		10/26/12 17:29	1
Nitrate (as N)	mg/L	16	EPA 300.0	0.04	0.01		10/26/12 17:29	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/26/12 17:29	1
Total Kjeldahl Nitrogen	mg/L	1.6	EPA 351.2	0.20	0.05	10/26/12 16:02	10/30/12 10:32	1
Nitrate+Nitrite (N)	mg/L	16	EPA 300.0	0.08	0.02		10/26/12 17:29	1

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

November 2, 2012
Work Order: 1212356

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**PZ-50**						
Matrix		**Groundwater**						
SAL Sample Number		**1212356-07**						
Date/Time Collected		**10/25/12 11:05**						
Collected by		**Ian Geraldi**						
Date/Time Received		**10/25/12 14:48**						
Field Parameters								
pH	SU	5.5	DEP FT1100	0.1	0.1		10/25/12 11:05	1
Water Temperature	°C	26.9	DEP FT1400	0.1	0.1		10/25/12 11:05	1
Specific conductance	umhos/cm	191	DEP FT1200	0.1	0.1		10/25/12 11:05	1
Dissolved Oxygen	mg/L	4.7	DEP FT1500	0.1	0.1		10/25/12 11:05	1
Inorganics								
Ammonia as N	mg/L	0.031 I	EPA 350.1	0.040	0.009		10/30/12 11:23	1
Ammonium as NH4	mg/L	0.04 I	EPA 350.1	0.05	0.01		10/31/12 14:47	1
Chloride	mg/L	5.3	EPA 300.0	0.20	0.050		10/26/12 17:29	1
Nitrate (as N)	mg/L	3.5	EPA 300.0	0.04	0.01		10/26/12 17:29	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/26/12 17:29	1
Total Kjeldahl Nitrogen	mg/L	1.7	EPA 351.2	0.20	0.05	10/26/12 16:03	10/30/12 14:05	1
Nitrate+Nitrite (N)	mg/L	3.5	EPA 300.0	0.08	0.02		10/26/12 17:29	1

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

November 2, 2012
Work Order: 1212356

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22422 - Ion Chromatography 300.0 Prep										
Blank (BJ22422-BLK1)					Prepared & Analyzed: 10/24/12					
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 (BJ22422-BS1)					Prepared & Analyzed: 10/24/12					
Chloride	2.75	0.20	0.050	mg/L	3.0		92	85-115		
Nitrate (as N)	1.65	0.04	0.01	mg/L	1.7		97	85-115		
Nitrite (as N)	1.35	0.04	0.01	mg/L	1.4		96	85-115		
LCS Dup (BJ22422-BSD1)					Prepared & Analyzed: 10/24/12					
Chloride	2.83	0.20	0.050	mg/L	3.0		94	85-115	3	200
Nitrate (as N)	1.65	0.04	0.01	mg/L	1.7		97	85-115	0	200
Nitrite (as N)	1.39	0.04	0.01	mg/L	1.4		99	85-115	3	200
Matrix Spike (BJ22422-MS1)		**Source: 1212355-03**			Prepared & Analyzed: 10/24/12					
Nitrite (as N)	1.41	0.04	0.01	mg/L	1.4	ND	101	85-115		
Chloride	39.9 +O	0.20	0.050	mg/L	3.0	53.9	NR	80-120		
Nitrate (as N)	26.3 +O	0.04	0.01	mg/L	1.7	40.8	NR	85-115		
Matrix Spike (BJ22422-MS2)		**Source: 1212425-05**			Prepared & Analyzed: 10/24/12					
Nitrite (as N)	1.37	0.04	0.01	mg/L	1.4	ND	98	85-115		
Nitrate (as N)	1.66	0.04	0.01	mg/L	1.7	ND	98	85-115		
Chloride	20.2	0.20	0.050	mg/L	3.0	17.7	83	80-120		
Batch BJ22517 - Ion Chromatography 300.0 Prep										
Blank (BJ22517-BLK1)					Prepared & Analyzed: 10/25/12					
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
Chloride	0.050 U	0.20	0.050	mg/L						

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

November 2, 2012
Work Order: 1212356

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22517 - Ion Chromatography 300.0 Prep										
LCS (BJ22517-BS1)					Prepared & Analyzed: 10/25/12					
Nitrate (as N)	1.68	0.04	0.01	mg/L	1.7		99	85-115		
Chloride	2.85	0.20	0.050	mg/L	3.0		95	85-115		
LCS Dup (BJ22517-BSD1)					Prepared & Analyzed: 10/25/12					
Chloride	2.87	0.20	0.050	mg/L	3.0		96	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 (BJ22517-MS1)		**Source: 1212486-02**			Prepared & Analyzed: 10/25/12					
Chloride	17.6	0.20	0.050	mg/L	3.0	14.8	93	80-120		
Nitrate (as N)	14.3	0.04	0.01	mg/L	1.7	12.8	88	85-115		
Matrix Spike (BJ22517-MS2)		**Source: 1212359-05**			Prepared & Analyzed: 10/25/12					
Nitrate (as N)	1.67	0.04	0.01	mg/L	1.7	ND	98	85-115		
Chloride	10.8	0.20	0.050	mg/L	3.0	7.53	109	80-120		
Batch BJ22628 - Ion Chromatography 300.0 Prep										
Blank (BJ22628-BLK1)					Prepared & Analyzed: 10/26/12					
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 (BJ22628-BS1)					Prepared & Analyzed: 10/26/12					
Nitrate (as N)	1.66	0.04	0.01	mg/L	1.7		98	85-115		
Nitrite (as N)	1.39	0.04	0.01	mg/L	1.4		99	85-115		
Chloride	2.85	0.20	0.050	mg/L	3.0		95	85-115		

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

November 2, 2012
Work Order: 1212356

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22628 - Ion Chromatography 300.0 Prep										
LCS Dup (BJ22628-BSD1)					Prepared & Analyzed: 10/26/12					
Nitrate (as N)	1.68	0.04	0.01	mg/L	1.7		99	85-115	1	200
Chloride	2.88	0.20	0.050	mg/L	3.0		96	85-115	1	200
Nitrite (as N)	1.40	0.04	0.01	mg/L	1.4		100	85-115	0.7	200
Matrix Spike (BJ22628-MS1)		**Source: 1212526-01**			Prepared & Analyzed: 10/26/12					
Chloride	3.92	0.20	0.050	mg/L	3.0	1.48	81	80-120		
Nitrite (as N)	1.48	0.04	0.01	mg/L	1.4	ND	106	85-115		
Nitrate (as N)	2.42	0.04	0.01	mg/L	1.7	0.735	99	85-115		
Matrix Spike (BJ22628-MS2)		**Source: 1212537-01**			Prepared & Analyzed: 10/26/12					
Nitrate (as N)	3.30	0.04	0.01	mg/L	1.7	1.57	102	85-115		
Nitrite (as N)	1.31	0.04	0.01	mg/L	1.4	ND	94	85-115		
Chloride	38.4 +O	0.20	0.050	mg/L	3.0	38.4	0	80-120		
Batch BJ22645 - Digestion for TKN by EPA 351.2										
Blank (BJ22645-BLK1)					Prepared: 10/26/12 Analyzed: 10/30/12					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
LCS (BJ22645-BS1)					Prepared: 10/26/12 Analyzed: 10/30/12					
Total Kjeldahl Nitrogen	2.71	0.20	0.05	mg/L	2.5		107	90-110		
Matrix Spike (BJ22645-MS1)		**Source: 1211985-03**			Prepared: 10/26/12 Analyzed: 10/30/12					
Total Kjeldahl Nitrogen	3.88	0.20	0.05	mg/L	2.5	1.41	97	90-110		
Matrix Spike (BJ22645-MS2)		**Source: 1212356-06**			Prepared: 10/26/12 Analyzed: 10/30/12					
Total Kjeldahl Nitrogen	3.95	0.20	0.05	mg/L	2.5	1.61	92	90-110		

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

November 2, 2012
Work Order: 1212356

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22645 - Digestion for TKN by EPA 351.2										
Matrix Spike Dup (BJ22645-MSD1)		**Source: 1211985-03**			Prepared: 10/26/12	Analyzed: 10/30/12				
Total Kjeldahl Nitrogen	3.86	0.20	0.05	mg/L	2.5	1.41	97	90-110	0.6	20
Matrix Spike Dup (BJ22645-MSD2)		**Source: 1212356-06**			Prepared: 10/26/12	Analyzed: 10/30/12				
Total Kjeldahl Nitrogen	3.97	0.20	0.05	mg/L	2.5	1.61	93	90-110	0.4	20
Batch BJ22646 - Digestion for TKN by EPA 351.2										
Blank (BJ22646-BLK1)					Prepared: 10/26/12	Analyzed: 10/30/12				
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
LCS (BJ22646-BS1)					Prepared: 10/26/12	Analyzed: 10/30/12				
Total Kjeldahl Nitrogen	2.27 CP	0.20	0.05	mg/L	2.5		90	90-110		
Matrix Spike (BJ22646-MS1)		**Source: 1212381-07**			Prepared: 10/26/12	Analyzed: 10/30/12				
Total Kjeldahl Nitrogen	3.43	0.20	0.05	mg/L	2.5	0.866	101	90-110		
Matrix Spike (BJ22646-MS2)		**Source: 1212411-01**			Prepared: 10/26/12	Analyzed: 10/30/12				
Total Kjeldahl Nitrogen	2.49	0.20	0.05	mg/L	2.5	ND	98	90-110		
Matrix Spike Dup (BJ22646-MSD1)		**Source: 1212381-07**			Prepared: 10/26/12	Analyzed: 10/30/12				
Total Kjeldahl Nitrogen	3.48	0.20	0.05	mg/L	2.5	0.866	103	90-110	1	20
Matrix Spike Dup (BJ22646-MSD2)		**Source: 1212411-01**			Prepared: 10/26/12	Analyzed: 10/30/12				
Total Kjeldahl Nitrogen	2.41	0.20	0.05	mg/L	2.5	ND	95	90-110	3	20
Batch BJ22930 - Ion Chromatography 300.0 Prep										
Blank (BJ22930-BLK1)					Prepared & Analyzed: 10/29/12					
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
Chloride	0.050 U	0.20	0.050	mg/L						

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

November 2, 2012
Work Order: 1212356

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22930 - Ion Chromatography 300.0 Prep										
LCS (BJ22930-BS1)					Prepared & Analyzed: 10/29/12					
Chloride	2.93	0.20	0.050	mg/L	3.0		98	85-115		
Nitrate (as N)	1.68	0.04	0.01	mg/L	1.7		99	85-115		
LCS Dup (BJ22930-BSD1)					Prepared & Analyzed: 10/29/12					
Nitrate (as N)	1.67	0.04	0.01	mg/L	1.7		98	85-115	0.6	200
Chloride	2.92	0.20	0.050	mg/L	3.0		97	85-115	0.3	200
Matrix Spike (BJ22930-MS1)		**Source: 1211968-04**			Prepared & Analyzed: 10/29/12					
Nitrate (as N)	19.1	0.04	0.01	mg/L	17	1.96	101	85-115		
Chloride	81.6	0.20	0.050	mg/L	30	50.4	104	80-120		
Matrix Spike (BJ22930-MS2)		**Source: 1212597-01**			Prepared & Analyzed: 10/29/12					
Nitrate (as N)	1.75	0.04	0.01	mg/L	1.7	ND	103	85-115		
Chloride	46.4 +O	0.20	0.050	mg/L	3.0	322	NR	80-120		
Batch BJ23002 - Ammonia by SEAL										
Blank (BJ23002-BLK1)					Prepared & Analyzed: 10/30/12					
Ammonia as N	0.009 U	0.040	0.009	mg/L						
LCS (BJ23002-BS1)					Prepared & Analyzed: 10/30/12					
Ammonia as N	0.53	0.040	0.009	mg/L	0.50		105	90-110		
Matrix Spike (BJ23002-MS1)		**Source: 1212352-02**			Prepared & Analyzed: 10/30/12					
Ammonia as N	0.53	0.040	0.009	mg/L	0.50	0.056	96	90-110		
Matrix Spike (BJ23002-MS2)		**Source: 1212381-07**			Prepared & Analyzed: 10/30/12					
Ammonia as N	0.53	0.040	0.009	mg/L	0.50	0.063	93	90-110		

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

November 2, 2012
Work Order: 1212356

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ23002 - Ammonia by SEAL										
Matrix Spike Dup (BJ23002-MSD1)		**Source: 1212352-02**			Prepared & Analyzed: 10/30/12					
Ammonia as N	0.55	0.040	0.009	mg/L	0.50	0.056	98	90-110	2	10
Matrix Spike Dup (BJ23002-MSD2)		**Source: 1212381-07**			Prepared & Analyzed: 10/30/12					
Ammonia as N	0.53	0.040	0.009	mg/L	0.50	0.063	94	90-110	1	10

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

November 2, 2012
Work Order: 1212356

* 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.

CP Pass @ 90.7 % Recovery
+O Matrix spike source sample was over the reccommended range for the method.

Questions regarding this report should be directed to :

Kathryn Nordmark
Telephone (813) 855-1844 FAX (813) 855-2218
Kathryn@southernanalyticallabs.com

or to Client Services (clientservices@southernanalyticallabs.com).

1212356

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: S&GW Test Facility SE #3 (PZ41-50)

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	250mL P, H_2SO_4 TKN, NH_4	1LP, Cool NOx, Cl	250mL P, H_2SO_4 TKN, NH_4, COD, TP	1LP, Cool NOx, Cl, Alkalinity	1LP, Cool NOx, Cl, Alkalinity, F, OP, SO_4	250mLaG, Cool DOC	40mLaV, HCl TOC	250mL P, HNO_3 B, Ca, Fe, Mg, Mn, K, Na					Field pH	Field Temperature	Field Conductivity	Field DO
01	PZ-44	10/23/12	11:50	GW		X	1	1											4.57	28.5	831	2.81
02	PZ-45	10/23/12	12:10	GW		X	1	1											4.58	28.3	371.4	3.50
03	PZ-46	10/25/12	10:55	GW		X	1	1											4.56	26.7	730	1.21
04	PZ-47	10/25/12	11:55	GW		X	1	1											4.81	27.0	312.8	5.20
05	PZ-48	10/25/12	11:20	GW		X	1	1											4.71	26.7	195.1	.32
06	PZ-49	10/25/12	10:15	GW		X	1	1											4.65	26.4	433.8	2.60
07	PZ-50	10/25/12	4:05	GW		X	1	1											5.47	26.9	190.9	4.67

Containers Prepared/ Relinquished:	Date/Time:	Received:	Date/Time:
	10-22-12 1200		10/23/12 0710
Relinquished:	Date/Time: 10/23/12 16:45	Received:	Date/Time: 1645 10-23-12
Relinquished:	Date/Time: 1645 10-23-12	Received:	Date/Time: 10-23-12 16:45
Relinquished:	Date/Time: 10/25/12 14:46	Received:	Date/Time: 1448 10-25-12
Relinquished:	Date/Time:	Received:	Date/Time:

Seal intact? Y N (NA)

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 (NA)

Proper containers used? (Y) N N/A

Instructions / Remarks:

HH 10-23-12

1212356

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	10/13/12	SAL Project #	1212356	Project Name	S&GW Test Facility SE #3
Well Number	PZ-44		01	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1"	WELL CAPACITY (gal/ft)	.04	Screen Interval (Feet)	UNK To UNK	Static Depth to Water (Feet)	7.03	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	9.84	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)		TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	

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

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

ONE WELL VOLUME	.1124	1/4 WELL VOLUME		3 WELL VOLUMES	.3372	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	1135	PURGE TIME END	1150	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)
1138	.3	.3	.1		4.58	28.9	839	3.95	237	Brown	
1141	.3	.6	.1		4.58	28.5	837	3.88	202		
1144	.3	.9	.1		4.58	28.6	835	3.44	57.3	Slightly Cloudy	
1147	.3	1.2	.1		4.56	28.5	833	2.96	33.5		
1150	.3	1.5	.1		4.57	28.5	831	2.81	25.2	Slightly 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)	JAL					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	1150	SAMPLING ENDED	1155	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	10 mph NE Sunny 85°F								
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

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	10/23/12	SAL Project #	1212356	Project Name	S&GW Test Facility SE #3
Well Number	PZ-45		02	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1"	WELL CAPACITY (gal/ft)	.04	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	7.79	PURGE PUMP CODE: PP GP IBP
TOTAL WELL DEPTH (Feet)	9.84	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)

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

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

ONE WELL VOLUME	.0820	1/4 WELL VOLUME		3 WELL VOLUMES	.2460	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	1200	PURGE TIME END	1215	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)
1203	.3	.3	.1		4.59	28.2	374.5	3.61	15.8	Clear	
1206	.3	.6	.1		4.58	28.2	372	3.55	14.1		
1209	.3	.9	.1		4.58	28.3	371.4	3.50	13.5	Clear	
1212	.3	1.2	.1								
1215	.3	1.5	.1								

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL				SAMPLER(S) SIGNATURES:	[signature]			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	1210	SAMPLING ENDED	1215	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-VOCS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Sunny 10mph NE 85°F								
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

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	10/25/12	SAL Project #	1212356	Project Name	S&GW Test Facility SE #3
Well Number	PZ-46		03	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1"	WELL CAPACITY (gal/ft)	.04	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	6.95	PURGE PUMP CODE: PP GP IBP
TOTAL WELL DEPTH (Feet)	9.91	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)

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

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

ONE WELL VOLUME	.1184	1/4 WELL VOLUME		3 WELL VOLUMES	.3552	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	1042	PURGE TIME END	1054	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)
1045	.3	.3	.1	6.95	4.85	26.6	739	2.09	167	Cloudy Brown	
1048	.3	.6	.1		4.64	26.7	737	1.59	15.5		
1051	.3	.9	.1		4.57	26.7	731	1.20	12.1		
1054	.3	1.2	.1		4.56	26.7	730	1.21	7.30	Clear	
1057	.3	1.5	.1								

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL				SAMPLER(S) SIGNATURES:	[signature] TG			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	1055	SAMPLING ENDED	1100	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	5mph N Cloudy 80°F								
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

Revised By: 09/25/09 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	10/25/12	SAL Project #	1212356	Project Name	S&GW Test Facility SE #3
Well Number	PZ-47		04	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1"	WELL CAPACITY (gal/ft)	.04	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	6.93	PURGE PUMP CODE: PP GP IBP
TOTAL WELL DEPTH (Feet)	9.90	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	.1184	1/4 WELL VOLUME		3 WELL VOLUMES	.3564	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	1140	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)
1143	.3	.3	.1	6.93	4.85	27.0	332.2	1.70	45.4	Cloudy Brown	
1146	.3	.6	.1		4.85	27.0	330	1.73	46.3		
1149	.3	.9	.1		4.84	27.0	324.3	1.52	36.2	Clear	
1152	.3	1.2	.1		4.83	27.0	317.7	1.55	12.6		
1155	.3	1.5	.1		4.81	27.0	312.8	1.70	5.20	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:	[signature]			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	1155	SAMPLING ENDED	1200	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-VOCS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Cloudy 5-10 mph NE 80°F								
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

Revised By: 09/25/09 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	10/25/12	SAL Project #	1212356	Project Name	S&GW Test Facility SE #3
Well Number	PZ-48		05	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1"	WELL CAPACITY (gal/ft)	.04	Screen Interval (Feet)	UNK	To	UNK	Static Depth to Water (Feet)	4.89	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	9.90	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	.6004	1/4 WELL VOLUME		3 WELL VOLUMES	.6012	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	1104	PURGE TIME END	1119	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)
1107	.3	.3	.1	4.89	4.80	26.7	189.3	.62	375	Cloudy Brown	
1110	.3	.6	.1		4.77	26.7	189.9	.48	170		
1113	.3	.9	.1		4.74	26.7	190.9	.36	19.3	Clear	
1116	.3	1.2	.1		4.73	26.7	192.4	.33	12.3		
1119	.3	1.5	.1		4.71	26.7	195.1	.32	10.2	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	1120	SAMPLING ENDED	1125	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-VOCS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	5 mph N-NE Cloudy 80°F								
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

Revision Date: 09/25/09 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	10-25-12	SAL Project #	1212356	Project Name	S&GW Test Facility SE #3
Well Number	PZ-49		06	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1"	WELL CAPACITY (gal/ft)	0.04	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	7.69	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	9.86	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	
Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)										
WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =										
ONE WELL VOLUME	0.087	1/4 WELL VOLUME	0.02	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	09:57	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)
10:00	0.3	0.3	0.1		5.31	25.9	438.5	3.01	~~430.7~~ 427.6	cloudy	
10:03	0.3	0.6	0.1		4.90	26.1	435.5	2.80	19.6	clear	
10:06	0.3	0.9	0.1		4.75	26.3	436.0	2.66	7.43	clear	
10:09	0.3	1.2	0.1		4.69	26.3	434.6	2.69	5.63	"	
10:12	0.3	1.5	0.1		4.65	26.4	433.8	2.60	5.40	"	

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	S.A.L				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	~~10:15~~ 10:12	SAMPLING ENDED	~~10:18~~ 10:15	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

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	10-25-12	SAL Project #	1212356	Project Name	S&GW Test Facility SE #3
Well Number	PZ-50		07	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1"	WELL CAPACITY (gal/ft)	0.04	Screen Interval (Feet)	UNK To UNK	Static Depth to Water (Feet)	7.48	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	9.81	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)		TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	

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

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

ONE WELL VOLUME	0.09	1/4 WELL VOLUME	0.02	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	10:48	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)
10:51	0.3	0.3	0.1	7.48	5.36	26.9	205.0	4.91	224	Cloudy	none
10:54	~~0.3~~ 0.6	0.6	0.1		5.45	26.9	198.7	4.84	74.0	Slightly cloudy	None
10:57	0.3	0.9	0.1		5.47	26.9	193.4	4.99	63.2	"	"
11:00	0.3	1.2	0.1		5.47	26.9	192.7	4.98	33.6	clear	"
11:03	0.3	1.5	0.1		5.47	26.9	190.9	4.67	29.0	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)	S.A.L.			SAMPLER(S) SIGNATURES:	[signature]		
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT		SAMPLE TUBING LEGNTH IN WELL (FEET)		SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	11:05	SAMPLING ENDED	11:07	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-VOC 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

Revised By: 09/25/09 Date:

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

November 2, 2012
Work Order: 1211979

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**TA5-LY-C**						
Matrix		**Groundwater**						
SAL Sample Number		**1211979-03**						
Date/Time Collected		**10/15/12 13:10**						
Collected by		**Josephine Edeback-Hirst**						
Date/Time Received		**10/16/12 15:30**						
Field Parameters								
pH	SU	5.8	DEP FT1100	0.1	0.1	10/30/12 10:19	10/15/12 13:10	1
Water Temperature	°C	30.7	DEP FT1400	0.1	0.1	10/30/12 10:19	10/15/12 13:10	1
Specific conductance	umhos/cm	663	DEP FT1200	0.1	0.1	10/30/12 10:19	10/15/12 13:10	1
Dissolved Oxygen	mg/L	6.2	DEP FT1500	0.1	0.1	10/30/12 10:19	10/15/12 13:10	1
Inorganics								
Hydrogen Sulfide (Unionized)	mg/L	0.27	SM 4550SF	0.04	0.01	10/19/12 16:30	10/19/12 16:31	1
Ammonia as N	mg/L	0.013 I	EPA 350.1	0.040	0.009		10/18/12 14:15	1
Ammonium as NH4	mg/L	0.03 I	EPA 350.1	0.05	0.01		10/24/12 15:47	1
Chemical Oxygen Demand	mg/L	26	EPA 410.4	25	10	10/24/12 08:30	10/24/12 12:45	1
Chloride	mg/L	52	EPA 300.0	0.20	0.050		10/16/12 16:49	1
Nitrate (as N)	mg/L	29	EPA 300.0	0.04	0.01		10/16/12 16:49	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/17/12 01:36	1
Phosphorous - Total as P	mg/L	1.2	SM 4500P-E	0.040	0.010	10/18/12 11:04	10/22/12 15:36	1
Sulfate	mg/L	66	EPA 300.0	0.60	0.20		10/17/12 01:36	1
Sulfide	mg/L	0.29 I	SM 4500SF	0.40	0.10		10/16/12 11:21	1
Total Kjeldahl Nitrogen	mg/L	5.1	EPA 351.2	0.20	0.05	10/26/12 08:08	10/29/12 13:58	9.62
Total Suspended Solids	mg/L	1 U	SM 2540D	1	1	10/16/12 08:49	10/16/12 16:04	1
Nitrate+Nitrite (N)	mg/L	29	EPA 300.0	0.08	0.02		10/17/12 01:36	1
Microbiology								
Fecal Coliforms	CFU/100 ml	1 U	SM 9222D	1	1	10/15/12 16:19	10/16/12 14:32	1

Sample Description		**TA5-Denite Tank**						
Matrix		**Groundwater**						
SAL Sample Number		**1211979-05**						
Date/Time Collected		**10/16/12 13:45**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/16/12 15:30**						
Field Parameters								
pH	SU	7.2	DEP FT1100	0.1	0.1		10/16/12 13:45	1
Water Temperature	°C	27.9	DEP FT1400	0.1	0.1		10/16/12 13:45	1
Specific conductance	umhos/cm	1,082	DEP FT1200	0.1	0.1		10/16/12 13:45	1
Dissolved Oxygen	mg/L	0.1 U	DEP FT1500	0.1	0.1		10/16/12 13:45	1
Inorganics								
Hydrogen Sulfide (Unionized)	mg/L	1.9	SM 4550SF	0.04	0.01	10/19/12 16:30	10/19/12 16:31	1
Ammonia as N	mg/L	1.5	EPA 350.1	0.040	0.009		10/18/12 14:17	1
Ammonium as NH4	mg/L	1.9	EPA 350.1	0.05	0.01		10/24/12 15:47	1

Florida Certification Number: E84129
NELAP Accredited

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

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

November 2, 2012
Work Order: 1211979

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**TA5-Denite Tank**						
Matrix		**Groundwater**						
SAL Sample Number		**1211979-05**						
Date/Time Collected		**10/16/12 13:45**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/16/12 15:30**						
Carbonaceous BOD	mg/L	120	SM 5210B	2	2	10/17/12 08:14	10/22/12 15:34	1
Chemical Oxygen Demand	mg/L	150	EPA 410.4	25	10	10/25/12 10:00	10/25/12 12:45	1
Chloride	mg/L	45	EPA 300.0	0.20	0.050		10/25/12 02:27	1
Nitrate (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/18/12 01:54	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/18/12 01:54	1
Phosphorous - Total as P	mg/L	1.6	SM 4500P-E	0.040	0.010	10/18/12 11:04	10/22/12 15:37	1
Sulfate	mg/L	260	EPA 300.0	0.60	0.20		10/25/12 02:27	1
Sulfide	mg/L	5.2	SM 4500SF	0.40	0.10		10/19/12 14:41	1
Total Alkalinity	mg/L	190	SM 2320B	8.0	2.0		10/22/12 09:45	1
Total Kjeldahl Nitrogen	mg/L	7.7	EPA 351.2	0.20	0.05	10/26/12 08:08	10/29/12 13:59	9.62
Total Suspended Solids	mg/L	1 U	SM 2540D	1	1	10/17/12 10:49	10/18/12 13:08	1
Nitrate+Nitrite (N)	mg/L	0.02 U	EPA 300.0	0.08	0.02		10/18/12 01:54	1
Microbiology								
Fecal Coliforms	CFU/100 ml	1 U	SM 9222D	1	1	10/16/12 16:27	10/17/12 14:43	1
Sample Description		**TA5-Denite Tank DUP**						
Matrix		**Groundwater**						
SAL Sample Number		**1211979-06**						
Date/Time Collected		**10/16/12 13:50**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/16/12 15:30**						
Field Parameters								
pH	SU	7.2	DEP FT1100	0.1	0.1		10/16/12 13:50	1
Water Temperature	°C	27.9	DEP FT1400	0.1	0.1		10/16/12 13:50	1
Specific conductance	umhos/cm	1,082	DEP FT1200	0.1	0.1		10/16/12 13:50	1
Dissolved Oxygen	mg/L	0.1 U	DEP FT1500	0.1	0.1		10/16/12 13:50	1
Inorganics								
Hydrogen Sulfide (Unionized)	mg/L	1.9	SM 4550SF	0.04	0.01	10/19/12 16:30	10/19/12 16:31	1
Ammonia as N	mg/L	1.6	EPA 350.1	0.040	0.009		10/18/12 14:19	1
Ammonium as NH4	mg/L	2.0	EPA 350.1	0.05	0.01		10/24/12 15:47	1
Carbonaceous BOD	mg/L	110	SM 5210B	2	2	10/17/12 08:14	10/22/12 15:34	1
Chemical Oxygen Demand	mg/L	140	EPA 410.4	25	10	10/24/12 08:30	10/24/12 12:45	1
Chloride	mg/L	45	EPA 300.0	0.20	0.050		10/25/12 02:27	1
Nitrate (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/18/12 01:54	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/18/12 01:54	1
Phosphorous - Total as P	mg/L	1.6	SM 4500P-E	0.040	0.010	10/18/12 11:04	10/22/12 15:38	1
Sulfate	mg/L	260	EPA 300.0	0.60	0.20		10/25/12 02:27	1

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

November 2, 2012
Work Order: 1211979

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**TA5-Denite Tank DUP**						
Matrix		**Groundwater**						
SAL Sample Number		**1211979-06**						
Date/Time Collected		**10/16/12 13:50**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/16/12 15:30**						
Sulfide	mg/L	5.2	SM 4500SF	0.40	0.10		10/19/12 14:41	1
Total Alkalinity	mg/L	190	SM 2320B	8.0	2.0		10/22/12 09:45	1
Total Kjeldahl Nitrogen	mg/L	7.3	EPA 351.2	0.20	0.05	10/26/12 08:08	10/29/12 14:01	9.62
Total Suspended Solids	mg/L	1 U	SM 2540D	1	1	10/17/12 10:49	10/18/12 13:08	1
Nitrate+Nitrite (N)	mg/L	0.02 U	EPA 300.0	0.08	0.02		10/18/12 01:54	1
Microbiology								
Fecal Coliforms	CFU/100 ml	1 U	SM 9222D	1	1	10/16/12 16:27	10/17/12 14:43	1

Florida Certification Number: 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

November 2, 2012
Work Order: 1211979

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21607 - TSS prep										
Blank (BJ21607-BLK1)					Prepared & Analyzed: 10/16/12					
Total Suspended Solids	1 U	1	1	mg/L						
LCS (BJ21607-BS1)					Prepared & Analyzed: 10/16/12					
Total Suspended Solids	50.2	1	1	mg/L	50		100	85-115		
Duplicate (BJ21607-DUP1)		**Source: 1212006-01**			Prepared & Analyzed: 10/16/12					
Total Suspended Solids	86.0	1	1	mg/L		92.0			7	30
Duplicate (BJ21607-DUP2)		**Source: 1211981-03**			Prepared & Analyzed: 10/16/12					
Total Suspended Solids	1 U	1	1	mg/L		ND				30
Batch BJ21615 - Sulfide prep										
Blank (BJ21615-BLK1)					Prepared & Analyzed: 10/16/12					
Sulfide	0.10 U	0.40	0.10	mg/L						
LCS (BJ21615-BS1)					Prepared & Analyzed: 10/16/12					
Sulfide	4.77	0.40	0.10	mg/L	5.0		95	85-115		
Matrix Spike (BJ21615-MS1)		**Source: 1211979-03**			Prepared & Analyzed: 10/16/12					
Sulfide	4.57	0.40	0.10	mg/L	5.0	0.290	86	85-115		
Matrix Spike Dup (BJ21615-MSD1)		**Source: 1211979-03**			Prepared & Analyzed: 10/16/12					
Sulfide	4.57	0.40	0.10	mg/L	5.0	0.290	86	85-115	0	14
Batch BJ21619 - Ion Chromatography 300.0 Prep										
Blank (BJ21619-BLK1)					Prepared & Analyzed: 10/17/12					
Sulfate	0.20 U	0.60	0.20	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

November 2, 2012
Work Order: 1211979

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21619 - Ion Chromatography 300.0 Prep										
LCS (BJ21619-BS1)					Prepared & Analyzed: 10/17/12					
Sulfate	8.69	0.60	0.20	mg/L	9.0		97	85-115		
Nitrite (as N)	1.38	0.04	0.01	mg/L	1.4		99	85-115		
LCS Dup (BJ21619-BSD1)					Prepared & Analyzed: 10/17/12					
Sulfate	8.73	0.60	0.20	mg/L	9.0		97	85-115	0.5	200
Nitrite (as N)	1.40	0.04	0.01	mg/L	1.4		100	85-115	1	200
Matrix Spike (BJ21619-MS1)		**Source: 1211978-18**			Prepared & Analyzed: 10/17/12					
Nitrite (as N)	1.42	0.04	0.01	mg/L	1.4	ND	101	85-115		
Sulfate	29.5	0.60	0.20	mg/L	9.0	20.0	106	85-115		
Matrix Spike (BJ21619-MS2)		**Source: 1211978-27**			Prepared & Analyzed: 10/17/12					
Nitrite (as N)	1.41	0.04	0.01	mg/L	1.4	ND	101	85-115		
Sulfate	80.2	0.60	0.20	mg/L	9.0	72.1	90	85-115		
Batch BJ21702 - BOD										
Blank (BJ21702-BLK1)					Prepared: 10/17/12 Analyzed: 10/22/12					
Carbonaceous BOD	2 U	2	2	mg/L						
LCS (BJ21702-BS1)					Prepared: 10/17/12 Analyzed: 10/22/12					
Carbonaceous BOD	196	2	2	mg/L	200		98	85-115		
LCS Dup (BJ21702-BSD1)					Prepared: 10/17/12 Analyzed: 10/22/12					
Carbonaceous BOD	207	2	2	mg/L	200		103	85-115	5	200
Duplicate (BJ21702-DUP1)		**Source: 1212099-01**			Prepared: 10/17/12 Analyzed: 10/22/12					
Carbonaceous BOD	130	2	2	mg/L		150			13	25

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

November 2, 2012
Work Order: 1211979

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21707 - Ion Chromatography 300.0 Prep										
Blank (BJ21707-BLK1)					Prepared & Analyzed: 10/18/12					
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 (BJ21707-BS1)					Prepared & Analyzed: 10/18/12					
Nitrate (as N)	1.65	0.04	0.01	mg/L	1.7		97	85-115		
Nitrite (as N)	1.37	0.04	0.01	mg/L	1.4		98	85-115		
LCS Dup (BJ21707-BSD1)					Prepared & Analyzed: 10/18/12					
Nitrate (as N)	1.68	0.04	0.01	mg/L	1.7		99	85-115	2	200
Nitrite (as N)	1.38	0.04	0.01	mg/L	1.4		99	85-115	0.7	200
Matrix Spike (BJ21707-MS1)		**Source: 1211976-02**			Prepared & Analyzed: 10/18/12					
Nitrite (as N)	14.5	0.04	0.01	mg/L	14	ND	104	85-115		
Nitrate (as N)	52.9	0.04	0.01	mg/L	17	35.2	104	85-115		
Matrix Spike (BJ21707-MS2)		**Source: 1211983-08**			Prepared & Analyzed: 10/18/12					
Nitrite (as N)	1.44	0.04	0.01	mg/L	1.4	ND	103	85-115		
Nitrate (as N)	6.53	0.04	0.01	mg/L	1.7	4.74	105	85-115		
Batch BJ21708 - Ion Chromatography 300.0 Prep										
Blank (BJ21708-BLK1)					Prepared & Analyzed: 10/18/12					
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
Chloride	0.050 U	0.20	0.050	mg/L						
LCS (BJ21708-BS1)					Prepared & Analyzed: 10/18/12					
Chloride	2.83	0.20	0.050	mg/L	3.0		94	85-115		
Nitrate (as N)	1.68	0.04	0.01	mg/L	1.7		99	85-115		

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

November 2, 2012
Work Order: 1211979

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21708 - Ion Chromatography 300.0 Prep										
LCS Dup (BJ21708-BSD1)					Prepared & Analyzed: 10/18/12					
Chloride	2.76	0.20	0.050	mg/L	3.0		92	85-115	3	200
Nitrate (as N)	1.66	0.04	0.01	mg/L	1.7		98	85-115	1	200
Matrix Spike (BJ21708-MS1)		**Source: 1211879-08**			Prepared & Analyzed: 10/18/12					
Chloride	1,300	0.20	0.050	mg/L	300	976	108	80-120		
Nitrate (as N)	173	0.04	0.01	mg/L	170	ND	102	85-115		
Matrix Spike (BJ21708-MS2)		**Source: 1212008-02**			Prepared & Analyzed: 10/18/12					
Nitrate (as N)	1,710	0.04	0.01	mg/L	1700	0.280	101	85-115		
Chloride	3,340	0.20	0.050	mg/L	3000	77.5	109	80-120		
Batch BJ21709 - TSS prep										
Blank (BJ21709-BLK1)					Prepared: 10/17/12 Analyzed: 10/18/12					
Total Suspended Solids	1 U	1	1	mg/L						
Blank (BJ21709-BLK2)					Prepared: 10/17/12 Analyzed: 10/18/12					
Total Suspended Solids	1 U	1	1	mg/L						
LCS (BJ21709-BS1)					Prepared: 10/17/12 Analyzed: 10/18/12					
Total Suspended Solids	48.8	1	1	mg/L	50		98	85-115		
LCS (BJ21709-BS2)					Prepared: 10/17/12 Analyzed: 10/18/12					
Total Suspended Solids	47.8	1	1	mg/L	50		96	85-115		
Duplicate (BJ21709-DUP1)		**Source: 1211788-01**			Prepared: 10/17/12 Analyzed: 10/18/12					
Total Suspended Solids	2.50	1	1	mg/L		3.00			18	30

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

November 2, 2012
Work Order: 1211979

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21709 - TSS prep										
Duplicate (BJ21709-DUP2)		**Source: 1211788-02**			Prepared: 10/17/12 Analyzed: 10/18/12					
Total Suspended Solids	4.00	1	1	mg/L		5.00			22	30
Batch BJ21809 - Ammonia by SEAL										
Blank (BJ21809-BLK1)					Prepared & Analyzed: 10/18/12					
Ammonia as N	0.009 U	0.040	0.009	mg/L						
LCS (BJ21809-BS1)					Prepared & Analyzed: 10/18/12					
Ammonia as N	0.48	0.040	0.009	mg/L	0.50		95	90-110		
Matrix Spike (BJ21809-MS1)		**Source: 1211978-25**			Prepared & Analyzed: 10/18/12					
Ammonia as N	0.50	0.040	0.009	mg/L	0.50	ND	99	90-110		
Matrix Spike (BJ21809-MS2)		**Source: 1211983-01**			Prepared & Analyzed: 10/18/12					
Ammonia as N	0.46	0.040	0.009	mg/L	0.50	ND	92	90-110		
Matrix Spike Dup (BJ21809-MSD1)		**Source: 1211978-25**			Prepared & Analyzed: 10/18/12					
Ammonia as N	0.48	0.040	0.009	mg/L	0.50	ND	95	90-110	4	10
Matrix Spike Dup (BJ21809-MSD2)		**Source: 1211983-01**			Prepared & Analyzed: 10/18/12					
Ammonia as N	0.47	0.040	0.009	mg/L	0.50	ND	95	90-110	3	10
Batch BJ21811 - Digestion for TP by EPA 365.2/SM4500PE										
Blank (BJ21811-BLK1)					Prepared: 10/18/12 Analyzed: 10/22/12					
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						

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

November 2, 2012
Work Order: 1211979

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21811 - Digestion for TP by EPA 365.2/SM4500PE										
LCS (BJ21811-BS1)					Prepared: 10/18/12 Analyzed: 10/22/12					
Phosphorous - Total as P	0.750	0.040	0.010	mg/L	0.80		94	90-110		
Matrix Spike (BJ21811-MS1)		**Source: 1211978-03**			Prepared: 10/18/12 Analyzed: 10/22/12					
Phosphorous - Total as P	12.6	0.40	0.10	mg/L	10	1.86	107	75-125		
Matrix Spike (BJ21811-MS2)		**Source: 1211981-03**			Prepared: 10/18/12 Analyzed: 10/22/12					
Phosphorous - Total as P	1.28	0.040	0.010	mg/L	1.0	0.332	95	75-125		
Matrix Spike Dup (BJ21811-MSD1)		**Source: 1211978-03**			Prepared: 10/18/12 Analyzed: 10/22/12					
Phosphorous - Total as P	12.5	0.40	0.10	mg/L	10	1.86	107	75-125	0.7	25
Matrix Spike Dup (BJ21811-MSD2)		**Source: 1211981-03**			Prepared: 10/18/12 Analyzed: 10/22/12					
Phosphorous - Total as P	1.29	0.040	0.010	mg/L	1.0	0.332	96	75-125	0.3	25
Batch BJ21933 - Sulfide prep										
Blank (BJ21933-BLK1)					Prepared & Analyzed: 10/19/12					
Sulfide	0.10 U	0.40	0.10	mg/L						
LCS (BJ21933-BS1)					Prepared & Analyzed: 10/19/12					
Sulfide	4.78	0.40	0.10	mg/L	5.0		96	85-115		
Matrix Spike (BJ21933-MS1)		**Source: 1212215-01**			Prepared & Analyzed: 10/19/12					
Sulfide	5.57	0.40	0.10	mg/L	5.0	0.200	107	85-115		
Matrix Spike Dup (BJ21933-MSD1)		**Source: 1212215-01**			Prepared & Analyzed: 10/19/12					
Sulfide	5.57	0.40	0.10	mg/L	5.0	0.200	107	85-115	0	14

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

November 2, 2012
Work Order: 1211979

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22228 - alkalinity										
Blank (BJ22228-BLK1)					Prepared & Analyzed: 10/22/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
Blank (BJ22228-BLK2)					Prepared & Analyzed: 10/22/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
LCS (BJ22228-BS1)					Prepared & Analyzed: 10/22/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		
LCS (BJ22228-BS2)					Prepared & Analyzed: 10/22/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		
Matrix Spike (BJ22228-MS1)		**Source: 1211981-05**			Prepared & Analyzed: 10/22/12					
Total Alkalinity	250	8.0	2.0	mg/L	120	130	95	80-120		
Matrix Spike (BJ22228-MS2)		**Source: 1212157-01**			Prepared & Analyzed: 10/22/12					
Total Alkalinity	230	8.0	2.0	mg/L	120	110	95	80-120		
Matrix Spike Dup (BJ22228-MSD1)		**Source: 1211981-05**			Prepared & Analyzed: 10/22/12					
Total Alkalinity	250	8.0	2.0	mg/L	120	130	95	80-120	0	26
Matrix Spike Dup (BJ22228-MSD2)		**Source: 1212157-01**			Prepared & Analyzed: 10/22/12					
Total Alkalinity	230	8.0	2.0	mg/L	120	110	95	80-120	0	26
Batch BJ22423 - Ion Chromatography 300.0 Prep										
Blank (BJ22423-BLK1)					Prepared & Analyzed: 10/25/12					
Sulfate	0.20 U	0.60	0.20	mg/L						
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

November 2, 2012
Work Order: 1211979

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22423 - Ion Chromatography 300.0 Prep										
LCS (BJ22423-BS1)					Prepared & Analyzed: 10/25/12					
Sulfate	8.63	0.60	0.20	mg/L	9.0		96	85-115		
Nitrate (as N)	1.64	0.04	0.01	mg/L	1.7		96	85-115		
Chloride	2.78	0.20	0.050	mg/L	3.0		93	85-115		
Nitrite (as N)	1.35	0.04	0.01	mg/L	1.4		96	85-115		
LCS Dup (BJ22423-BSD1)					Prepared & Analyzed: 10/25/12					
Sulfate	8.64	0.60	0.20	mg/L	9.0		96	85-115	0.1	200
Chloride	2.75	0.20	0.050	mg/L	3.0		92	85-115	1	200
Nitrate (as N)	1.65	0.04	0.01	mg/L	1.7		97	85-115	0.6	200
Nitrite (as N)	1.35	0.04	0.01	mg/L	1.4		96	85-115	0	200
Matrix Spike (BJ22423-MS1)		**Source: 1211979-05**			Prepared & Analyzed: 10/25/12					
Sulfate	354	0.60	0.20	mg/L	90	257	108	85-115		
Nitrite (as N)	13.9	0.04	0.01	mg/L	14	ND	99	85-115		
Nitrate (as N)	17.3	0.04	0.01	mg/L	17	ND	102	85-115		
Chloride	78.1	0.20	0.050	mg/L	30	44.9	111	80-120		
Matrix Spike (BJ22423-MS2)		**Source: 1212359-02**			Prepared & Analyzed: 10/25/12					
Nitrite (as N)	1.43	0.04	0.01	mg/L	1.4	ND	102	85-115		
Sulfate	19.8	0.60	0.20	mg/L	9.0	10.5	103	85-115		
Nitrate (as N)	1.72	0.04	0.01	mg/L	1.7	ND	101	85-115		
Chloride	10.8	0.20	0.050	mg/L	3.0	7.71	103	80-120		
Batch BJ22503 - COD prep										
Blank (BJ22503-BLK1)					Prepared & Analyzed: 10/24/12					
Chemical Oxygen Demand	10 U	25	10	mg/L						

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

November 2, 2012
Work Order: 1211979

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22503 - COD prep										
LCS (BJ22503-BS1)					Prepared & Analyzed: 10/24/12					
Chemical Oxygen Demand	54	25	10	mg/L	50		108	90-110		
Matrix Spike (BJ22503-MS1)		**Source: 1211978-12**			Prepared & Analyzed: 10/24/12					
Chemical Oxygen Demand	63	25	10	mg/L	50	17	92	85-115		
Matrix Spike Dup (BJ22503-MSD1)		**Source: 1211978-12**			Prepared & Analyzed: 10/24/12					
Chemical Oxygen Demand	63	25	10	mg/L	50	17	92	85-115	0	32
Batch BJ22542 - COD prep										
Blank (BJ22542-BLK1)					Prepared & Analyzed: 10/25/12					
Chemical Oxygen Demand	10 U	25	10	mg/L						
LCS (BJ22542-BS1)					Prepared & Analyzed: 10/25/12					
Chemical Oxygen Demand	54	25	10	mg/L	50		108	90-110		
Matrix Spike (BJ22542-MS1)		**Source: 1212355-04**			Prepared & Analyzed: 10/25/12					
Chemical Oxygen Demand	74	25	10	mg/L	50	17	114	85-115		
Matrix Spike Dup (BJ22542-MSD1)		**Source: 1212355-04**			Prepared & Analyzed: 10/25/12					
Chemical Oxygen Demand	69	25	10	mg/L	50	17	104	85-115	7	32
Batch BJ22604 - Digestion for TKN by EPA 351.2										
Blank (BJ22604-BLK1)					Prepared: 10/26/12 Analyzed: 10/29/12					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						

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

November 2, 2012
Work Order: 1211979

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22604 - Digestion for TKN by EPA 351.2										
LCS (BJ22604-BS1)					Prepared: 10/26/12	Analyzed: 10/29/12				
Total Kjeldahl Nitrogen	2.53	0.20	0.05	mg/L	2.5		100	90-110		
Matrix Spike (BJ22604-MS1)		**Source: 1211978-17**			Prepared: 10/26/12	Analyzed: 10/29/12				
Total Kjeldahl Nitrogen	5.32	0.20	0.05	mg/L	2.5	2.72	103	90-110		
Matrix Spike (BJ22604-MS2)		**Source: 1211979-03**			Prepared: 10/26/12	Analyzed: 10/29/12				
Total Kjeldahl Nitrogen	7.38	0.20	0.05	mg/L	2.5	5.08	91	90-110		
Matrix Spike Dup (BJ22604-MSD1)		**Source: 1211978-17**			Prepared: 10/26/12	Analyzed: 10/29/12				
Total Kjeldahl Nitrogen	5.42	0.20	0.05	mg/L	2.5	2.72	107	90-110	2	20
Matrix Spike Dup (BJ22604-MSD2)		**Source: 1211979-03**			Prepared: 10/26/12	Analyzed: 10/29/12				
Total Kjeldahl Nitrogen	7.61	0.20	0.05	mg/L	2.5	5.08	100	90-110	3	20

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

November 2, 2012
Work Order: 1211979

Microbiology - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21547 - FC-MF										
Blank (BJ21547-BLK1)					Prepared: 10/15/12	Analyzed: 10/16/12				
Fecal Coliforms	1 U	1	1	CFU/100 ml						
Duplicate (BJ21547-DUP1)		**Source: 1211979-03**			Prepared: 10/15/12	Analyzed: 10/16/12				
Fecal Coliforms	1 U	1	1	CFU/100 ml		ND				200
Batch BJ21647 - FC-MF										
Blank (BJ21647-BLK1)					Prepared: 10/16/12	Analyzed: 10/17/12				
Fecal Coliforms	1 U	1	1	CFU/100 ml						
Duplicate (BJ21647-DUP1)		**Source: 1211979-05**			Prepared: 10/16/12	Analyzed: 10/17/12				
Fecal Coliforms	1 U	1	1	CFU/100 ml		ND				200

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

November 2, 2012
Work Order: 1211979

* 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 :

Kathryn Nordmark
Telephone (813) 855-1844 FAX (813) 855-2218
Kathryn@southernanalyticallabs.com

or to Client Services (clientservices@southernanalyticallabs.com).

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

1211979

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: S&GW Test Facility SE #3 (TA5)

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	250mL P, H_2SO_4 TKN, NH_4, COD, TP	1LP, Cool NOx, Cl, SO_4, Alkalinity, CBOD, TSS	1LP, NaOH, Zn Acetate H_2S	125mL P, $Na_2S_2O_3$ FC-MF								Field pH	Field Temperature	Field Conductivity	Field DO
01	TA5-PZ-1 not sampled			GW		X	1	1	1	2											
02	TA5-PZ-1 Dup not sampled			GW		X	1	1	1	2											
03	TA5-LY-C	10/5/12	1310	GW		X	1	1	1	2								5.8	30.7	6663	6.2
04	TA5-LINER-SP not sampled			GW		X	1	1	1	2											
05	TA5-Denite Tank	10/16/12	1345	GW		X	1	1	1	2								7.2	27.9	1082	0.10
06	TA5-Denite Tank DUP	/	1350	GW		X	1	1	1	2								7.2	27.9	1082	0.10

Containers Prepared/ Relinquished:	Date/Time:	Received:	Date/Time:
J Bowling	10/12/12 1330		1330 10/12/12
Relinquished:	Date/Time: 1530 10/16/12	Received: D Medmerd	Date/Time: 10/16/12 1530
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

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

Instructions / Remarks:

1211979

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	10/15/12 13:10 pm	SAL Project #	1211979	Project Name	S&GW Test Facility SE #5
Well Number	TA5-LY-C		03	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)		WELL CAPACITY (gal/ft)		Screen Interval (Feet)	UNK To UNK			Static Depth to Water (Feet)		PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)		REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)				TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	
Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)											
WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =											
ONE WELL VOLUME			1/4 WELL VOLUME			3 WELL VOLUMES			5 WELL VOLUMES		
EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME											
PUMP VOLUME			TUBING LEGNTH			FLOW CELL VOLUME			EQUIPMENT VOLUME		
INITIAL TUBING LEGNTH IN WELL (FEET)			FINAL TUBING LEGNTH IN WELL (FEET)			PURGE TIME START		PURGE TIME END		TOTAL PURGED	
INST. ID					SAL-SAM-63-____	SAL-SAM - 65-____	SAL-SAM-63-____	SAL-SAM-55-__	SAL-SAM-0____		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
13:10pm	5kPa				5.8	30.7	663	6.2		clear	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)		HdS				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-VOCS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?		Y N N/A	LIST PRESERVATIVES ADDED						
WEATHER CONDITIONS		Clear Sunny 80s							
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

Date:

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

November 6, 2012
Work Order: 1212537

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**TA5-LINER-SP**						
Matrix		**Groundwater**						
SAL Sample Number		**1212537-01**						
Date/Time Collected		**10/25/12 11:30**						
Collected by		**Josephine Edeback-Hirst**						
Date/Time Received		**10/25/12 14:48**						
Inorganics								
Ammonia as N	mg/L	0.064	EPA 350.1	0.040	0.009		10/31/12 12:58	MMF
Nitrate (as N)	mg/L	1.6	EPA 300.0	0.04	0.01		10/26/12 17:29	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/26/12 17:29	JAG
Total Kjeldahl Nitrogen	mg/L	1.6	EPA 351.2	0.20	0.05	10/29/12 16:45	10/31/12 13:25	MMF
Nitrate+Nitrite (N)	mg/L	1.6	EPA 300.0	0.08	0.02		10/26/12 17:29	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

November 6, 2012
Work Order: 1212537

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22628 - Ion Chromatography 300.0 Prep										
Blank (BJ22628-BLK1)					Prepared & Analyzed: 10/26/12					
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 (BJ22628-BS1)					Prepared & Analyzed: 10/26/12					
Nitrate (as N)	1.66	0.04	0.01	mg/L	1.7		98	85-115		
Nitrite (as N)	1.39	0.04	0.01	mg/L	1.4		99	85-115		
LCS Dup (BJ22628-BSD1)					Prepared & Analyzed: 10/26/12					
Nitrite (as N)	1.40	0.04	0.01	mg/L	1.4		100	85-115	0.7	200
Nitrate (as N)	1.68	0.04	0.01	mg/L	1.7		99	85-115	1	200
Matrix Spike (BJ22628-MS1)		**Source: 1212526-01**			Prepared & Analyzed: 10/26/12					
Nitrate (as N)	2.42	0.04	0.01	mg/L	1.7	0.735	99	85-115		
Nitrite (as N)	1.48	0.04	0.01	mg/L	1.4	ND	106	85-115		
Matrix Spike (BJ22628-MS2)		**Source: 1212537-01**			Prepared & Analyzed: 10/26/12					
Nitrate (as N)	3.30	0.04	0.01	mg/L	1.7	1.57	102	85-115		
Nitrite (as N)	1.31	0.04	0.01	mg/L	1.4	ND	94	85-115		
Batch BJ22947 - Digestion for TKN by EPA 351.2										
Blank (BJ22947-BLK1)					Prepared: 10/29/12 Analyzed: 10/31/12					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
LCS (BJ22947-BS1)					Prepared: 10/29/12 Analyzed: 10/31/12					
Total Kjeldahl Nitrogen	2.63	0.20	0.05	mg/L	2.5		104	90-110		

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

November 6, 2012
Work Order: 1212537

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22947 - Digestion for TKN by EPA 351.2										
Matrix Spike (BJ22947-MS1)		**Source: 1212521-02**			Prepared: 10/29/12 Analyzed: 10/31/12					
Total Kjeldahl Nitrogen	3.14	0.20	0.05	mg/L	2.5	0.544	102	90-110		
Matrix Spike Dup (BJ22947-MSD1)		**Source: 1212521-02**			Prepared: 10/29/12 Analyzed: 10/31/12					
Total Kjeldahl Nitrogen	3.03	0.20	0.05	mg/L	2.5	0.544	98	90-110	3	20
Batch BJ23012 - Ammonia by SEAL										
Blank (BJ23012-BLK1)					Prepared & Analyzed: 10/31/12					
Ammonia as N	0.009 U	0.040	0.009	mg/L						
LCS (BJ23012-BS1)					Prepared & Analyzed: 10/31/12					
Ammonia as N	0.49	0.040	0.009	mg/L	0.50		97	90-110		
Matrix Spike (BJ23012-MS1)		**Source: 1212424-07**			Prepared & Analyzed: 10/31/12					
Ammonia as N	0.58	0.040	0.009	mg/L	0.50	0.062	104	90-110		
Matrix Spike (BJ23012-MS2)		**Source: 1212498-07**			Prepared & Analyzed: 10/31/12					
Ammonia as N	0.54	0.040	0.009	mg/L	0.50	0.035	100	90-110		
Matrix Spike Dup (BJ23012-MSD1)		**Source: 1212424-07**			Prepared & Analyzed: 10/31/12					
Ammonia as N	0.58	0.040	0.009	mg/L	0.50	0.062	104	90-110	0.7	10
Matrix Spike Dup (BJ23012-MSD2)		**Source: 1212498-07**			Prepared & Analyzed: 10/31/12					
Ammonia as N	0.54	0.040	0.009	mg/L	0.50	0.035	100	90-110	0.06	10

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

November 6, 2012
Work Order: 1212537

* 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

1212537

Client Name: Hazen and Sawyer	Contact / Phone:
Project Name / Location: S&GW Test Facility SE #3 (TA5)	
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	250mL P, H_2SO_4 TKN, NH_4, ~~COD, TP~~	1LP, Cool NOx, ~~Cl, SO_4, Alkalinity, CBOD, TSS~~	~~1LP, NaOH, Zn Acetate~~ H_2S	~~125mL P, $Na_2S_2O_3$~~ ~~FC, MF~~									Field pH	Field Temperature	Field Conductivity	Field DO
01 ~~04~~	TA5-LINER-SP	10-25-12	1130	GW		X	1	1	1	1												

Containers Prepared/ Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received: J Harnile	Date/Time: 1448 10-25-12
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

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

Instructions / Remarks:

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

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

November 2, 2012
Work Order: 1212351

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**TA5-PZ-1**						
Matrix		**Groundwater**						
SAL Sample Number		**1212351-01**						
Date/Time Collected		**10/25/12 11:38**						
Collected by		**Travis Wright**						
Date/Time Received		**10/25/12 14:40**						
Field Parameters								
pH	SU	4.4	DEP FT1100	0.1	0.1		10/25/12 11:38	1
Water Temperature	°C	27.1	DEP FT1400	0.1	0.1		10/25/12 11:38	1
Specific conductance	umhos/cm	376	DEP FT1200	0.1	0.1		10/25/12 11:38	1
Dissolved Oxygen	mg/L	0.4	DEP FT1500	0.1	0.1		10/25/12 11:38	1
Inorganics								
Hydrogen Sulfide (Unionized)	mg/L	0.01 U	SM 4550SF	0.04	0.01		11/01/12 09:17	1
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/31/12 12:20	1
Ammonium as NH4	mg/L	0.01 U	EPA 350.1	0.05	0.01		10/31/12 14:47	1
Carbonaceous BOD	mg/L	2 U	SM 5210B	2	2	10/26/12 07:48	10/31/12 08:23	1
Chemical Oxygen Demand	mg/L	13 I	EPA 410.4	25	10	10/31/12 08:50	10/31/12 11:20	1
Chloride	mg/L	23	EPA 300.0	0.20	0.050		10/26/12 17:29	1
Nitrate (as N)	mg/L	5.3	EPA 300.0	0.04	0.01		10/26/12 17:29	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/26/12 17:29	1
Phosphorous - Total as P	mg/L	0.023 I	SM 4500P-E	0.040	0.010	10/26/12 10:26	10/30/12 13:30	1
Sulfate	mg/L	88	EPA 300.0	0.60	0.20		10/26/12 17:29	1
Sulfide	mg/L	0.10 U	SM 4500SF	0.40	0.10		10/31/12 10:37	1
Total Alkalinity	mg/L	2.1 I	SM 2320B	8.0	2.0		10/29/12 09:13	1
Total Kjeldahl Nitrogen	mg/L	0.53	EPA 351.2	0.20	0.05	10/29/12 16:41	10/31/12 11:03	1
Total Suspended Solids	mg/L	1 U	SM 2540D	1	1	10/29/12 08:42	10/30/12 12:00	1
Nitrate+Nitrite (N)	mg/L	5.3	EPA 300.0	0.08	0.02		10/26/12 17:29	1
Microbiology								
Fecal Coliforms	CFU/100 ml	1 U	SM 9222D	1	1	10/25/12 15:19	10/26/12 13:56	1
Sample Description		**TA5-PZ-1 DUP**						
Matrix		**Groundwater**						
SAL Sample Number		**1212351-02**						
Date/Time Collected		**10/25/12 11:45**						
Collected by		**Travis Wright**						
Date/Time Received		**10/25/12 14:40**						
Field Parameters								
pH	SU	4.4	DEP FT1100	0.1	0.1		10/25/12 11:45	1
Water Temperature	°C	27.1	DEP FT1400	0.1	0.1		10/25/12 11:45	1
Specific conductance	umhos/cm	376	DEP FT1200	0.1	0.1		10/25/12 11:45	1
Dissolved Oxygen	mg/L	0.4	DEP FT1500	0.1	0.1		10/25/12 11:45	1
Inorganics								
Hydrogen Sulfide (Unionized)	mg/L	0.01 U	SM 4550SF	0.04	0.01		11/01/12 09:17	1

Florida Certification Number: E84129
NELAP Accredited

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

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

November 2, 2012
Work Order: 1212351

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**TA5-PZ-1 DUP**						
Matrix		**Groundwater**						
SAL Sample Number		**1212351-02**						
Date/Time Collected		**10/25/12 11:45**						
Collected by		**Travis Wright**						
Date/Time Received		**10/25/12 14:40**						
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/31/12 12:22	1
Ammonium as NH4	mg/L	0.01 U	EPA 350.1	0.05	0.01		10/31/12 14:47	1
Carbonaceous BOD	mg/L	2 U	SM 5210B	2	2	10/26/12 07:48	10/31/12 08:23	1
Chemical Oxygen Demand	mg/L	11 I	EPA 410.4	25	10	10/31/12 08:50	10/31/12 11:20	1
Chloride	mg/L	23	EPA 300.0	0.20	0.050		10/26/12 17:29	1
Nitrate (as N)	mg/L	5.3	EPA 300.0	0.04	0.01		10/26/12 17:29	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/26/12 17:29	1
Phosphorous - Total as P	mg/L	0.018 I	SM 4500P-E	0.040	0.010	10/26/12 10:26	10/30/12 13:31	1
Sulfate	mg/L	88	EPA 300.0	0.60	0.20		10/26/12 17:29	1
Sulfide	mg/L	0.10 U	SM 4500SF	0.40	0.10		10/31/12 10:37	1
Total Alkalinity	mg/L	2.1 I	SM 2320B	8.0	2.0		10/29/12 09:13	1
Total Kjeldahl Nitrogen	mg/L	0.60	EPA 351.2	0.20	0.05	10/29/12 16:41	10/31/12 11:22	1
Total Suspended Solids	mg/L	1	SM 2540D	1	1	10/29/12 08:42	10/30/12 12:00	1
Nitrate+Nitrite (N)	mg/L	5.3	EPA 300.0	0.08	0.02		10/26/12 17:29	1
Microbiology								
Fecal Coliforms	CFU/100 ml	1 U	SM 9222D	1	1	10/25/12 15:19	10/26/12 13:56	1
Sample Description		**PZ40-BKG-26**						
Matrix		**Groundwater**						
SAL Sample Number		**1212351-03**						
Date/Time Collected		**10/25/12 12:52**						
Collected by		**Travis Wright**						
Date/Time Received		**10/25/12 14:40**						
Field Parameters								
pH	SU	3.6	DEP FT1100	0.1	0.1	10/30/12 10:28	10/25/12 12:52	1
Water Temperature	°C	25.3	DEP FT1400	0.1	0.1	10/30/12 10:28	10/25/12 12:52	1
Specific conductance	umhos/cm	313	DEP FT1200	0.1	0.1	10/30/12 10:28	10/25/12 12:52	1
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1	10/30/12 10:28	10/25/12 12:52	1
Inorganics								
Nitrate (as N)	mg/L	10	EPA 300.0	0.04	0.01		10/26/12 17:29	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/26/12 17:29	1

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

November 2, 2012
Work Order: 1212351

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22602 - BOD										
Blank (BJ22602-BLK1)					Prepared: 10/26/12	Analyzed: 10/31/12				
Carbonaceous BOD	2 U	2	2	mg/L						
Blank (BJ22602-BLK2)					Prepared: 10/26/12	Analyzed: 10/31/12				
Carbonaceous BOD	2 U	2	2	mg/L						
LCS (BJ22602-BS1)					Prepared: 10/26/12	Analyzed: 10/31/12				
Carbonaceous BOD	210	2	2	mg/L	200		105	85-115		
LCS (BJ22602-BS2)					Prepared: 10/26/12	Analyzed: 10/31/12				
Carbonaceous BOD	206	2	2	mg/L	200		103	85-115		
LCS Dup (BJ22602-BSD1)					Prepared: 10/26/12	Analyzed: 10/31/12				
Carbonaceous BOD	216	2	2	mg/L	200		108	85-115	3	200
LCS Dup (BJ22602-BSD2)					Prepared: 10/26/12	Analyzed: 10/31/12				
Carbonaceous BOD	195	2	2	mg/L	200		97	85-115	5	200
Duplicate (BJ22602-DUP1)		**Source: 1212351-01**			Prepared: 10/26/12	Analyzed: 10/31/12				
Carbonaceous BOD	2 U	2	2	mg/L		ND				25
Duplicate (BJ22602-DUP2)		**Source: 1211968-02**			Prepared: 10/26/12	Analyzed: 10/31/12				
Carbonaceous BOD	35	2	2	mg/L		32			8	25
Batch BJ22617 - Digestion for TP by EPA 365.2/SM4500PE										
Blank (BJ22617-BLK1)					Prepared: 10/26/12	Analyzed: 10/30/12				
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						

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

November 2, 2012
Work Order: 1212351

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22617 - Digestion for TP by EPA 365.2/SM4500PE										
LCS (BJ22617-BS1)					Prepared: 10/26/12 Analyzed: 10/30/12					
Phosphorous - Total as P	0.769	0.040	0.010	mg/L	0.80		96	90-110		
Matrix Spike (BJ22617-MS1)		**Source: 1212424-07**			Prepared: 10/26/12 Analyzed: 10/30/12					
Phosphorous - Total as P	1.00	0.040	0.010	mg/L	1.0	0.0491	95	75-125		
Matrix Spike (BJ22617-MS2)		**Source: 1212521-02**			Prepared: 10/26/12 Analyzed: 10/30/12					
Phosphorous - Total as P	1.00	0.040	0.010	mg/L	1.0	0.0302	97	75-125		
Matrix Spike Dup (BJ22617-MSD1)		**Source: 1212424-07**			Prepared: 10/26/12 Analyzed: 10/30/12					
Phosphorous - Total as P	0.983	0.040	0.010	mg/L	1.0	0.0491	93	75-125	2	25
Matrix Spike Dup (BJ22617-MSD2)		**Source: 1212521-02**			Prepared: 10/26/12 Analyzed: 10/30/12					
Phosphorous - Total as P	0.985	0.040	0.010	mg/L	1.0	0.0302	96	75-125	2	25
Batch BJ22628 - Ion Chromatography 300.0 Prep										
Blank (BJ22628-BLK1)					Prepared & Analyzed: 10/26/12					
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						
Sulfate	0.20 U	0.60	0.20	mg/L						
LCS (BJ22628-BS1)					Prepared & Analyzed: 10/26/12					
Sulfate	8.76	0.60	0.20	mg/L	9.0		97	85-115		
Chloride	2.85	0.20	0.050	mg/L	3.0		95	85-115		
Nitrate (as N)	1.66	0.04	0.01	mg/L	1.7		98	85-115		
Nitrite (as N)	1.39	0.04	0.01	mg/L	1.4		99	85-115		

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

November 2, 2012
Work Order: 1212351

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22628 - Ion Chromatography 300.0 Prep										
LCS Dup (BJ22628-BSD1)					Prepared & Analyzed: 10/26/12					
Sulfate	8.74	0.60	0.20	mg/L	9.0		97	85-115	0.2	200
Chloride	2.88	0.20	0.050	mg/L	3.0		96	85-115	1	200
Nitrate (as N)	1.68	0.04	0.01	mg/L	1.7		99	85-115	1	200
Nitrite (as N)	1.40	0.04	0.01	mg/L	1.4		100	85-115	0.7	200
Matrix Spike (BJ22628-MS1)		**Source: 1212526-01**			Prepared & Analyzed: 10/26/12					
Chloride	3.92	0.20	0.050	mg/L	3.0	1.48	81	80-120		
Sulfate	31.1	0.60	0.20	mg/L	9.0	21.6	106	85-115		
Nitrate (as N)	2.42	0.04	0.01	mg/L	1.7	0.735	99	85-115		
Nitrite (as N)	1.48	0.04	0.01	mg/L	1.4	ND	106	85-115		
Matrix Spike (BJ22628-MS2)		**Source: 1212537-01**			Prepared & Analyzed: 10/26/12					
Sulfate	68.2	0.60	0.20	mg/L	9.0	59.9	92	85-115		
Nitrate (as N)	3.30	0.04	0.01	mg/L	1.7	1.57	102	85-115		
Nitrite (as N)	1.31	0.04	0.01	mg/L	1.4	ND	94	85-115		
Chloride	38.4 +O	0.20	0.050	mg/L	3.0	38.4	0	80-120		
Batch BJ22902 - TSS prep										
Blank (BJ22902-BLK1)					Prepared: 10/29/12 Analyzed: 10/30/12					
Total Suspended Solids	1 U	1	1	mg/L						
Blank (BJ22902-BLK2)					Prepared: 10/29/12 Analyzed: 10/30/12					
Total Suspended Solids	1 U	1	1	mg/L						
LCS (BJ22902-BS1)					Prepared: 10/29/12 Analyzed: 10/30/12					
Total Suspended Solids	45.2	1	1	mg/L	50		90	85-115		

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

November 2, 2012
Work Order: 1212351

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22902 - TSS prep										
LCS (BJ22902-BS2)					Prepared: 10/29/12	Analyzed: 10/30/12				
Total Suspended Solids	44.5	1	1	mg/L	50		89	85-115		
Duplicate (BJ22902-DUP1)		**Source: 1212509-01**			Prepared: 10/29/12	Analyzed: 10/30/12				
Total Suspended Solids	13.0	1	1	mg/L		14.0			7	30
Duplicate (BJ22902-DUP2)		**Source: 1212509-02**			Prepared: 10/29/12	Analyzed: 10/30/12				
Total Suspended Solids	11.5	1	1	mg/L		9.00			24	30
Batch BJ22945 - Digestion for TKN by EPA 351.2										
Blank (BJ22945-BLK1)					Prepared: 10/29/12	Analyzed: 10/31/12				
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
LCS (BJ22945-BS1)					Prepared: 10/29/12	Analyzed: 10/31/12				
Total Kjeldahl Nitrogen	2.51	0.20	0.05	mg/L	2.5		99	90-110		
Matrix Spike (BJ22945-MS1)		**Source: 1212462-02**			Prepared: 10/29/12	Analyzed: 10/31/12				
Total Kjeldahl Nitrogen	3.18	0.20	0.05	mg/L	2.5	0.600	102	90-110		
Matrix Spike (BJ22945-MS2)		**Source: 1212503-01**			Prepared: 10/29/12	Analyzed: 10/31/12				
Total Kjeldahl Nitrogen	2.63	0.20	0.05	mg/L	2.5	ND	104	90-110		
Matrix Spike Dup (BJ22945-MSD1)		**Source: 1212462-02**			Prepared: 10/29/12	Analyzed: 10/31/12				
Total Kjeldahl Nitrogen	3.32	0.20	0.05	mg/L	2.5	0.600	107	90-110	4	20
Matrix Spike Dup (BJ22945-MSD2)		**Source: 1212503-01**			Prepared: 10/29/12	Analyzed: 10/31/12				
Total Kjeldahl Nitrogen	2.49	0.20	0.05	mg/L	2.5	ND	98	90-110	5	20

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

November 2, 2012
Work Order: 1212351

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ23012 - Ammonia by SEAL										
Blank (BJ23012-BLK1)					Prepared & Analyzed: 10/31/12					
Ammonia as N	0.009 U	0.040	0.009	mg/L						
LCS (BJ23012-BS1)					Prepared & Analyzed: 10/31/12					
Ammonia as N	0.49	0.040	0.009	mg/L	0.50		97	90-110		
Matrix Spike (BJ23012-MS1)		**Source: 1212424-07**			Prepared & Analyzed: 10/31/12					
Ammonia as N	0.58	0.040	0.009	mg/L	0.50	0.062	104	90-110		
Matrix Spike (BJ23012-MS2)		**Source: 1212498-07**			Prepared & Analyzed: 10/31/12					
Ammonia as N	0.54	0.040	0.009	mg/L	0.50	0.035	100	90-110		
Matrix Spike Dup (BJ23012-MSD1)		**Source: 1212424-07**			Prepared & Analyzed: 10/31/12					
Ammonia as N	0.58	0.040	0.009	mg/L	0.50	0.062	104	90-110	0.7	10
Matrix Spike Dup (BJ23012-MSD2)		**Source: 1212498-07**			Prepared & Analyzed: 10/31/12					
Ammonia as N	0.54	0.040	0.009	mg/L	0.50	0.035	100	90-110	0.06	10
Batch BJ23101 - alkalinity										
Blank (BJ23101-BLK1)					Prepared & Analyzed: 10/29/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
Blank (BJ23101-BLK2)					Prepared & Analyzed: 10/29/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
LCS (BJ23101-BS1)					Prepared & Analyzed: 10/29/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		

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

November 2, 2012
Work Order: 1212351

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ23101 - alkalinity										
LCS (BJ23101-BS2)					Prepared & Analyzed: 10/29/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		
Matrix Spike (BJ23101-MS1)		**Source: 1211968-05**			Prepared & Analyzed: 10/29/12					
Total Alkalinity	270	8.0	2.0	mg/L	120	150	95	80-120		
Matrix Spike (BJ23101-MS2)		**Source: 1212585-01**			Prepared & Analyzed: 10/29/12					
Total Alkalinity	280	8.0	2.0	mg/L	120	160	95	80-120		
Matrix Spike Dup (BJ23101-MSD1)		**Source: 1211968-05**			Prepared & Analyzed: 10/29/12					
Total Alkalinity	270	8.0	2.0	mg/L	120	150	95	80-120	0	26
Matrix Spike Dup (BJ23101-MSD2)		**Source: 1212585-01**			Prepared & Analyzed: 10/29/12					
Total Alkalinity	270	8.0	2.0	mg/L	120	160	86	80-120	4	26
Batch BJ23120 - COD prep										
Blank (BJ23120-BLK1)					Prepared & Analyzed: 10/31/12					
Chemical Oxygen Demand	10 U	25	10	mg/L						
LCS (BJ23120-BS1)					Prepared & Analyzed: 10/31/12					
Chemical Oxygen Demand	51	25	10	mg/L	50		102	90-110		
Matrix Spike (BJ23120-MS1)		**Source: 1212351-01**			Prepared & Analyzed: 10/31/12					
Chemical Oxygen Demand	58	25	10	mg/L	50	13	90	85-115		
Matrix Spike Dup (BJ23120-MSD1)		**Source: 1212351-01**			Prepared & Analyzed: 10/31/12					
Chemical Oxygen Demand	58	25	10	mg/L	50	13	90	85-115	0	32

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

November 2, 2012
Work Order: 1212351

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ23126 - Sulfide prep										
Blank (BJ23126-BLK1)					Prepared & Analyzed: 10/31/12					
Sulfide	0.10 U	0.40	0.10	mg/L						
LCS (BJ23126-BS1)					Prepared & Analyzed: 10/31/12					
Sulfide	4.78	0.40	0.10	mg/L	5.0		96	85-115		
Matrix Spike (BJ23126-MS1)		**Source: 1212351-02**			Prepared & Analyzed: 10/31/12					
Sulfide	4.78	0.40	0.10	mg/L	5.0	ND	96	85-115		
Matrix Spike Dup (BJ23126-MSD1)		**Source: 1212351-02**			Prepared & Analyzed: 10/31/12					
Sulfide	4.78	0.40	0.10	mg/L	5.0	ND	96	85-115	0	14

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

November 2, 2012
Work Order: 1212351

Microbiology - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22534 - FC-MF										
Blank (BJ22534-BLK1)					Prepared: 10/25/12	Analyzed: 10/26/12				
Fecal Coliforms	1 U	1	1	CFU/100 ml						
Duplicate (BJ22534-DUP1)		**Source: 1212351-01**			Prepared: 10/25/12	Analyzed: 10/26/12				
Fecal Coliforms	1 U	1	1	CFU/100 ml		ND				200

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

November 2, 2012
Work Order: 1212351

* 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.

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

Questions regarding this report should be directed to :

Kathryn Nordmark
Telephone (813) 855-1844 FAX (813) 855-2218
Kathryn@southernanalyticallabs.com

or to Client Services (clientservices@southernanalyticallabs.com).

1212351

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: SJGW Test Facility SE #3 (TA5)

Samplers: (Signature)

Matrix Codes: DW-Drinking Water WW-Wastewater SW-Surface Water 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	250mL P, H_2SO_4 TKN, NH_4, COD, TP	1LP, Cool NOx, Cl, SO_4, Alkalinity, CBOD, TSS	1LP, NaOH, Zn Acetate H_2S	125mL P, $Na_2S_2O_3$ FC-MF	Nitrate Nitrite								Field pH	Field Temperature	Field Conductivity	Field DO
01	TA5-PZ-1	10/25/12	11:38	GW		X	1	1	1	2									4.43	27.1	376.4	0.44
02	TA5-PZ-1 Dup	10/25/12	11:45	GW		X	1	1	1	2									"	"	"	"
03	PZ40-846-26	10/25/12	12:52	GW		X					1								3.69	25.3	313.3	0.18

Containers Prepared/ Relinquished:	Date/Time: 10-22-12 12:15	Received:	Date/Time: 10-25-12 06:03
Relinquished:	Date/Time: 10-25-12 14:40	Received:	Date/Time: 1440 10-25-12
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

Seal intact? Y N N/A

Samples intact upon arrival? Y N N/A

Received on ice? Temp____ Y N N/A

Proper preservatives indicated? Y N N/A

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

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

Proper containers used? Y N N/A

Instructions / Remarks:

1212351

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	10-25-12	SAL Project #	1212351	Project Name	S&GW Test Facility SE #5
Well Number	TA5-PZ-I		01	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1"	WELL CAPACITY (gal/ft)	0.04	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	8.69	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	14.71	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	0.24	1/4 WELL VOLUME	.06	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	11:26	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)
~~11:29~~ 11:26	0.3	0.3	0.1	8.69	4.48	26.7	374.1	0.67	1.11		
11:32	0.3	0.6	0.1		4.44	27.1	375.6	0.50	5.02		
11:35	0.3	0.9	0.1		4.43	27.1	376.4	0.44	4.83		

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)	S.A.L			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	11:38	SAMPLING ENDED	11:40	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 5-10 mph NE 80°F						
COMMENTS							

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

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

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	
				Phone:	
Date Sampled		SAL Project #	1212-351	Project Name	S&GW Test Facility SE #3
Well Number	~~TA6-PZ1~~ TA5PZ1 DVP		02	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1"	WELL CAPACITY (gal/ft)	0.04	Screen Interval (Feet)	UNK	To	UNK	Static Depth to Water (Feet)	8.69	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	14.71	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	0.24	1/4 WELL VOLUME	0.06	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	11:26	PURGE TIME END		TOTAL PURGED	
INST. ID	X	X	X	X	SAL-SAM-63-____	SAL-SAM-65-____	SAL-SAM-63-____	SAL-SAM-55-__	SAL-SAM-0____	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)
11:29	0.3	0.3	0.1	8.69	4.48	26.7	374.1	0.67	1.11		
11:32	↓	0.6	↓		4.44	27.1	375.6	0.50	5.02		
11:35	↓	0.9	↓		4.43	27.1	376.4	0.44	4.83		

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	11:45	SAMPLING ENDED	11:49	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 5-10 mph NE 80°F								
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 SAWYER	Location:		Contact:	
				Phone:	
Date Sampled	10/25/12	SAL Project #	1212351	Project Name	
Well Number	PZ40-BKG-26	Sample ID	03	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1"	WELL CAPACITY (gal/ft)	.04	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	3.55	PURGE PUMP CODE: PP GP IBP
TOTAL WELL DEPTH (Feet)	24.85	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)

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

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

ONE WELL VOLUME	0.852	1/4 WELL VOLUME	0.213	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	12:30	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)
12:34	.4	.4	0.1		5.22	26.1	347.7	5.8	21.4	Clear	none
12:38	.4	.8	0.1		3.84	25.5	308.4	2.7	6.37	"	"
12:42	.4	1.2	0.1		3.63	25.3	314.6	0.22	4.45	clear	none
12:46	.4	1.6	0.1		3.61	25.3	313.6	0.18	3.27	"	"
12:50	.4	2.0	0.1		3.59	25.3	313.3	0.18	2.79	"	"

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)	S.A.L.				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	12:52	SAMPLING ENDED	12:53	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								
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

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

November 5, 2012
Work Order: 1211981

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**TA6-PZ-1**						
Matrix		**Groundwater**						
SAL Sample Number		**1211981-01**						
Date/Time Collected		**10/17/12 12:06**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/17/12 14:25**						
Field Parameters								
pH	SU	5.9	DEP FT1100	0.1	0.1		10/17/12 12:06	SAS
Water Temperature	°C	27.0	DEP FT1400	0.1	0.1		10/17/12 12:06	SAS
Specific conductance	umhos/cm	330	DEP FT1200	0.1	0.1		10/17/12 12:06	SAS
Dissolved Oxygen	mg/L	0.6	DEP FT1500	0.1	0.1		10/17/12 12:06	SAS
Inorganics								
Hydrogen Sulfide (Unionized)	mg/L	0.18	SM 4550SF	0.04	0.01	10/19/12 16:30	10/19/12 16:31	TJH
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/18/12 14:21	MMF
Ammonium as NH4	mg/L	0.01 U	EPA 350.1	0.05	0.01		10/24/12 15:47	MMF
Carbonaceous BOD	mg/L	2 U	SM 5210B	2	2	10/18/12 07:39	10/23/12 16:20	MEJ
Chemical Oxygen Demand	mg/L	40	EPA 410.4	25	10	10/24/12 08:30	10/24/12 12:45	ARM
Chloride	mg/L	7.8	EPA 300.0	0.20	0.050		10/18/12 17:38	JAG
Nitrate (as N)	mg/L	13	EPA 300.0	0.04	0.01		10/18/12 17:38	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/18/12 17:38	JAG
Phosphorous - Total as P	mg/L	0.040	SM 4500P-E	0.040	0.010	10/18/12 11:04	10/22/12 15:38	MMF
Sulfate	mg/L	31	EPA 300.0	0.60	0.20		10/18/12 17:38	JAG
Sulfide	mg/L	0.20 I	SM 4500SF	0.40	0.10		10/19/12 14:41	TJH
Total Alkalinity	mg/L	54	SM 2320B	8.0	2.0		10/22/12 09:45	TJH
Total Kjeldahl Nitrogen	mg/L	3.2	EPA 351.2	0.20	0.05	10/26/12 08:08	10/29/12 12:47	MMF
Total Suspended Solids	mg/L	10	SM 2540D	1	1	10/18/12 08:47	10/19/12 09:53	RFC
Nitrate+Nitrite (N)	mg/L	13	EPA 300.0	0.08	0.02		10/18/12 17:38	JAG
Microbiology								
Fecal Coliforms	CFU/100 ml	1 U	SM 9222D	1	1	10/17/12 16:18	10/18/12 14:40	HKG

Sample Description		**TA6-PZ-1 DUP**						
Matrix		**Groundwater**						
SAL Sample Number		**1211981-02**						
Date/Time Collected		**10/17/12 12:11**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/17/12 14:25**						
Field Parameters								
pH	SU	5.9	DEP FT1100	0.1	0.1		10/17/12 12:11	SAS
Water Temperature	°C	27.0	DEP FT1400	0.1	0.1		10/17/12 12:11	SAS
Specific conductance	umhos/cm	330	DEP FT1200	0.1	0.1		10/17/12 12:11	SAS
Dissolved Oxygen	mg/L	0.6	DEP FT1500	0.1	0.1		10/17/12 12:11	SAS
Inorganics								
Hydrogen Sulfide (Unionized)	mg/L	0.01 U	SM 4550SF	0.04	0.01	10/19/12 16:30	10/19/12 16:31	TJH
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/18/12 14:23	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

November 5, 2012
Work Order: 1211981

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**TA6-PZ-1 DUP**						
Matrix		**Groundwater**						
SAL Sample Number		**1211981-02**						
Date/Time Collected		**10/17/12 12:11**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/17/12 14:25**						
Ammonium as NH4	mg/L	0.01 U	EPA 350.1	0.05	0.01		10/24/12 15:47	MMF
Carbonaceous BOD	mg/L	2 U	SM 5210B	2	2	10/18/12 07:39	10/23/12 16:20	MEJ
Chemical Oxygen Demand	mg/L	38	EPA 410.4	25	10	10/24/12 08:30	10/24/12 12:45	ARM
Chloride	mg/L	7.6	EPA 300.0	0.20	0.050		10/18/12 17:38	JAG
Nitrate (as N)	mg/L	12	EPA 300.0	0.04	0.01		10/18/12 17:38	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/18/12 17:38	JAG
Phosphorous - Total as P	mg/L	0.039 I	SM 4500P-E	0.040	0.010	10/18/12 11:04	10/22/12 16:13	MMF
Sulfate	mg/L	30	EPA 300.0	0.60	0.20		10/18/12 17:38	JAG
Sulfide	mg/L	0.10 U	SM 4500SF	0.40	0.10		10/19/12 14:41	TJH
Total Alkalinity	mg/L	54	SM 2320B	8.0	2.0		10/22/12 09:45	TJH
Total Kjeldahl Nitrogen	mg/L	3.5	EPA 351.2	0.20	0.05	10/26/12 08:08	10/29/12 12:48	MMF
Total Suspended Solids	mg/L	9	SM 2540D	1	1	10/18/12 08:47	10/19/12 09:53	RFC
Nitrate+Nitrite (N)	mg/L	12	EPA 300.0	0.08	0.02		10/18/12 17:38	JAG
Microbiology								
Fecal Coliforms	CFU/100 ml	1 U	SM 9222D	1	1	10/17/12 16:18	10/18/12 14:40	HKG
Sample Description		**TA6-LY-C**						
Matrix		**Groundwater**						
SAL Sample Number		**1211981-03**						
Date/Time Collected		**10/15/12 13:30**						
Collected by		**Josephine Edeback-Hirst**						
Date/Time Received		**10/16/12 15:30**						
Field Parameters								
pH	SU	6.1	DEP FT1100	0.1	0.1	10/30/12 10:21	10/15/12 13:30	RJS
Water Temperature	°C	30.9	DEP FT1400	0.1	0.1	10/30/12 10:21	10/15/12 13:30	RJS
Specific conductance	umhos/cm	403	DEP FT1200	0.1	0.1	10/30/12 10:21	10/15/12 13:30	RJS
Dissolved Oxygen	mg/L	5.9	DEP FT1500	0.1	0.1	10/30/12 10:21	10/15/12 13:30	RJS
Inorganics								
Hydrogen Sulfide (Unionized)	mg/L	0.31	SM 4550SF	0.04	0.01	10/19/12 16:30	10/19/12 16:31	TJH
Ammonia as N	mg/L	0.032 I	EPA 350.1	0.040	0.009		10/18/12 14:25	MMF
Ammonium as NH4	mg/L	0.04 I	EPA 350.1	0.05	0.01		10/24/12 15:47	MMF
Chemical Oxygen Demand	mg/L	35	EPA 410.4	25	10	10/24/12 08:30	10/24/12 12:45	ARM
Chloride	mg/L	31	EPA 300.0	0.20	0.050		10/17/12 09:49	JAG
Nitrate (as N)	mg/L	0.86	EPA 300.0	0.04	0.01		10/17/12 09:49	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/17/12 09:49	JAG
Phosphorous - Total as P	mg/L	0.33	SM 4500P-E	0.040	0.010	10/18/12 11:04	10/22/12 15:40	MMF
Sulfate	mg/L	59	EPA 300.0	0.60	0.20		10/17/12 09:49	JAG
Sulfide	mg/L	0.35 I	SM 4500SF	0.40	0.10		10/16/12 11:21	TJH

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

November 5, 2012
Work Order: 1211981

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**TA6-LY-C**						
Matrix		**Groundwater**						
SAL Sample Number		**1211981-03**						
Date/Time Collected		**10/15/12 13:30**						
Collected by		**Josephine Edeback-Hirst**						
Date/Time Received		**10/16/12 15:30**						
Total Alkalinity	mg/L	65	SM 2320B	8.0	2.0		10/16/12 08:00	TJH
Total Kjeldahl Nitrogen	mg/L	2.1	EPA 351.2	0.20	0.05	10/26/12 08:08	10/29/12 12:50	MMF
Total Suspended Solids	mg/L	1 U	SM 2540D	1	1	10/16/12 08:49	10/16/12 16:04	RFC
Nitrate+Nitrite (N)	mg/L	0.86	EPA 300.0	0.08	0.02		10/17/12 09:49	JAG
Microbiology								
Fecal Coliforms	CFU/100 ml	1 U	SM 9222D	1	1	10/15/12 16:19	10/16/12 14:32	HKG
Sample Description		**TA6-Denite Tank**						
Matrix		**Groundwater**						
SAL Sample Number		**1211981-05**						
Date/Time Collected		**10/17/12 12:25**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/17/12 14:25**						
Field Parameters								
pH	SU	6.5	DEP FT1100	0.1	0.1		10/17/12 12:25	SAS
Water Temperature	°C	26.0	DEP FT1400	0.1	0.1		10/17/12 12:25	SAS
Specific conductance	umhos/cm	844	DEP FT1200	0.1	0.1		10/17/12 12:25	SAS
Dissolved Oxygen	mg/L	0.9	DEP FT1500	0.1	0.1		10/17/12 12:25	SAS
Inorganics								
Hydrogen Sulfide (Unionized)	mg/L	3.2	SM 4550SF	0.04	0.01	10/19/12 16:30	10/19/12 16:31	TJH
Ammonia as N	mg/L	0.38	EPA 350.1	0.040	0.009		10/18/12 14:27	MMF
Ammonium as NH4	mg/L	0.49	EPA 350.1	0.05	0.01		10/24/12 15:47	MMF
Carbonaceous BOD	mg/L	7	SM 5210B	2	2	10/18/12 07:39	10/23/12 16:20	MEJ
Chemical Oxygen Demand	mg/L	120	EPA 410.4	25	10	10/24/12 08:30	10/24/12 12:45	ARM
Chloride	mg/L	31	EPA 300.0	0.20	0.050		10/25/12 02:27	JAG
Nitrate (as N)	mg/L	0.15	EPA 300.0	0.04	0.01		10/18/12 17:38	JAG
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/18/12 17:38	JAG
Phosphorous - Total as P	mg/L	1.8	SM 4500P-E	0.040	0.010	10/18/12 11:04	10/22/12 15:41	MMF
Sulfate	mg/L	210	EPA 300.0	0.60	0.20		10/25/12 02:27	JAG
Sulfide	mg/L	3.6	SM 4500SF	0.40	0.10		10/19/12 14:41	TJH
Total Alkalinity	mg/L	130	SM 2320B	8.0	2.0		10/22/12 09:45	TJH
Total Kjeldahl Nitrogen	mg/L	4.3	EPA 351.2	0.20	0.05	10/26/12 08:08	10/29/12 14:03	MMF
Total Suspended Solids	mg/L	4	SM 2540D	1	1	10/18/12 08:47	10/19/12 09:53	RFC
Nitrate+Nitrite (N)	mg/L	0.15	EPA 300.0	0.08	0.02		10/18/12 17:38	JAG
Microbiology								
Fecal Coliforms	CFU/100 ml	1 U	SM 9222D	1	1	10/17/12 16:18	10/18/12 14:40	HKG

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

November 5, 2012
Work Order: 1211981

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21602 - alkalinity										
Blank (BJ21602-BLK1)					Prepared & Analyzed: 10/16/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
Blank (BJ21602-BLK2)					Prepared & Analyzed: 10/16/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
LCS (BJ21602-BS1)					Prepared & Analyzed: 10/16/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		
LCS (BJ21602-BS2)					Prepared & Analyzed: 10/16/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		
Matrix Spike (BJ21602-MS1)		**Source: 1211978-02**			Prepared & Analyzed: 10/16/12					
Total Alkalinity	190	8.0	2.0	mg/L	120	75	95	80-120		
Matrix Spike (BJ21602-MS2)		**Source: 1211987-01**			Prepared & Analyzed: 10/16/12					
Total Alkalinity	260	8.0	2.0	mg/L	120	140	95	80-120		
Matrix Spike Dup (BJ21602-MSD1)		**Source: 1211978-02**			Prepared & Analyzed: 10/16/12					
Total Alkalinity	190	8.0	2.0	mg/L	120	75	95	80-120	0	26
Matrix Spike Dup (BJ21602-MSD2)		**Source: 1211987-01**			Prepared & Analyzed: 10/16/12					
Total Alkalinity	250	8.0	2.0	mg/L	120	140	86	80-120	4	26
Batch BJ21607 - TSS prep										
Blank (BJ21607-BLK1)					Prepared & Analyzed: 10/16/12					
Total Suspended Solids	1 U	1	1	mg/L						

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

November 5, 2012
Work Order: 1211981

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21607 - TSS prep										
LCS (BJ21607-BS1)					Prepared & Analyzed: 10/16/12					
Total Suspended Solids	50.2	1	1	mg/L	50		100	85-115		
Duplicate (BJ21607-DUP1)		**Source: 1212006-01**			Prepared & Analyzed: 10/16/12					
Total Suspended Solids	86.0	1	1	mg/L		92.0			7	30
Duplicate (BJ21607-DUP2)		**Source: 1211981-03**			Prepared & Analyzed: 10/16/12					
Total Suspended Solids	1 U	1	1	mg/L		ND				30
Batch BJ21615 - Sulfide prep										
Blank (BJ21615-BLK1)					Prepared & Analyzed: 10/16/12					
Sulfide	0.10 U	0.40	0.10	mg/L						
LCS (BJ21615-BS1)					Prepared & Analyzed: 10/16/12					
Sulfide	4.77	0.40	0.10	mg/L	5.0		95	85-115		
Matrix Spike (BJ21615-MS1)		**Source: 1211979-03**			Prepared & Analyzed: 10/16/12					
Sulfide	4.57	0.40	0.10	mg/L	5.0	0.290	86	85-115		
Matrix Spike Dup (BJ21615-MSD1)		**Source: 1211979-03**			Prepared & Analyzed: 10/16/12					
Sulfide	4.57	0.40	0.10	mg/L	5.0	0.290	86	85-115	0	14
Batch BJ21620 - Ion Chromatography 300.0 Prep										
Blank (BJ21620-BLK1)					Prepared & Analyzed: 10/17/12					
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						

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

November 5, 2012
Work Order: 1211981

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21620 - Ion Chromatography 300.0 Prep										
LCS (BJ21620-BS1)					Prepared & Analyzed: 10/17/12					
Nitrite (as N)	1.39	0.04	0.01	mg/L	1.4		99	85-115		
Chloride	2.81	0.20	0.050	mg/L	3.0		94	85-115		
Sulfate	8.73	0.60	0.20	mg/L	9.0		97	85-115		
Nitrate (as N)	1.66	0.04	0.01	mg/L	1.7		98	85-115		
LCS Dup (BJ21620-BSD1)					Prepared & Analyzed: 10/17/12					
Sulfate	8.73	0.60	0.20	mg/L	9.0		97	85-115	0	200
Nitrite (as N)	1.40	0.04	0.01	mg/L	1.4		100	85-115	0.7	200
Nitrate (as N)	1.66	0.04	0.01	mg/L	1.7		98	85-115	0	200
Chloride	2.81	0.20	0.050	mg/L	3.0		94	85-115	0	200
Matrix Spike (BJ21620-MS1)		**Source: 1212083-04**			Prepared & Analyzed: 10/17/12					
Nitrite (as N)	1.46	0.04	0.01	mg/L	1.4	ND	104	85-115		
Nitrate (as N)	1.71	0.04	0.01	mg/L	1.7	0.0318	99	85-115		
Chloride	21.5	0.20	0.050	mg/L	3.0	18.5	100	80-120		
Sulfate	12.4	0.60	0.20	mg/L	9.0	3.51	99	85-115		
Matrix Spike (BJ21620-MS2)		**Source: 1212086-02**			Prepared & Analyzed: 10/17/12					
Sulfate	28.5	0.60	0.20	mg/L	9.0	19.3	102	85-115		
Nitrate (as N)	6.79	0.04	0.01	mg/L	1.7	4.86	114	85-115		
Chloride	47.5 +O	0.20	0.050	mg/L	3.0	47.4	3	80-120		
Nitrite (as N)	1.29	0.04	0.01	mg/L	1.4	ND	92	85-115		
Batch BJ21801 - BOD										
Blank (BJ21801-BLK1)					Prepared: 10/18/12 Analyzed: 10/23/12					
Carbonaceous BOD	2 U	2	2	mg/L						

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

November 5, 2012
Work Order: 1211981

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21801 - BOD										
Blank (BJ21801-BLK2)					Prepared: 10/18/12	Analyzed: 10/23/12				
Carbonaceous BOD	2 U	2	2	mg/L						
LCS (BJ21801-BS1)					Prepared: 10/18/12	Analyzed: 10/23/12				
Carbonaceous BOD	180	2	2	mg/L	200		90	85-115		
LCS (BJ21801-BS2)					Prepared: 10/18/12	Analyzed: 10/23/12				
Carbonaceous BOD	199	2	2	mg/L	200		100	85-115		
LCS Dup (BJ21801-BSD1)					Prepared: 10/18/12	Analyzed: 10/23/12				
Carbonaceous BOD	177	2	2	mg/L	200		88	85-115	2	200
LCS Dup (BJ21801-BSD2)					Prepared: 10/18/12	Analyzed: 10/23/12				
Carbonaceous BOD	195	2	2	mg/L	200		97	85-115	2	200
Duplicate (BJ21801-DUP1)		**Source: 1212145-01**			Prepared: 10/18/12	Analyzed: 10/23/12				
Carbonaceous BOD	160	2	2	mg/L		160			0.3	25
Duplicate (BJ21801-DUP2)		**Source: 1212177-01**			Prepared: 10/18/12	Analyzed: 10/23/12				
Carbonaceous BOD	110	2	2	mg/L		110			0.009	25
Batch BJ21802 - TSS prep										
Blank (BJ21802-BLK1)					Prepared: 10/18/12	Analyzed: 10/19/12				
Total Suspended Solids	1 U	1	1	mg/L						
LCS (BJ21802-BS1)					Prepared: 10/18/12	Analyzed: 10/19/12				
Total Suspended Solids	49.5	1	1	mg/L	50		99	85-115		

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

November 5, 2012
Work Order: 1211981

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21802 - TSS prep										
Duplicate (BJ21802-DUP1)		**Source: 1211981-01**			Prepared: 10/18/12 Analyzed: 10/19/12					
Total Suspended Solids	8.50	1	1	mg/L		10.0			16	30
Duplicate (BJ21802-DUP2)		**Source: 1211981-02**			Prepared: 10/18/12 Analyzed: 10/19/12					
Total Suspended Solids	8.00	1	1	mg/L		9.00			12	30
Batch BJ21809 - Ammonia by SEAL										
Blank (BJ21809-BLK1)					Prepared & Analyzed: 10/18/12					
Ammonia as N	0.009 U	0.040	0.009	mg/L						
LCS (BJ21809-BS1)					Prepared & Analyzed: 10/18/12					
Ammonia as N	0.48	0.040	0.009	mg/L	0.50		95	90-110		
Matrix Spike (BJ21809-MS1)		**Source: 1211978-25**			Prepared & Analyzed: 10/18/12					
Ammonia as N	0.50	0.040	0.009	mg/L	0.50	ND	99	90-110		
Matrix Spike (BJ21809-MS2)		**Source: 1211983-01**			Prepared & Analyzed: 10/18/12					
Ammonia as N	0.46	0.040	0.009	mg/L	0.50	ND	92	90-110		
Matrix Spike Dup (BJ21809-MSD1)		**Source: 1211978-25**			Prepared & Analyzed: 10/18/12					
Ammonia as N	0.48	0.040	0.009	mg/L	0.50	ND	95	90-110	4	10
Matrix Spike Dup (BJ21809-MSD2)		**Source: 1211983-01**			Prepared & Analyzed: 10/18/12					
Ammonia as N	0.47	0.040	0.009	mg/L	0.50	ND	95	90-110	3	10
Batch BJ21811 - Digestion for TP by EPA 365.2/SM4500PE										
Blank (BJ21811-BLK1)					Prepared: 10/18/12 Analyzed: 10/22/12					
Phosphorous - Total as P	0.010 U	0.040	0.010	mg/L						

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

November 5, 2012
Work Order: 1211981

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21811 - Digestion for TP by EPA 365.2/SM4500PE										
LCS (BJ21811-BS1)					Prepared: 10/18/12 Analyzed: 10/22/12					
Phosphorous - Total as P	0.750	0.040	0.010	mg/L	0.80		94	90-110		
Matrix Spike (BJ21811-MS1)		**Source: 1211978-03**			Prepared: 10/18/12 Analyzed: 10/22/12					
Phosphorous - Total as P	12.6	0.40	0.10	mg/L	10	1.86	107	75-125		
Matrix Spike (BJ21811-MS2)		**Source: 1211981-03**			Prepared: 10/18/12 Analyzed: 10/22/12					
Phosphorous - Total as P	1.28	0.040	0.010	mg/L	1.0	0.332	95	75-125		
Matrix Spike Dup (BJ21811-MSD1)		**Source: 1211978-03**			Prepared: 10/18/12 Analyzed: 10/22/12					
Phosphorous - Total as P	12.5	0.40	0.10	mg/L	10	1.86	107	75-125	0.7	25
Matrix Spike Dup (BJ21811-MSD2)		**Source: 1211981-03**			Prepared: 10/18/12 Analyzed: 10/22/12					
Phosphorous - Total as P	1.29	0.040	0.010	mg/L	1.0	0.332	96	75-125	0.3	25
Batch BJ21815 - Ion Chromatography 300.0 Prep										
Blank (BJ21815-BLK1)					Prepared & Analyzed: 10/18/12					
Chloride	0.050 U	0.20	0.050	mg/L						
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						
Sulfate	0.20 U	0.60	0.20	mg/L						
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
LCS (BJ21815-BS1)					Prepared & Analyzed: 10/18/12					
Chloride	2.84	0.20	0.050	mg/L	3.0		95	85-115		
Nitrite (as N)	1.41	0.04	0.01	mg/L	1.4		101	85-115		
Nitrate (as N)	1.67	0.04	0.01	mg/L	1.7		98	85-115		
Sulfate	8.74	0.60	0.20	mg/L	9.0		97	85-115		

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

November 5, 2012
Work Order: 1211981

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21815 - Ion Chromatography 300.0 Prep										
LCS Dup (BJ21815-BSD1)					Prepared & Analyzed: 10/18/12					
Chloride	2.79	0.20	0.050	mg/L	3.0		93	85-115	2	200
Nitrate (as N)	1.65	0.04	0.01	mg/L	1.7		97	85-115	1	200
Sulfate	8.69	0.60	0.20	mg/L	9.0		97	85-115	0.6	200
Nitrite (as N)	1.37	0.04	0.01	mg/L	1.4		98	85-115	3	200
Matrix Spike (BJ21815-MS1)		**Source: 1211976-19**			Prepared & Analyzed: 10/18/12					
Chloride	15.9	0.20	0.050	mg/L	3.0	13.0	97	80-120		
Sulfate	70.7	0.60	0.20	mg/L	9.0	61.5	102	85-115		
Nitrite (as N)	1.34	0.04	0.01	mg/L	1.4	ND	96	85-115		
Nitrate (as N)	10.4	0.04	0.01	mg/L	1.7	8.64	104	85-115		
Matrix Spike (BJ21815-MS2)		**Source: 1211983-06**			Prepared & Analyzed: 10/18/12					
Sulfate	53.9	0.60	0.20	mg/L	9.0	44.6	103	85-115		
Nitrite (as N)	1.39	0.04	0.01	mg/L	1.4	ND	99	85-115		
Nitrate (as N)	11.1	0.04	0.01	mg/L	1.7	9.29	106	85-115		
Chloride	18.9	0.20	0.050	mg/L	3.0	15.7	107	80-120		
Batch BJ21933 - Sulfide prep										
Blank (BJ21933-BLK1)					Prepared & Analyzed: 10/19/12					
Sulfide	0.10 U	0.40	0.10	mg/L						
LCS (BJ21933-BS1)					Prepared & Analyzed: 10/19/12					
Sulfide	4.78	0.40	0.10	mg/L	5.0		96	85-115		
Matrix Spike (BJ21933-MS1)		**Source: 1212215-01**			Prepared & Analyzed: 10/19/12					
Sulfide	5.57	0.40	0.10	mg/L	5.0	0.200	107	85-115		

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

November 5, 2012
Work Order: 1211981

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21933 - Sulfide prep										
Matrix Spike Dup (BJ21933-MSD1)		**Source: 1212215-01**			Prepared & Analyzed: 10/19/12					
Sulfide	5.57	0.40	0.10	mg/L	5.0	0.200	107	85-115	0	14
Batch BJ22228 - alkalinity										
Blank (BJ22228-BLK1)					Prepared & Analyzed: 10/22/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
Blank (BJ22228-BLK2)					Prepared & Analyzed: 10/22/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
LCS (BJ22228-BS1)					Prepared & Analyzed: 10/22/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		
LCS (BJ22228-BS2)					Prepared & Analyzed: 10/22/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		
Matrix Spike (BJ22228-MS1)		**Source: 1211981-05**			Prepared & Analyzed: 10/22/12					
Total Alkalinity	250	8.0	2.0	mg/L	120	130	95	80-120		
Matrix Spike (BJ22228-MS2)		**Source: 1212157-01**			Prepared & Analyzed: 10/22/12					
Total Alkalinity	230	8.0	2.0	mg/L	120	110	95	80-120		
Matrix Spike Dup (BJ22228-MSD1)		**Source: 1211981-05**			Prepared & Analyzed: 10/22/12					
Total Alkalinity	250	8.0	2.0	mg/L	120	130	95	80-120	0	26
Matrix Spike Dup (BJ22228-MSD2)		**Source: 1212157-01**			Prepared & Analyzed: 10/22/12					
Total Alkalinity	230	8.0	2.0	mg/L	120	110	95	80-120	0	26

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

November 5, 2012
Work Order: 1211981

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22423 - Ion Chromatography 300.0 Prep										
Blank (BJ22423-BLK1)					Prepared & Analyzed: 10/25/12					
Chloride	0.050 U	0.20	0.050	mg/L						
Sulfate	0.20 U	0.60	0.20	mg/L						
LCS (BJ22423-BS1)					Prepared & Analyzed: 10/25/12					
Sulfate	8.63	0.60	0.20	mg/L	9.0		96	85-115		
Chloride	2.78	0.20	0.050	mg/L	3.0		93	85-115		
LCS Dup (BJ22423-BSD1)					Prepared & Analyzed: 10/25/12					
Chloride	2.75	0.20	0.050	mg/L	3.0		92	85-115	1	200
Sulfate	8.64	0.60	0.20	mg/L	9.0		96	85-115	0.1	200
Matrix Spike (BJ22423-MS1)		**Source: 1211979-05**			Prepared & Analyzed: 10/25/12					
Sulfate	354	0.60	0.20	mg/L	90	257	108	85-115		
Chloride	78.1	0.20	0.050	mg/L	30	44.9	111	80-120		
Matrix Spike (BJ22423-MS2)		**Source: 1212359-02**			Prepared & Analyzed: 10/25/12					
Chloride	10.8	0.20	0.050	mg/L	3.0	7.71	103	80-120		
Sulfate	19.8	0.60	0.20	mg/L	9.0	10.5	103	85-115		
Batch BJ22503 - COD prep										
Blank (BJ22503-BLK1)					Prepared & Analyzed: 10/24/12					
Chemical Oxygen Demand	10 U	25	10	mg/L						
LCS (BJ22503-BS1)					Prepared & Analyzed: 10/24/12					
Chemical Oxygen Demand	54	25	10	mg/L	50		108	90-110		

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

November 5, 2012
Work Order: 1211981

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22503 - COD prep										
Matrix Spike (BJ22503-MS1)		**Source: 1211978-12**			Prepared & Analyzed: 10/24/12					
Chemical Oxygen Demand	63	25	10	mg/L	50	17	92	85-115		
Matrix Spike Dup (BJ22503-MSD1)		**Source: 1211978-12**			Prepared & Analyzed: 10/24/12					
Chemical Oxygen Demand	63	25	10	mg/L	50	17	92	85-115	0	32
Batch BJ22604 - Digestion for TKN by EPA 351.2										
Blank (BJ22604-BLK1)					Prepared: 10/26/12 Analyzed: 10/29/12					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
LCS (BJ22604-BS1)					Prepared: 10/26/12 Analyzed: 10/29/12					
Total Kjeldahl Nitrogen	2.53	0.20	0.05	mg/L	2.5		100	90-110		
Matrix Spike (BJ22604-MS1)		**Source: 1211978-17**			Prepared: 10/26/12 Analyzed: 10/29/12					
Total Kjeldahl Nitrogen	5.32	0.20	0.05	mg/L	2.5	2.72	103	90-110		
Matrix Spike (BJ22604-MS2)		**Source: 1211979-03**			Prepared: 10/26/12 Analyzed: 10/29/12					
Total Kjeldahl Nitrogen	7.38	0.20	0.05	mg/L	2.5	5.08	91	90-110		
Matrix Spike Dup (BJ22604-MSD1)		**Source: 1211978-17**			Prepared: 10/26/12 Analyzed: 10/29/12					
Total Kjeldahl Nitrogen	5.42	0.20	0.05	mg/L	2.5	2.72	107	90-110	2	20
Matrix Spike Dup (BJ22604-MSD2)		**Source: 1211979-03**			Prepared: 10/26/12 Analyzed: 10/29/12					
Total Kjeldahl Nitrogen	7.61	0.20	0.05	mg/L	2.5	5.08	100	90-110	3	20

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

November 5, 2012
Work Order: 1211981

Microbiology - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21547 - FC-MF										
Blank (BJ21547-BLK1)					Prepared: 10/15/12	Analyzed: 10/16/12				
Fecal Coliforms	1 U	1	1	CFU/100 ml						
Duplicate (BJ21547-DUP1)		**Source: 1211979-03**			Prepared: 10/15/12	Analyzed: 10/16/12				
Fecal Coliforms	1 U	1	1	CFU/100 ml		ND				200
Batch BJ21732 - FC-MF										
Blank (BJ21732-BLK1)					Prepared: 10/17/12	Analyzed: 10/18/12				
Fecal Coliforms	1 U	1	1	CFU/100 ml						
Duplicate (BJ21732-DUP1)		**Source: 1211981-01**			Prepared: 10/17/12	Analyzed: 10/18/12				
Fecal Coliforms	1 U	1	1	CFU/100 ml		ND				200

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

November 5, 2012
Work Order: 1211981

* 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.

1211981

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: S&GW Test Facility SE #3 (TA6)

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	250mL P, H_2SO_4 TKN, NH_4, COD, TP	1LP, Cool NOx, Cl, SO_4, Alkalinity, CBOD, TSS	1LP, NaOH, Zn Acetate H_2S	125mL P, $Na_2S_2O_3$ FC-MF								Field pH	Field Temperature	Field Conductivity	Field DO
01	TA6-PZ-1	10/7/12	1200	GW		X	1	1	1	2								5.9	27.0	329.8	0.62
02	TA6-PZ-1 DUP		1211	GW		X	1	1	1	2								5.9	27.0	329.8	0.62
03	TA6-LY-C	10/5/12	1330	GW		X	1	1	1	2								6.1	30.9	403	5.9
04	TA6-LINER-SP not sampled	10/7/12	1215	GW		X	1	1	1	2											
05	TA6-Denite Tank		1225	GW		X	1	1	1	2								6.5	24.0	844	0.90

Containers Prepared/ Relinquished: J. Chambers	Date/Time: 10-12-12 13:20	Received:	Date/Time: 1320 10/2/12
Relinquished:	Date/Time: 1530 10/16/12	Received:	Date/Time: 1530 10-16-12
Relinquished:	Date/Time: 1530 10-16-12	Received:	Date/Time: 1530 10/16/12
Relinquished:	Date/Time: 1425 10/17/12	Received:	Date/Time: 1425 10-17-12
Relinquished:	Date/Time:	Received:	Date/Time:

Seal intact? Y N N/A

Samples intact upon arrival? Y N N/A

Received on ice? Temp_____ Y N N/A

Proper preservatives indicated? Y N N/A

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

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

Proper containers used? Y N N/A

Instructions / Remarks:

1211981

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	101712	SAL Project #	1211981	Project Name	S&GW Test Facility SE #3
Well Number	TA6-PZ-I		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)	9.20	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	14.75	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	0.222	1/4 WELL VOLUME		3 WELL VOLUMES	0.666	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	1150	PURGE TIME END	1205	TOTAL PURGED	1.50

INST. ID					SAL-SAM-63-08	SAL-SAM-65-08	SAL-SAM-63-08	SAL-SAM-55-08	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)
1153	0.30	0.30	0.10	10.52	5.7	26.8	267.4	0.71	563	CLOUDY	NONE
1156	0.30	0.60			5.9	26.9	290.7	0.74	225		
1159	0.30	0.90			5.9	27.0	320.3	0.95	94.2		
1202	0.30	1.20			5.9	27.0	327.4	0.70	58.6		
1205	0.30	1.50			5.9	27.0	329.8	0.62	27.0		

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	1206	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	Cloudy, 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	101712	SAL Project #	1211981	Project Name	S&GW Test Facility SE #3
Well Number	TA6-PZ-I-DUP		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)	14.75	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	0.222	1/4 WELL VOLUME		3 WELL VOLUMES	0.666	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	1150	PURGE TIME END	1205	TOTAL PURGED	1.50
INST. ID				SAL-SAM-63-08	SAL-SAM-65-08	SAL-SAM-63-08	SAL-SAM-55-08	SAL-SAM-001	

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)
1153	0.30	0.30	0.10	10.52	5.7	26.8	267.4	0.71	56.3	CLOUDY	NONE
1156	0.30	0.60			5.9	26.9	290.7	0.74	22.5		
1159	0.30	0.90			5.9	27.0	320.3	0.95	94.2		
1202	0.30	1.20			5.9	27.0	327.4	0.70	58.6		
1205	0.30	1.50			5.9	27.0	329.8	0.62	27.0		

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	1211	SAMPLING ENDED	1212	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, 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

Revised By: 09/25/09 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	10/15/12 13:30 pm	SAL Project #	1211981	Project Name	S&GW Test Facility SE #3
Well Number	TA6-LY-C		03	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)		WELL CAPACITY (gal/ft)		Screen Interval (Feet)	UNK	To	UNK	Static Depth to Water (Feet)		PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)		REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)				TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	
Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)											
WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =											
ONE WELL VOLUME			1/4 WELL VOLUME			3 WELL VOLUMES			5 WELL VOLUMES		
EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME											
PUMP VOLUME			TUBING LEGNTH			FLOW CELL VOLUME			EQUIPMENT VOLUME		
INITIAL TUBING LEGNTH IN WELL (FEET)			FINAL TUBING LEGNTH IN WELL (FEET)			PURGE TIME START		PURGE TIME END		TOTAL PURGED	
INST. ID					SAL-SAM-63-_____	SAL-SAM-65-_____	SAL-SAM-63-_____	SAL-SAM-55-__	SAL-SAM-0_____		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
13:30	~600mL	5kPa			6.1	30.9	403	5.9		clear	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)		HBS				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-VOCS 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

Revised By: 09/25/09 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	10/7/12	SAL Project #	1211981	Project Name	S&GW Test Facility SE #3
Well Number	TA6-LINER-SP		04	GPS LAT	
				GPS LONG	

PURGING DATA

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

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

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

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

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

PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME		EQUIPMENT VOLUME	

INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START	1215	PURGE TIME END		TOTAL PURGED	
INST. ID				SAL-SAM-63-08	SAL-SAM-65-08	SAL-SAM-63-09	SAL-SAM-55-09	SAL-SAM-001	

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)
1215	—	—	—	—		NO	SAMPLE				

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	1215	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-VOCS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?	Y N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Cloudy, 78°								
COMMENTS	Not enough water for field readings or samples.								

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

Revision Date: 09/25/09 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	10/7/12	SAL Project #	1211981	Project Name	S&GW Test Facility SE #3
Well Number	TA6-Denite Tank		05	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	—	WELL CAPACITY (gal/ft)	—	Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)	—	PURGE PUMP CODE: PP GP IBP
TOTAL WELL DEPTH (Feet)	—	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)
Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)									
WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =									
ONE WELL VOLUME		1/4 WELL VOLUME		3 WELL VOLUMES			5 WELL VOLUMES		
EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME									
PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME			EQUIPMENT VOLUME		
INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START	1225	PURGE TIME END		TOTAL PURGED	
INST. ID				SAL-SAM-63-08	SAL-SAM-65-08	SAL-SAM-63-08	SAL-SAM-55-08	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)
1225	—	—	—	—	~~6.4~~ 6.05	26.0	844	0.80	12.9	TANNIC	NONE

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL					SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	1225	SAMPLING ENDED	1226	FIELD CLEANED	Y N	CLEANING STEPS			
FIELD FILTERED?	Y N	FILTER SIZE (µm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A	SEMI-VOCS COLLECTED THROUGH TRAP?	Y N N/A
PRESERVATION CHECKED IN FIELD?	Y N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	Cloudy, 78°								
COMMENTS	ORP= -178.8								

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

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

November 2, 2012
Work Order: 1211987

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**FB - Tap**						
Matrix		**Drinking Water**						
SAL Sample Number		**1211987-01**						
Date/Time Collected		**10/15/12 09:10**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/15/12 15:40**						
Field Parameters								
pH	SU	6.8	DEP FT1100	0.1	0.1		10/15/12 09:10	1
Water Temperature	°C	25.7	DEP FT1400	0.1	0.1		10/15/12 09:10	1
Specific conductance	umhos/cm	411	DEP FT1200	0.1	0.1		10/15/12 09:10	1
Dissolved Oxygen	mg/L	4.6	DEP FT1500	0.1	0.1		10/15/12 09:10	1
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/18/12 13:28	1
Ammonium as NH4	mg/L	0.005 U	EPA 350.1	0.01	0.005	10/24/12 15:45	10/24/12 15:47	1
Chloride	mg/L	13	EPA 300.0	0.20	0.050		10/16/12 16:49	1
Nitrate (as N)	mg/L	0.10	EPA 300.0	0.04	0.01		10/16/12 16:49	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/16/12 16:49	1
Total Alkalinity	mg/L	140	SM 2320B	8.0	2.0		10/16/12 08:00	1
Total Kjeldahl Nitrogen	mg/L	0.22	EPA 351.2	0.20	0.05	10/26/12 08:06	10/29/12 10:18	1
Nitrate+Nitrite (N)	mg/L	0.10	EPA 300.0	0.08	0.02		10/16/12 16:49	1

Sample Description		**FB - DI**						
Matrix		**Reagent Water**						
SAL Sample Number		**1211987-02**						
Date/Time Collected		**10/15/12 09:00**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/15/12 15:40**						
Field Parameters								
pH	SU	8.2	DEP FT1100	0.1	0.1		10/15/12 09:00	1
Water Temperature	°C	23.6	DEP FT1400	0.1	0.1		10/15/12 09:00	1
Specific conductance	umhos/cm	2	DEP FT1200	0.1	0.1		10/15/12 09:00	1
Dissolved Oxygen	mg/L	3.6	DEP FT1500	0.1	0.1		10/15/12 09:00	1
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/18/12 13:38	1
Ammonium as NH4	mg/L	0.005 U	EPA 350.1	0.01	0.005	10/24/12 15:45	10/24/12 15:47	1
Chloride	mg/L	0.050 U	EPA 300.0	0.20	0.050		10/16/12 16:49	1
Nitrate (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/16/12 16:49	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/16/12 16:49	1
Total Alkalinity	mg/L	2.0 U	SM 2320B	8.0	2.0		10/16/12 08:00	1
Total Kjeldahl Nitrogen	mg/L	0.05 U	EPA 351.2	0.20	0.05	10/26/12 08:06	10/29/12 11:11	1
Nitrate+Nitrite (N)	mg/L	0.02 U	EPA 300.0	0.08	0.02		10/16/12 16:49	1

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

November 2, 2012
Work Order: 1211987

Laboratory Report

Project Name **S&GW Test Facility SE#3**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	Dilution
Sample Description		**EB**						
Matrix		**Reagent Water**						
SAL Sample Number		**1211987-03**						
Date/Time Collected		**10/15/12 09:05**						
Collected by		**Sean Schmidt**						
Date/Time Received		**10/15/12 15:40**						
Field Parameters								
pH	SU	8.2	DEP FT1100	0.1	0.1		10/15/12 09:05	1
Water Temperature	°C	23.6	DEP FT1400	0.1	0.1		10/15/12 09:05	1
Specific conductance	umhos/cm	2	DEP FT1200	0.1	0.1		10/15/12 09:05	1
Dissolved Oxygen	mg/L	3.6	DEP FT1500	0.1	0.1		10/15/12 09:05	1
Inorganics								
Ammonia as N	mg/L	0.009 U	EPA 350.1	0.040	0.009		10/18/12 13:40	1
Ammonium as NH4	mg/L	0.005 U	EPA 350.1	0.01	0.005	10/24/12 15:45	10/24/12 15:47	1
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10		10/24/12 12:30	1
Chloride	mg/L	0.050 U	EPA 300.0	0.20	0.050		10/16/12 16:49	1
Fluoride	mg/L	0.010 U	EPA 300.0	0.040	0.010		10/16/12 16:49	1
Nitrate (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/16/12 16:49	1
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		10/16/12 16:49	1
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		10/16/12 16:49	1
Sulfate	mg/L	0.20 U	EPA 300.0	0.60	0.20		10/16/12 16:49	1
Total Alkalinity	mg/L	2.0 U	SM 2320B	8.0	2.0		10/16/12 08:00	1
Total Kjeldahl Nitrogen	mg/L	0.05 U	EPA 351.2	0.20	0.05	10/26/12 08:06	10/29/12 10:20	1
Total Organic Carbon	mg/L	0.50 U	SM 5310B	1.0	0.50		10/16/12 10:41	1
Nitrate+Nitrite (N)	mg/L	0.02 U	EPA 300.0	0.08	0.02		10/16/12 16:49	1
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	0.50 U	SM 5310B	1.0	0.50		10/17/12 10:41	1
Metals								
Boron	mg/L	0.050 U	EPA 200.7	0.10	0.050	10/24/12 08:38	10/24/12 13:03	1
Calcium	mg/L	0.042 U	EPA 200.7	0.50	0.042	10/24/12 08:38	10/24/12 13:03	1
Iron	mg/L	0.020 U	EPA 200.7	0.10	0.020	10/24/12 08:38	10/24/12 13:03	1
Magnesium	mg/L	0.020 U	EPA 200.7	0.50	0.020	10/24/12 08:38	10/24/12 13:03	1
Manganese	mg/L	0.0010 U	EPA 200.7	0.010	0.0010	10/24/12 08:38	10/24/12 13:03	1
Potassium	mg/L	0.010 U	EPA 200.7	0.050	0.010	10/24/12 08:38	10/24/12 13:03	1
Sodium	mg/L	0.13 U	EPA 200.7	0.50	0.13	10/24/12 08:38	10/24/12 13:03	1

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

November 2, 2012
Work Order: 1211987

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21602 - alkalinity										
Blank (BJ21602-BLK1)					Prepared & Analyzed: 10/16/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
Blank (BJ21602-BLK2)					Prepared & Analyzed: 10/16/12					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
LCS (BJ21602-BS1)					Prepared & Analyzed: 10/16/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		
LCS (BJ21602-BS2)					Prepared & Analyzed: 10/16/12					
Total Alkalinity	120	8.0	2.0	mg/L	120		95	90-110		
Matrix Spike (BJ21602-MS1)		**Source: 1211978-02**			Prepared & Analyzed: 10/16/12					
Total Alkalinity	190	8.0	2.0	mg/L	120	75	95	80-120		
Matrix Spike (BJ21602-MS2)		**Source: 1211987-01**			Prepared & Analyzed: 10/16/12					
Total Alkalinity	260	8.0	2.0	mg/L	120	140	95	80-120		
Matrix Spike Dup (BJ21602-MSD1)		**Source: 1211978-02**			Prepared & Analyzed: 10/16/12					
Total Alkalinity	190	8.0	2.0	mg/L	120	75	95	80-120	0	26
Matrix Spike Dup (BJ21602-MSD2)		**Source: 1211987-01**			Prepared & Analyzed: 10/16/12					
Total Alkalinity	250	8.0	2.0	mg/L	120	140	86	80-120	4	26
Batch BJ21620 - Ion Chromatography 300.0 Prep										
Blank (BJ21620-BLK1)					Prepared & Analyzed: 10/17/12					
Fluoride	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						
Orthophosphate as P	0.010 U	0.040	0.010	mg/L						
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						
Sulfate	0.20 U	0.60	0.20	mg/L						

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

November 2, 2012
Work Order: 1211987

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21620 - Ion Chromatography 300.0 Prep										
LCS (BJ21620-BS1)					Prepared & Analyzed: 10/17/12					
Nitrate (as N)	1.66	0.04	0.01	mg/L	1.7		98	85-115		
Orthophosphate as P	0.908	0.040	0.010	mg/L	0.90		101	85-115		
Nitrite (as N)	1.39	0.04	0.01	mg/L	1.4		99	85-115		
Sulfate	8.73	0.60	0.20	mg/L	9.0		97	85-115		
Chloride	2.81	0.20	0.050	mg/L	3.0		94	85-115		
Fluoride	0.882	0.040	0.010	mg/L	0.90		98	85-115		
LCS Dup (BJ21620-BSD1)					Prepared & Analyzed: 10/17/12					
Orthophosphate as P	0.889	0.040	0.010	mg/L	0.90		99	85-115	2	200
Nitrate (as N)	1.66	0.04	0.01	mg/L	1.7		98	85-115	0	200
Sulfate	8.73	0.60	0.20	mg/L	9.0		97	85-115	0	200
Nitrite (as N)	1.40	0.04	0.01	mg/L	1.4		100	85-115	0.7	200
Fluoride	0.848	0.040	0.010	mg/L	0.90		94	85-115	4	200
Chloride	2.81	0.20	0.050	mg/L	3.0		94	85-115	0	200
Matrix Spike (BJ21620-MS1)		**Source: 1212083-04**			Prepared & Analyzed: 10/17/12					
Chloride	21.5	0.20	0.050	mg/L	3.0	18.5	100	80-120		
Orthophosphate as P	1.27	0.040	0.010	mg/L	0.90	0.451	91	85-115		
Nitrate (as N)	1.71	0.04	0.01	mg/L	1.7	0.0318	99	85-115		
Fluoride	1.61	0.040	0.010	mg/L	0.90	0.740	97	85-115		
Nitrite (as N)	1.46	0.04	0.01	mg/L	1.4	ND	104	85-115		
Sulfate	12.4	0.60	0.20	mg/L	9.0	3.51	99	85-115		
Matrix Spike (BJ21620-MS2)		**Source: 1212086-02**			Prepared & Analyzed: 10/17/12					
Nitrite (as N)	1.29	0.04	0.01	mg/L	1.4	ND	92	85-115		
Chloride	47.5 +O	0.20	0.050	mg/L	3.0	47.4	3	80-120		
Orthophosphate as P	2.17	0.040	0.010	mg/L	0.90	1.34	92	85-115		
Fluoride	1.03	0.040	0.010	mg/L	0.90	0.156	97	85-115		
Nitrate (as N)	6.79	0.04	0.01	mg/L	1.7	4.86	114	85-115		
Sulfate	28.5	0.60	0.20	mg/L	9.0	19.3	102	85-115		

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

November 2, 2012
Work Order: 1211987

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21635 - TOC prep										
Blank (BJ21635-BLK1)					Prepared & Analyzed: 10/16/12					
Total Organic Carbon	0.50 U	1.0	0.50	mg/L						
LCS (BJ21635-BS1)					Prepared & Analyzed: 10/16/12					
Total Organic Carbon	9.23	1.0	0.50	mg/L	10		92	90-110		
Matrix Spike (BJ21635-MS1)		**Source: 1211987-03**			Prepared & Analyzed: 10/16/12					
Total Organic Carbon	10.6	1.0	0.50	mg/L	10	ND	106	85-115		
Matrix Spike Dup (BJ21635-MSD1)		**Source: 1211987-03**			Prepared & Analyzed: 10/16/12					
Total Organic Carbon	10.9	1.0	0.50	mg/L	10	ND	109	85-115	3	10
Batch BJ21808 - Ammonia by SEAL										
Blank (BJ21808-BLK1)					Prepared & Analyzed: 10/18/12					
Ammonia as N	0.009 U	0.040	0.009	mg/L						
LCS (BJ21808-BS1)					Prepared & Analyzed: 10/18/12					
Ammonia as N	0.47	0.040	0.009	mg/L	0.50		94	90-110		
Matrix Spike (BJ21808-MS1)		**Source: 1211983-12**			Prepared & Analyzed: 10/18/12					
Ammonia as N	0.48	0.040	0.009	mg/L	0.50	ND	96	90-110		
Matrix Spike (BJ21808-MS2)		**Source: 1211987-01**			Prepared & Analyzed: 10/18/12					
Ammonia as N	0.46	0.040	0.009	mg/L	0.50	ND	92	90-110		
Matrix Spike Dup (BJ21808-MSD1)		**Source: 1211983-12**			Prepared & Analyzed: 10/18/12					
Ammonia as N	0.45	0.040	0.009	mg/L	0.50	ND	90	90-110	6	10

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

November 2, 2012
Work Order: 1211987

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21808 - Ammonia by SEAL										
Matrix Spike Dup (BJ21808-MSD2)		**Source: 1211987-01**			Prepared & Analyzed: 10/18/12					
Ammonia as N	0.46	0.040	0.009	mg/L	0.50	ND	91	90-110	1	10
Batch BJ22504 - COD prep										
Blank (BJ22504-BLK1)					Prepared & Analyzed: 10/24/12					
Chemical Oxygen Demand	10 U	25	10	mg/L						
LCS (BJ22504-BS1)					Prepared & Analyzed: 10/24/12					
Chemical Oxygen Demand	54	25	10	mg/L	50		108	90-110		
Matrix Spike (BJ22504-MS1)		**Source: 1212355-02**			Prepared & Analyzed: 10/24/12					
Chemical Oxygen Demand	72	25	10	mg/L	50	20	104	85-115		
Matrix Spike Dup (BJ22504-MSD1)		**Source: 1212355-02**			Prepared & Analyzed: 10/24/12					
Chemical Oxygen Demand	65	25	10	mg/L	50	20	90	85-115	10	32
Batch BJ22603 - Digestion for TKN by EPA 351.2										
Blank (BJ22603-BLK1)					Prepared: 10/26/12 Analyzed: 10/29/12					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
LCS (BJ22603-BS1)					Prepared: 10/26/12 Analyzed: 10/29/12					
Total Kjeldahl Nitrogen	2.52	0.20	0.05	mg/L	2.5		99	90-110		
Matrix Spike (BJ22603-MS1)		**Source: 1211983-04**			Prepared: 10/26/12 Analyzed: 10/29/12					
Total Kjeldahl Nitrogen	4.04	0.20	0.05	mg/L	2.5	1.42	103	90-110		

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

November 2, 2012
Work Order: 1211987

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22603 - Digestion for TKN by EPA 351.2										
Matrix Spike (BJ22603-MS2)		**Source: 1211983-14**			Prepared: 10/26/12	Analyzed: 10/29/12				
Total Kjeldahl Nitrogen	6.23	0.20	0.05	mg/L	2.5	3.74	98	90-110		
Matrix Spike Dup (BJ22603-MSD1)		**Source: 1211983-04**			Prepared: 10/26/12	Analyzed: 10/29/12				
Total Kjeldahl Nitrogen	3.95	0.20	0.05	mg/L	2.5	1.42	100	90-110	2	20
Matrix Spike Dup (BJ22603-MSD2)		**Source: 1211983-14**			Prepared: 10/26/12	Analyzed: 10/29/12				
Total Kjeldahl Nitrogen	6.31	0.20	0.05	mg/L	2.5	3.74	101	90-110	1	20

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

November 2, 2012
Work Order: 1211987

Inorganic, Dissolved - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ21636 - DOC prep										
Blank (BJ21636-BLK1)					Prepared & Analyzed: 10/17/12					
Dissolved Organic Carbon	0.50 U	1.0	0.50	mg/L						
LCS (BJ21636-BS1)					Prepared & Analyzed: 10/17/12					
Dissolved Organic Carbon	9.22	1.0	0.50	mg/L	10		92	90-110		
Matrix Spike (BJ21636-MS1)		**Source: 1211987-03**			Prepared & Analyzed: 10/17/12					
Dissolved Organic Carbon	9.36	1.0	0.50	mg/L	10	ND	94	85-125		
Matrix Spike Dup (BJ21636-MSD1)		**Source: 1211987-03**			Prepared & Analyzed: 10/17/12					
Dissolved Organic Carbon	8.61	1.0	0.50	mg/L	10	ND	86	85-125	8	25

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

November 2, 2012
Work Order: 1211987

Metals - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22406 - Metals Preparation for EPA Method 200.7										
Blank (BJ22406-BLK1)					Prepared & Analyzed: 10/24/12					
Sodium	0.13 U	0.50	0.13	mg/L						
Magnesium	0.020 U	0.50	0.020	mg/L						
Manganese	0.0010 U	0.010	0.0010	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						
Potassium	0.010 U	0.050	0.010	mg/L						
LCS (BJ22406-BS1)					Prepared & Analyzed: 10/24/12					
Magnesium	20	0.50	0.020	mg/L	20		99	85-115		
Potassium	20	0.050	0.010	mg/L	20		98	85-115		
Sodium	21	0.50	0.13	mg/L	20		106	85-115		
Boron	0.39	0.10	0.050	mg/L	0.40		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		
Iron	8.3	0.10	0.020	mg/L	8.0		104	85-115		
Matrix Spike (BJ22406-MS1)		**Source: 1212222-01**			Prepared & Analyzed: 10/24/12					
Manganese	0.38	0.010	0.0010	mg/L	0.40	0.0011	94	70-130		
Iron	7.7	0.10	0.020	mg/L	8.0	ND	96	70-130		
Boron	0.29	0.10	0.050	mg/L	0.40	ND	73	70-130		
Calcium	52	0.50	0.042	mg/L	20	36	81	70-130		
Magnesium	23	0.50	0.020	mg/L	20	4.2	93	70-130		
Potassium	20	0.050	0.010	mg/L	20	0.97	93	70-130		
Sodium	45	0.50	0.13	mg/L	20	28	83	70-130		
Matrix Spike (BJ22406-MS2)		**Source: 1212262-01**			Prepared & Analyzed: 10/24/12					
Iron	7.9	0.10	0.020	mg/L	8.0	ND	98	70-130		
Sodium	23	0.50	0.13	mg/L	20	5.7	88	70-130		
Potassium	19	0.050	0.010	mg/L	20	0.46	91	70-130		
Magnesium	21	0.50	0.020	mg/L	20	3.2	91	70-130		
Manganese	0.39	0.010	0.0010	mg/L	0.40	ND	97	70-130		
Calcium	39	0.50	0.042	mg/L	20	23	84	70-130		
Boron	0.31	0.10	0.050	mg/L	0.40	ND	78	70-130		

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

November 2, 2012
Work Order: 1211987

Metals - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BJ22406 - Metals Preparation for EPA Method 200.7										
Matrix Spike Dup (BJ22406-MSD1)		**Source: 1212222-01**			Prepared & Analyzed: 10/24/12					
Potassium	20	0.050	0.010	mg/L	20	0.97	93	70-130	0.3	30
Sodium	44	0.50	0.13	mg/L	20	28	81	70-130	0.7	30
Manganese	0.37	0.010	0.0010	mg/L	0.40	0.0011	93	70-130	1	30
Magnesium	23	0.50	0.020	mg/L	20	4.2	91	70-130	1	30
Boron	0.29	0.10	0.050	mg/L	0.40	ND	73	70-130	0.06	30
Iron	7.6	0.10	0.020	mg/L	8.0	ND	95	70-130	2	30
Calcium	52	0.50	0.042	mg/L	20	36	81	70-130	0.04	30
Matrix Spike Dup (BJ22406-MSD2)		**Source: 1212262-01**			Prepared & Analyzed: 10/24/12					
Magnesium	21	0.50	0.020	mg/L	20	3.2	92	70-130	0.2	30
Iron	8.0	0.10	0.020	mg/L	8.0	ND	100	70-130	1	30
Calcium	41	0.50	0.042	mg/L	20	23	90	70-130	3	30
Manganese	0.40	0.010	0.0010	mg/L	0.40	ND	99	70-130	2	30
Boron	0.31	0.10	0.050	mg/L	0.40	ND	77	70-130	1	30
Sodium	24	0.50	0.13	mg/L	20	5.7	90	70-130	2	30
Potassium	18	0.050	0.010	mg/L	20	0.46	90	70-130	1	30

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

November 2, 2012
Work Order: 1211987

* 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.

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

Questions regarding this report should be directed to :

Kathryn Nordmark
Telephone (813) 855-1844 FAX (813) 855-2218
Kathryn@southernanalyticallabs.com

or to Client Services (clientservices@southernanalyticallabs.com).

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

1211987

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: S&GW Test Facility SE #3 (FB & EB)

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	250mL P, H_2SO_4 TKN, NH_4	1LP, Cool NOx, Cl	250mL P, H_2SO_4 TKN, NH_4, COD	1LP, Cool NOx, Cl, Alkalinity	1LP, Cool NOx, Cl, Alkalinity, F, OP, SO_4	250mLaG, Cool DOC	40mLaV, HCl TOC	250mL P, HNO_3 B, Ca, Fe, Mg, Mn, K, Na					Field pH	Field Temperature	Field Conductivity	Field DO
01	FB - Tap	10/5/12	0910	DW		X	1			1									6.8	25.7	410.6	7.61
02	FB - DI		0900	R		X	1			1									8.2	23.6	2.3	3.63
03	EB		0905	R		X			1		1	1	2	1					8.2	23.6	2.3	3.63

Containers Prepared/ Relinquished:	Date/Time:	Received:	Date/Time:
Bowling	1200 10/12/12		1200 10/12/12
	1540 10/15/12	R Mudmann	1540 10/15/12

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

Instructions / Remarks:

1211987

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	101512	SAL Project #	121987 -01	Project Name	S&GW Test Facility SE #3
Well Number	FB-Tap			GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)		WELL CAPACITY (gal/ft)		Screen Interval (Feet)	UNK To UNK		Static Depth to Water (Feet)		PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)		REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)			TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	
Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 3, 3 Minutes) q Partially Submerged Screen (1 Well, 3,3 minutes)										
WELL VOLUME = (TOTAL DEPTH - STATIC DEPTH) x WELL CAPICITY =										
ONE WELL VOLUME			1/4 WELL VOLUME		3 WELL VOLUMES			5 WELL VOLUMES		
EQUIPMENT VOLUME = PUMP VOLUME + (TUBING CAPACITY X TUBING LEGNTH) + FLOW CELL VOLUME										
PUMP VOLUME			TUBING LEGNTH		FLOW CELL VOLUME			EQUIPMENT VOLUME		
INITIAL TUBING LEGNTH IN WELL (FEET)			FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START		PURGE TIME END		TOTAL PURGED	
INST. ID				SAL-SAM-63-08	SAL-SAM-65-06	SAL-SAM-63-08	SAL-SAM-55-08	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	–	–	–	–	6.8	25.7	410.6	4.61	1.02	CLEAR	NONE

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL					SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	0910	SAMPLING ENDED	0911	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

Revised By: 09/25/09 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	10/5/12	SAL Project #	1211987 -02	Project Name	S&GW Test Facility SE #3
Well Number	FB-DI			GPS LAT	
				GPS LONG	

PURGING DATA

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

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

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

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

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

PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME		EQUIPMENT VOLUME	

INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START		PURGE TIME END		TOTAL PURGED	
INST. ID				SAL-SAM-63-08	SAL-SAM-65-08	SAL-SAM-63-08	SAL-SAM-55-08	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)
0900	–	–	–	–	8.2	23.6	2.3	3.63	0.28	CLEAR	NONE

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL					SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT			SAMPLE TUBING LEGNTH IN WELL (FEET)				SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED	0900	SAMPLING ENDED	0901	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 NP= Non-inert Plastic, TL= Teflon Lined, TT= Teflon

Revision Date: 09/25/09 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	101512	SAL Project #	1211987 03	Project Name	S&GW Test Facility SE #3
Well Number	EB			GPS LAT	
				GPS LONG	

PURGING DATA

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

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

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

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

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

PUMP VOLUME		TUBING LEGNTH		FLOW CELL VOLUME		EQUIPMENT VOLUME	

INITIAL TUBING LEGNTH IN WELL (FEET)		FINAL TUBING LEGNTH IN WELL (FEET)		PURGE TIME START		PURGE TIME END		TOTAL PURGED	
INST. ID				SAL-SAM-63-_____	SAL-SAM-65-_____	SAL-SAM-63-_____	SAL-SAM-55-__	SAL-SAM-0_____	
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
0905					8.2	26.3	2.3	3.63	0.28	CLEAR	NONE

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL				SAMPLER(S) SIGNATURES:				
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP TL TT			SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)		
SAMPLING INITIATED	0905	SAMPLING ENDED	0906	FIELD CLEANED	Y (N)	CLEANING STEPS			
FIELD FILTERED?	Y N	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)	SEMI-VOCS 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, NP= Non-inert Plastic, TL= Teflon Lined, TT= Teflon

Revised By: 09/25/09 Date:

Appendix F: Soil Analytical Results

o:\44237-001\Wpdocs\Report\Draft

Table F.1
Soil Analytical Results

ID#	Sample ID	Depth	BufpH	CEC	TN[1]	TKN	ON[2]	NH3-N	NOx-N	TIN[3]	OrgMt	Est. TOC	P	K	Ca	Mg	Na
				calc	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%	%,calc	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
1	TT	2-3’	7.86	2.09	61.95	61.10	59.16	1.94	0.85	2.78	0.69	0.46	74.85	6.10	54.01	8.78	10.76
2	TT	3.5-5.5’	7.93	1.60	8.94	8.11	6.59	1.52	0.83	2.35	0.31	0.21	59.39	8.61	43.99	5.50	12.68
3	TT	7.5-9.5’	7.68	4.23	80.17	79.42	78.09	1.33	0.75	2.09	1.84	1.23	181.45	8.05	135.37	7.37	16.75
4	TT	10.5-12’	7.77	3.06	2.01	1.33	0.17	1.16	0.68	1.84	1.05	0.70	261.16	6.24	50.00	2.70	18.10
5	TT	12-14’	7.69	3.91	78.62	77.49	75.68	1.81	1.13	2.94	1.86	1.25	207.84	8.20	58.81	4.24	20.38
6	TT	14-15.5’	7.66	4.18	68.90	67.68	66.10	1.58	1.22	2.80	2.01	1.35	206.70	8.73	62.49	4.83	20.39
7	TT	15.5-16’	7.55	5.12	126.45	125.05	123.16	1.89	1.40	3.29	3.79	2.54	261.66	9.07	104.25	8.44	16.07
8	MM	2-2.5’	7.80	2.66	89.34	88.42	85.56	2.86	0.92	3.77	0.97	0.65	62.98	8.69	61.43	3.83	11.40
9	MM	2.5-4’	7.93	1.41	9.76	8.48	7.04	1.44	1.28	2.72	0.38	0.25	27.71	6.82	33.13	3.84	11.08
10	MM	4-5’	7.89	2.52	-6.65	-7.51	-9.48	1.97	0.86	2.82	0.50	0.34	50.58	31.25	54.51	4.25	12.27
11	MM	6-7’	7.31	6.74	365.91	363.95	361.83	2.12	1.96	4.08	4.56	3.06	174.57	7.21	44.71	2.86	18.18
12	MM	7-8’	7.31	6.62	208.93	207.84	206.10	1.74	1.09	2.83	5.45	3.65	55.95	7.74	45.33	2.00	15.13
13	MM	8-9’	7.18	7.83	224.01	223.22	221.63	1.59	0.79	2.38	6.90	4.62	40.88	8.15	56.32	3.25	17.39
14	MM	9-10’	7.38	6.18	159.26	158.21	156.68	1.53	1.05	2.58	6.44	4.31	83.84	6.75	46.47	2.64	18.24
15	MM	12.5-14’	7.52	5.18	96.14	95.42	94.30	1.12	0.72	1.84	3.38	2.26	196.54	6.77	55.24	3.54	19.75
16	MM	14.5-16’	7.48	5.72	99.63	98.84	97.95	0.89	0.79	1.68	5.51	3.69	480.47	11.52	74.31	4.25	19.83
17	MM	17-18’	7.48	5.95	153.33	151.73	150.44	1.29	1.60	2.89	4.36	2.92	291.80	16.78	98.28	7.52	18.47
18	MM	19-20’	7.55	4.88	94.36	93.08	91.84	1.24	1.28	2.51	2.97	1.99	549.39	9.22	69.52	4.18	15.13
19	MM	23-24’	7.61	4.56	68.43	66.30	64.85	1.45	2.13	3.58	1.97	1.32	627.02	9.81	76.67	5.25	17.46
20	MM	25-26'	7.82	3.13	75.47	73.10	71.98	1.12	2.37	3.50	2.03	1.36	727.00	10.05	82.41	6.88	22.18
21	MM	26-27’	7.65	4.45	58.69	57.13	56.44	0.69	1.56	2.26	1.56	1.05	520.46	8.62	73.16	6.09	23.34
22	Test Pit A horizon	0-6" bg	7.70	5.88	610.96	610.10	607.15	2.95	0.86	3.81	2.99	2.00	334.98	17.64	433.67	33.00	13.41
23	Test Pit A/E horizon	1' bg	7.74	3.10	186.16	185.58	184.02	1.56	0.58	2.14	1.52	1.02	92.08	7.96	51.80	4.06	12.12
24	Test Pit E horizon	3' bg	7.96	1.20	20.64	20.11	19.06	1.05	0.53	1.58	0.37	0.25	19.13	3.50	33.85	3.93	13.48
25	Test Pit Spodic	6' bg	7.30	6.56	380.60	379.37	378.14	1.23	1.23	2.46	5.58	3.74	155.35	3.34	39.36	2.57	15.16

T: for Value < MDL Non-detect

I: for Value >= MDL but < PQL

[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.

[4]TOC calculated value typical range 0.58-0.70 of organic matter, using 0.68

/pdocs\Report\Draft

Appendix G: Water Quality Analytical Results

o:\44237-001\Wpdocs\Report\Draft

Table G.1
Water Quality Analytical Results
(October 11 through October 26, 2012)

Sample ID	Sample Date/Time	Temp	pH	Total Alkalinity	DO	Specific Conductance (µS)	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							Hydrogen Sulfide (Unionized)	Sulfide
																				F^-	Cl^-	NO_3-N^-	NO_2-N^-	PO_4-P^-	SO_4^-	B	Ca	Fe	Mg	Mn	K	Na		
Effluent Samples																																			
PNRS II STE-Tank 1	10/26/12 8:58	25.6	7.0	380	0.5	1115	22	110		73.0	73	3	70	0.03	70.03	5.7	84,000				63	0.03	0.01												
STE Pump Tank	10/26/12 9:43	26.8	7.6	320	1.0	983	18	32		64.0	64	14	50	0.04	50.04	4.4	97,000				51	0.04	0.01		68										
STE Pump Tank DUP	10/26/12 9:47	26.8	7.6	310	1.0	983	19	28		66.0	66	15	51	0.03	51.03	4.3	64,000				52	0.03	0.01		58										
ATU Clarifier	10/26/12 9:07	25.9	7.5		1.6	643	2	10		15.7	12	5.7	6.3	3.7	10.00						50	2	1.7												
ATU Eff Pump Tank	10/26/12 9:21	25.9	7.5	150	1.9	667	1	7		11.2	7.7	4.3	3.4	3.5	6.90	4	370			0.32	49	2.8	0.75	2.2	58	0.1	55	0.05	16	0.01	19	45		
ATU Eff Pump Tank - DUP	10/26/12 9:26	25.9	7.5	150	1.9	667	1	8		10.4	7	3.6	3.4	3.4	6.80	4.1	300			0.29	50	2.7	0.77	2.1	57	0.1	53	0.05	16	0.01	17	43		
Soil moisture samples																																			
TA1-LY-24-C	10/15/12 14:05	33.1	6.1		6.3	781				44.7	0.65	0.64	0.013	44	44.01						51	44	0.05												
TA1-LY-12-S	10/15/12 14:15	31.9	6.7		6.4	866				49.4	1.4	1.39	0.01	48	48.01						56	48	0.01												
TA1-LY-24-S	10/15/12 14:20	32.7	6.2	22	5.8	734			20	45.7	0.73	0.72	0.009	45	45.01	0.24					49	45	0.01												
TA1-LY-42-S	10/15/12 14:35	30.9	5.6	9.4	5.5	816			17	53.7	0.74	0.73	0.009	53	53.01	0.053					66	53	0.01												
TA2-LY-24-C	10/15/12 11:50	29.5	6.8		6.0	509				16.7	1.7	1.67	0.029	15	15.03						33	15	0.01												
TA2-LY-12-S	10/15/12 12:00	30.1	6.6		6.6	616				19.3	2.3	2.29	0.013	17	17.01						45	17	0.01												
TA2-LY-24-S	10/15/12 12:10	29.9	6.4	65	4.7	510			75	19.1	2.1	2.07	0.032	17	17.03	0.75					37	17	0.08												
TA2-LY-42-S	10/15/12 12:40	28.5	5.7	22	4.5	433			38	12.5	2.5	2.49	0.009	10	10.01	0.25			13	0.01	37	9.9	0.38	0.1	52	0.2	26	0.04	8.3	0.01	8.4	37		
TA3-LY-24-C	10/15/12 11:00	30.1	6.9		6.4	704				38.4	3.4	3.39	0.011	35	35.01						50	35	0.01												
TA3-LY-12-S	10/15/12 11:10	30.1	6.9	86	6.8	589			24	8.1	1.9	1.89	0.009	6.2	6.21	0.6					51	6.2	0.01												
TA3-LY-12-S DUP	10/15/12 11:15	29.5	6.3	97	6.8	589			24	7.9	1.8	1.79	0.01	6.1	6.11	0.63					53	6.1	0.01												
TA3-LY-24-S	10/15/12 11:20	30.2	6.3	43	6.3	616			31	24.0	3	2.99	0.013	21	21.01	0.28			14	0.14	60	21	0.01	0.19	64	0.2	34	0.04	14	0	2	67		
TA3-LY-42-S	10/15/12 11:35	27.8	5.6		5.3	712				42.9	3.9	3.89	0.009	39	39.01						54	39	0.01	0.01											
TA4-LY-24-C	10/15/12 9:35	26.6	6.8	75	4.7	461			29	28.6	2.6	2.59	0.012	26	26.01	0.18					36	26	0.01												
TA4-LY-12-S	10/15/12 9:50	26.6	6.8	54	7.6	364			20	16.4	2.4	2.36	0.037	14	14.04	1.9			8.3	0.34	58	14	0.01	1.3	66	0.2	47	0.02	13	0	11	47		
TA4-LY-12-S-DUP	10/15/12 9:55	26.2	6.4	19	7.6	364			29	12.4	2.4	2.38	0.018	10	10.02	0.22			14	0.07	39	10	0.01	0.15	53	0.2	25	0.03	8.2	0.01	8.1	36		
TA4-LY-24-S	10/15/12 10:05	26.4	6.4		6.6	527				17.8	2.8	2.79	0.009	15	15.01						44	15	0.01												
TA4-LY-42-S	10/15/12 10:20	26.9	6.1		5.7	617				20.8	2.8	2.79	0.009	18	18.01						62	18	0.01												
LY01-BKG-24	10/15/12 9:15	26.8	6.3		6.7	107				1.5	1.5	1.49	0.01	0.02	0.03						2.9	0.01	0.01												
LY02-BKG-42	10/16/12 15:10	32.6	6.7		5.7	512					9.8	9.54	0.26								12														
Groundwater Samples																																			
TA1-PZ-11-EF2	10/23/12 10:05	26.6	4.4		1.3	225				6.7	1.3	1.29	0.009	5.4	5.41						11	5.4	0.01												
TA1-PZ-11-J4	10/18/12 11:27	27.6	4.7	2	1.1	233			11	5.5	0.76	0.75	0.009	4.7	4.71	0.073					10	4.7	0.01												
TA1-PZ-11-K4	10/18/12 11:55	27.8	4.7	2	1.3	231			10	5.8	1	0.99	0.009	4.8	4.81	0.059					9.7	4.8	0.01												
TA1-PZ-11-L2	10/23/12 10:55	27.4	4.5	2	2.0	713			20	44.1	2.1	2.09	0.009	42	42.01	0.08		4.2	3.6	0.08	55	42	0.01	0.01	47	0.1	42	0.02	19	0.02	13	44		
TA1-PZ-11-L2 DUP	10/23/12 11:00	27.4	4.5	2	2.0	713			20	43.0	2	1.99	0.009	41	41.01	0.081		3.9	3.2	0.08	54	41	0.01	0.01	46	0.1	41	0.02	19	0.02	12	44		
TA1-PZ-11-L3	10/18/12 13:55	27.7	4.8	2.1	2.0	406			10	18.1	1.1	1.09	0.009	17	17.01	0.089					29	17	0.01												
TA1-PZ-11-L3 DUP	10/18/12 13:55	27.7	4.8	2.1	2.0	406			10	18.1	1.1	1.09	0.009	17	17.01	0.094					29	17	0.01												
TA1-PZ-11-L4	10/23/12 10:35	26.9	4.8	3.2	1.0	252			17	8.3	2.7	2.69	0.009	5.6	5.61	0.37					12	5.6	0.01												
TA1-PZ-11-L5	10/18/12 12:18	27.8	4.9	2.1	1.5	253			10	6.9	0.74	0.73	0.009	6.2	6.21	0.044					11	6.2	0.01												
TA1-PZ-09-N3	10/18/12 12:43	28.6	6.3	65	2.9	665			72	16.8	0.79	0.71	0.085	16	16.09	4.2		18	16	0.01	40	15	0.3	0.01	62	0.1	31	0.06	7.7	0.05	10	69		
TA1-PZ-09-N3 DUP	10/18/12 12:43	28.6	6.3	65	2.9	665			60	16.9	0.85	0.77	0.08	16	16.08	4.2		18	15	0.02	42	15	0.01	0.01	63	0.1	33	0.06	7.8	0.06	10	70		
TA1-PZ-16-N3	10/18/12 13:35	27.0	5.2		0.2	287				8.9	0.83	0.82	0.009	8.1	8.11						14	8.1	0.01												
TA1-PZ-09-O7	10/18/12 10:25	26.9	5.6	17	0.9	282			42	5.5	0.78	0.76	0.02	4.7	4.72	1.8					15	4.6	0.02												
TA1-PZ-16-O7	10/18/12 10:59	26.7	5.2	5.2	0.2	319			29	9.9	0.22	0.21	0.009	9.7	9.71	0.13					14	9.7	0.01												

o:\44237-001\Wpdocs\Report\Draft

Table G.1 (continued)
Water Quality Analytical Results
(October 11 through October 26, 2012)

Sample ID	Sample Date/Time	Temp	pH	Total Alkalinity	DO	Specific Conductance (µS)	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							Hydrogen Sulfide (Unionized)	Sulfide
																				F^-	Cl^-	NO_3-N^-	NO_2-N^-	PO_4-P^-	SO_4^-	B	Ca	Fe	Mg	Mn	K	Na		
TA1-PZ-09-M9	10/18/12 9:15	26.5	6.0		2.5	242				7.7	0.47	0.43	0.038	7.2	7.24						13	7.2	0.01											
TA1-PZ-16-M9	10/18/12 9:50	26.5	5.2		0.5	313				11.6	0.63	0.62	0.009	11	11.01						14	11	0.01											
TA1-PZ-09-I7	10/18/12 8:10	25.7	5.5		3.5	209				10.3	0.44	0.43	0.009	9.9	9.91						7.3	9.9	0.01											
TA1-PZ-16-I7	10/18/12 8:50	26.1	5.2		0.3	311				14.0	2	1.99	0.009	12	12.01						16	12	0.01											
TA1-PZ-09-RS16	10/17/12 12:40	26.6	6.1		0.6	189				4.3	0.99	0.93	0.057	3.3	3.36						6.8	3.3	0.01											
TA1-PZ-16-RS16	10/17/12 13:15	26.4	5.9		0.1	323				9.6	1.7	1.67	0.033	7.9	7.93						13	7.9	0.03											
TA1-PZ-09-RS18	10/17/12 11:30	26.5	5.8		0.6	200				8.4	1.7	1.66	0.036	6.7	6.74						8.2	6.7	0.01											
TA1-PZ-16-RS18	10/17/12 12:15	26.3	5.7		0.1	317				7.3	0.33	0.31	0.019	7	7.02						12	7	0.02											
TA2-PZ-10-EF2	10/16/12 8:10	25.8	5.2	2.1	3.3	189			26	4.7	1.6	1.59	0.013	3.1	3.11	0.11		9	8.4	0.05	8	3.1	0.01	0.01	37	0.1	14	0.05	3.4	0.03	4	11		
TA2-PZ-10-H5	10/16/12 8:50	26.0	4.9	2	1.7	306			24	11.9	1.9	1.88	0.019	10	10.02	0.24					15	10	0.01											
TA2-PZ-10-J5	10/16/12 10:40	26.9	5.1	2.1	2.9	365			13	15.0	1	0.99	0.009	14	14.01	0.039					23	14	0.01											
TA2-PZ-10-J5 DUP	10/16/12 10:45	26.9	5.1	2.1	2.9	365			13	15.2	1.2	1.19	0.009	14	14.01	0.041					23	14	0.01											
TA2-PZ-10-K5	10/16/12 12:20	27.8	5.0	2	3.3	442			11	16.5	1.5	1.49	0.009	15	15.01	0.048					28	15	0.01											
TA2-PZ-10-L2	10/16/12 9:55	26.7	4.4	2	1.0	264			15	7.6	1.4	1.39	0.014	6.2	6.21	0.26					9.8	6.2	0.01											
TA2-PZ-10-L3	10/16/12 10:10	26.7	4.4	2	1.4	300			15	10.4	1.6	1.59	0.009	8.8	8.81	0.23					17	8.8	0.01											
TA2-PZ-10-L4	10/16/12 11:09	27.2	4.6	2	2.4	450			13	16.6	1.6	1.59	0.009	15	15.01	0.044		4	3.7	0.09	33	15	0.01	0.01	60	0.1	27	0.04	7.5	0.02	10	36		
TA2-PZ-10-L5	10/16/12 11:34	27.2	4.4	2	1.5	410			15	13.8	1.8	1.79	0.009	12	12.01	0.08					30	12	0.01											
TA2-PZ-10-L5 DUP	10/16/12 11:39	27.2	4.4	2	1.5	410			17	13.9	1.9	1.89	0.009	12	12.01	0.075					29	12	0.01											
TA2-PZ-10-L6	10/16/12 12:03	27.0	4.6	2	1.4	437			42	14.8	2.8	2.77	0.034	12	12.03	0.69					34	12	0.01											
TA2-PZ-09-M4	10/16/12 10:55	27.1	5.3	8.4	1.0	373			49	13.3	2.3	2.24	0.064	11	11.06	2.8		3.1	2.5	0.03	25	11	0.01	0.01	57	0.1	30	0.04	7	0.08	9.1	24		
TA2-PZ-16-M4	10/16/12 10:52	26.5	5.3		0.3	212				2.5	0.55	0.54	0.009	1.9	1.91						6.2	1.9	0.01											
TA2-PZ-09-N7	10/16/12 9:20	26.6	5.5	9.4	0.4	429			15	14.4	1.4	1.39	0.009	13	13.01	0.95					30	13	0.01											
TA2-PZ-09-N7 DUP	10/16/12 9:25	26.6	5.5	10	0.4	429			13	15.3	1.3	1.29	0.009	14	14.01	0.97					31	14	0.01											
TA2-PZ-16-N7	10/16/12 9:36	26.2	5.3		0.2	212				1.6	0.22	0.21	0.009	1.4	1.41						5.6	1.4	0.01											
TA2-PZ-09-I7	10/16/12 9:30	26.4	5.8		0.8	264				6.9	1.3	1.24	0.062	5.6	5.66						10	5.6	0.01											
TA2-PZ-16-I7	10/16/12 10:15	26.4	5.7		0.2	205				2.2	0.25	0.24	0.011	1.9	1.91						6.1	1.9	0.01											
TA2-PZ-09-L8	10/16/12 11:20	27.5	6.6		2.8	454				4.9	1.2	1.18	0.023	3.7	3.72						14	3.7	0.04											
TA2-PZ-16-L8	10/16/12 11:55	26.7	5.6		0.2	208				2.3	0.49	0.48	0.009	1.8	1.81						6	1.8	0.01											
TA2-PZ-09-TU19	10/16/12 8:35	26.3	4.7		0.2	188				8.9	2.3	2.29	0.009	6.6	6.61						3.5	6.6	0.01											
TA2-PZ-16-TU19	10/16/12 8:54	25.9	5.3		0.2	195				2.7	0.7	0.69	0.009	2	2.01						6.1	2	0.01											
TA2-PZ-09-TU21	10/16/12 7:59	26.0	4.6		0.4	170				6.0	1.6	1.57	0.03	4.4	4.43						2.7	4.4	0.01											
TA2-PZ-16-TU21	10/16/12 8:14	25.9	5.2		0.2	186				1.6	0.31	0.30	0.009	1.3	1.31						5	1.3	0.01											
TA3-PZ-11-EF2	10/23/12 14:50	26.7	4.8	2.1	0.4	331			15	18.5	1.5	0.94	0.56	17	17.56	0.044					11	17	0.01											
TA3-PZ-11-I2	10/23/12 14:18	26.6	4.6	2	0.8	377			17	19.1	1.1	1.04	0.056	18	18.06	0.084		2.4	1.6	0.05	19	18	0.01	0.01	38	0.1	26	0.02	9.4	0.08	8.1	16		
TA3-PZ-10-J5	10/23/12 13:50	26.8	4.3		1.0	331				11.2	1.2	0.93	0.27	10	10.27						17	10	0.01											
TA3-PZ-10-J5 DUP	10/23/12 13:55	26.8	4.3		1.0	331				10.9	1.1	0.83	0.27	9.8	10.07						16	9.8	0.01											
TA3-PZ-10-K5	10/23/12 13:20	26.7	4.4	2	0.5	370			13	13.8	1.8	1.48	0.32	12	12.32	0.048					20	12	0.01											
TA3-PZ-11-L2	10/17/12 8:55	26.0	5.4	2.1	2.2	617			15	32.2	3.2	3.19	0.009	29	29.01	0.067		3.7	3.3	0.01	41	29	0.01	0.01	50	0.1	37	0.03	16	0.05	9.2	34		
TA3-PZ-11-L3	10/17/12 9:26	26.3	5.1	2.1	1.3	522			10	24.0	3	2.99	0.009	21	21.01	0.059		2	1.7	0.08	34	21	0.01	0.01	51	0.1	33	0.02	12	0.04	8.9	28		
TA3-PZ-11-L4	10/23/12 13:00	27.1	4.4	2	0.7	494			13	19.4	1.4	1.17	0.23	18	18.23	0.039					31	18	0.01											
TA3-PZ-10-L5	10/23/12 12:40	27.1	4.4	2	0.3	424			17	16.8	1.8	1.63	0.17	15	15.17	0.28					28	15	0.01											

o:\44237-001\Wpdocs\Report\Draft

Table G.1 (continued)
Water Quality Analytical Results
(October 11 through October 26, 2012)

Sample ID	Sample Date/Time	Temp	pH	Total Alkalinity	DO	Specific Conductance (µS)	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							Hydrogen Sulfide (Unionized)	Sulfide
																				F^-	Cl^-	NO_3-N^-	NO_2-N^-	PO_4-P^-	SO_4^-	B	Ca	Fe	Mg	Mn	K	Na		
TA3-PZ-09-N3	10/17/12 10:10	26.8	6.7	65	0.5	571			58	13.4	2.4	2.23	0.17	11	11.17	1.9					24	11	0.03											
TA3-PZ-16-N3	10/17/12 10:40	26.1	5.8		0.2	333			54	12.7	2.7	2.66	0.043	10	10.04	3.5					16	10	0.01											
TA3-PZ-09-O7	10/17/12 8:11	25.9	6.1		0.3	398				9.8	2.5	2.34	0.16	7.3	7.46						18	7.2	0.11											
TA3-PZ-16-O7	10/17/12 8:31	25.8	5.3		0.2	315				10.5	1.9	1.88	0.02	8.6	8.62						13	8.6	0.01											
TA3-PZ-09-I7	10/16/12 13:50	27.9	7.0		3.8	689				9.0	2.4	2.38	0.016	6.6	6.62						11	6.5	0.07											
TA3-PZ-16-I7	10/16/12 14:25	26.9	5.7		0.3	291				5.4	1.4	1.39	0.009	4	4.01						8	4	0.01											
TA3-PZ-09-M9	10/17/12 7:50	25.8	6.4		1.8	367				7.5	1.9	1.86	0.036	5.6	5.64						12	5.6	0.08											
TA3-PZ-16-M9	10/17/12 8:25	25.9	5.7		0.2	288				5.2	0.95	0.90	0.048	4.2	4.25						8.5	4.2	0.01											
TA3-PZ-09-ST14	10/17/12 7:35	25.9	4.6		0.4	184				4.3	0.83	0.81	0.025	3.5	3.53						5.2	3.5	0.01											
TA3-PZ-16-ST14	10/17/12 7:50	25.7	5.2		0.4	288				6.3	0.7	0.69	0.009	5.6	5.61						8.4	5.6	0.01											
TA3-PZ-09-ST16	10/16/12 13:46	27.1	5.5		0.5	243				6.0	1.6	1.59	0.009	4.4	4.41						5.6	4.4	0.01											
TA3-PZ-16-ST16	10/16/12 14:06	26.3	5.2		0.2	266				6.0	1.7	1.69	0.009	4.3	4.31						7.3	4.3	0.01											
TA4-PZ-11-EF2	10/15/12 12:00	27.2	3.9	2	1.4	188			22	8.5	2.1	2.09	0.009	6.4	6.41	0.024					3.9	6.4	0.01											
TA4-PZ-10-H5	10/15/12 12:33	27.4	4.0	2	1.2	179			11	6.8	1.3	1.29	0.009	5.5	5.51	0.03					4.5	5.5	0.01											
TA4-PZ-10-J5	10/15/12 14:18	27.6	4.0	2	2.2	284			10	9.0	0.99	0.98	0.009	8	8.01	0.025					12	8	0.01											
TA4-PZ-10-K5	10/15/12 14:14	27.4	4.3	2	1.2	334			10	12.3	1.3	1.29	0.009	11	11.01	0.34		2.3	1.8	0.16	22	11	0.01	0.01	50	0.1	23	0.06	5	0.03	8.7	17		
TA4-PZ-11-L2	10/15/12 12:24	27.2	4.8	2.1	0.9	267			10	13.6	1.6	1.59	0.009	12	12.01	0.027		2.2	1.4	0.16	9.4	12	0.01	0.01	43	0.1	26	0.02	4.7	0.06	5.6	6.7		
TA4-PZ-11-L3	10/15/12 12:40	27.5	4.4	2	0.9	287			17	10.9	1.5	1.49	0.009	9.4	9.41	0.13					15	9.4	0.01											
TA4-PZ-11-L4	10/15/12 13:30	27.4	4.4	2	1.6	338			15	12.5	1.5	1.49	0.009	11	11.01	0.029		2.1	1.8	0.12	25	11	0.01	0.01	53	0.1	21	0.03	5.5	0.04	6.4	22		
TA4-PZ-11-L5	10/15/12 13:40	27.1	4.3	2	0.9	341			13	12.6	1.6	1.59	0.009	11	11.01	0.23					23	11	0.01											
TA4-PZ-11-L6	10/15/12 14:01	27.1	4.3	2	0.7	331			29	13.3	2.3	2.29	0.009	11	11.01	0.098					20	11	0.01											
TA4-PZ-09-M4	10/15/12 13:00	27.3	6.3	65	0.6	518			24	14.1	2.1	2.09	0.009	12	12.01	0.28					29	12	0.16											
TA4-PZ-16-M4	10/15/12 13:16	26.7	5.2		0.1	226				6.3	2.7	2.69	0.009	3.6	3.61						7.4	3.6	0.01											
TA4-PZ-09-N7	10/15/12 10:56	27.4	5.2	10	1.9	259			83	18.8	3.8	3.73	0.068	15	15.07	3.9					8.3	15	0.01											
TA4-PZ-16-N7	10/15/12 11:14	26.7	5.1		0.1	221				4.5	1.7	1.69	0.009	2.8	2.81						7.1	2.8	0.01											
TA4-PZ-09-I7	10/15/12 13:02	27.9	5.0		1.0	237				8.1	3	2.99	0.009	5.1	5.11						8.6	5	0.02											
TA4-PZ-16-I7	10/15/12 13:42	26.6	4.7		0.2	214				2.2	0.76	0.75	0.009	1.4	1.41						5.2	1.4	0.01											
TA4-PZ-09-L8	10/15/12 11:47	27.2	6.2		0.4	294				6.4	2.1	2.03	0.067	4.3	4.37						5.9	4.3	0.06											
TA4-PZ-16-L8	10/15/12 12:05	26.6	5.1		0.2	222				3.1	0.85	0.83	0.017	2.2	2.22						6	2.2	0.01											
TA4-PZ-09-TU14	10/15/12 10:19	27.0	4.6		0.7	198				6.6	0.09	0.06	0.028	6.5	6.53						5.2	6.5	0.01											
TA4-PZ-16-TU14	10/15/12 10:33	26.6	5.1		0.2	226				1.5	0.77	0.76	0.009	0.76	0.77						4.1	0.76	0.01											
TA4-PZ-09-TU16	10/15/12 9:40	27.0	5.3		0.6	190				10.8	2	1.98	0.019	8.8	8.82						4.6	8.8	0.01											
TA4-PZ-16-TU16	10/15/12 9:59	26.4	5.2		0.2	242				2.2	0.7	0.69	0.014	1.5	1.51						4.8	1.5	0.01											
PZ01-BKG-09	10/16/12 14:55	29.1	4.7		3.4	53				0.4	0.38	0.37	0.009	0.02	0.03						5.7	0.01	0.01											
PZ04-BKG-09	10/16/12 9:35	26.5	5.5		2.6	105				2.4	1.4	1.39	0.009	1	1.01							1	0.01											
PZ05-BKG-09	10/17/12 9:02	25.9	5.3		0.2	66				1.8	1.2	1.19	0.014	0.64	0.65						3.1	0.64	0.01											
PZ24-BKG-26	10/17/12 11:41	25.4	5.1	5.2	0.5	283			10	10.3	1	0.99	0.009	9.3	9.31	0.066					16	9.3	0.01											
PZ24-BKG-26 DUP	10/17/12 11:46	25.4	5.1	4.2	0.5	283			10	10.2	1.1	1.09	0.009	9.1	9.11	0.058					15	9.1	0.01											
PZ29-BKG09	10/16/12 10:05	26.9	4.9	3.2	1.1	214			10	6.2	1.5	1.49	0.009	4.7	4.71	0.1					6.4	4.7	0.01											
PZ30-BKG-16	10/16/12 10:46	26.7	5.6	7.4	2.4	288			15	10.9	1.4	1.39	0.009	9.5	9.51	0.048					15	9.5	0.01											
PZ31-BKG-26	10/16/12 11:10	26.3	5.1	4.2	3.7	325			10	14.2	1.2	1.07	0.13	13	13.13	0.053					19	13	0.01											
PZ31-BKG-26 DUP	10/16/12 11:12	26.3	5.1	4.2	3.7	325			15	15.3	1.3	1.16	0.14	14	14.14	0.054					20	14	0.01											
PZ32-BKG-09	10/16/12 11:35	27.6	4.5	2	3.1	163			11	4.9	1.1	1.09	0.009	3.8	3.81	0.018					4	3.8	0.01											
PZ33-BKG-16	10/16/12 12:01	27.2	5.1	4.2	1.5	342			10	19.5	2.5	2.44	0.059	17	17.06	0.012					16	17	0.01											
PZ34-BKG-26	10/16/12 13:05	26.8	5.6	9.4	2.8	316			10	8.8	3.7	3.59	0.11	5.1	5.21	0.65					22	5.1	0.01											

o:\44237-001\Wpdocs\Report\Draft

Table G.1 (continued)
Water Quality Analytical Results
(October 11 through October 26, 2012)

Sample ID	Sample Date/Time	Temp	pH	Total Alkalinity	DO	Specific Conductance (µS)	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							Hydrogen Sulfide (Unionized)	Sulfide
																				F^-	Cl^-	NO_3-N^-	NO_2-N^-	PO_4-P^-	SO_4^-	B	Ca	Fe	Mg	Mn	K	Na		
PZ35-BKG09	10/17/12 9:29	26.1	6.6	110	1.5	473				5.3	2.2	2.19	0.011	3.1	3.11						9.2	3	0.06											
PZ36-BKG-16	10/17/12 9:46	26.0	5.1	3.2	0.2	321				16.3	2.3	2.29	0.013	14	14.01						15	14	0.01											
PZ37-BKG-26	10/17/12 10:07	25.4	5.0	4.2	0.1	331			11	16.4	2.4	2.39	0.014	14	14.01	0.45					17	14	0.01											
PZ38-BKG09	10/17/12 10:32	26.0	5.9	21	0.2	196				1.6	1	0.99	0.009	0.56	0.57						6.5	0.56	0.01											
PZ39-BKG-16	10/17/12 10:48	25.6	5.8	32	0.2	226				3.7	1.7	1.69	0.009	2	2.01						5.8	2	0.01											
PZ40-BKG-26	10/17/12 11:13	24.9	5.2	4.2	0.1	310				11.6	2	1.99	0.009	9.6	9.61						13	9.6	0.01											
PZ-41	10/16/12 15:50	27.8	5.0		6.8	901				59.4	8.4	8.38	0.021	51	51.02						68	51	0.01											
PZ-42	10/16/12 16:10	27.6	5.0		5.8	882				56.8	4.8	4.73	0.074	52	52.07						73	52	0.05											
PZ-43	10/16/12 13:27	27.7	5.0		4.7	98				4.1	1.4	1.39	0.011	2.7	2.71						1.7	2.7	0.01											
PZ-44	10/23/12 11:50	28.5	4.6		2.8	831				51.9	3.9	3.89	0.009	48	48.01						67	48	0.01											
PZ-45	10/23/12 12:10	28.3	4.6		3.5	371				15.5	2.5	2.45	0.052	13	13.05						22	13	0.01											
PZ-46	10/25/12 10:55	26.7	4.6		1.2	730				43.6	2.6	2.59	0.009	41	41.01						60	41	0.01											
PZ-47	10/25/12 11:55	27.0	4.8		1.7	313				8.0	1.1	1.09	0.009	6.9	6.91						23	6.9	0.01											
PZ-48	10/25/12 11:20	26.7	4.7		0.3	195				3.1	0.75	0.74	0.013	2.3	2.31						8.9	2.3	0.01											
PZ-49	10/25/12 10:15	26.4	4.6		2.6	434				17.6	1.6	1.59	0.013	16	16.01						32	16	0.01											
PZ-50	10/25/12 11:05	26.9	5.5		4.7	191				5.2	1.7	1.67	0.031	3.5	3.53						5.3	3.5	0.01											
PZ-51	10/25/12 10:10	26.1	5.6		3.6	112				1.5	0.72	0.71	0.009	0.74	0.75						1.5	0.74	0.01											
PZ-52	10/25/12 9:37	25.6	5.9		5.0	531				22.1	2.1	2.09	0.013	20	20.01						30	20	0.01											
PZ-53	10/25/12 9:35	26.0	5.3		2.7	135				5.7	1.1	1.09	0.009	4.6	4.61						2.1	4.6	0.01											
PNRS II Samples																																			
TA5-LY-C	10/15/12 13:10	27.9	7.2		6.2	663	1		26	34.1	5.1	5.09	0.013	29	29.01	1.2	1				52	29	0.01		66								0.27	0.29
TA5-LINER-SP	10/25/12 11:30									3.2	1.6	1.54	0.064	1.6	1.66							1.6	0.01											
TA5-Denite Tank	10/16/12 13:45	27.1	4.4	190	0.1	1082	1		150	7.7	7.7	6.20	1.5	0.01	1.51	1.6	1				45	0.01	0.01		260									
TA5-Denite Tank DUP	10/16/12 13:50	27.1	4.4	190	0.1	1082	1		140	7.3	7.3	5.70	1.6	0.01	1.61	1.6	1				45	0.01	0.01		260									
TA5-PZ-I	10/25/12 11:38	27.1	4.4	2.1	0.4	376	1	2	13	5.8	0.53	0.52	0.009	5.3	5.31	0.023	1				23	5.3	0.01		88								0.01	0.1
TA5-PZ-I DUP	10/25/12 11:45	27.1	4.4	2.1	0.4	376	1	2	11	5.9	0.6	0.59	0.009	5.3	5.31	0.018	1				23	5.3	0.01		88								0.01	0.1
TA6-LY-C	10/15/12 13:30	27.0	5.9	65	5.9	403	1		35	3.0	2.1	2.07	0.032	0.86	0.89	0.33	1				31	0.86	0.01		59								0.31	0.35
TA6-Denite Tank	10/17/12 12:25	27.0	5.9	130	0.9	844	4	7	120	4.5	4.3	3.92	0.38	0.15	0.53	1.8	1				31	0.15	0.01		210								3.2	3.6
TA6-PZ-I	10/17/12 12:06	30.9	6.1	54	0.6	330	10	2	40	16.2	3.2	3.19	0.009	13	13.01	0.04	1				7.8	13	0.01		31								0.18	0.2
TA6-PZ-I DUP	10/17/12 12:11	26.0	6.5	54	0.6	330	9	2	38	15.5	3.5	3.49	0.009	12	12.01	0.039	1				7.6	12	0.01		30								0.01	0.1
Blanks																																			
FB - Tap	10/15/12 9:10	25.7	6.8	140	4.6	411				0.3	0.22	0.21	0.009	0.1	0.11						13	0.1	0.01											
FB - DI	10/15/12 9:00	23.6	8.2	2	3.6	2				0.1	0.05	0.04	0.009	0.02	0.03						0.05	0.01	0.01											
EB	10/15/12 9:05	23.6	8.2	2	3.6	2			10	0.1	0.05	0.04	0.009	0.02	0.03			0.5	0.5	0.01	0.05	0.01	0.01		0.2	0.1	0.04	0.02	0.02	0	0.01	0.13		

[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.

o:\44237-001\Wpdocs\Report\Draft

Appendix H: Statistical Water Quality Summary

o:\44237-001\Wpdocs\Report\Draft

Table H.1
Statistical Water Quality Summary

Sample ID	Statistical Parameter	Temp (°C)	pH	Total Alkalinity (mg/L)	DO (mg/L)	Specific Conductance (µS)	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							Hydrogen Sulfide (Unionized	Sulfide	TS	Sucralose (ug/L)
																				F^-	Cl^-	NO_3-N^-	NO_2-N^-	PO_4-P^-	SO_4^-	B	Ca	Fe	Mg	Mn	K	Na				
Effluent samples																																					
PNRS II STE-Tank 1	n	3	3	3	3	3	3	3		3	3	3	3	3	3	3	3				3	1	1												1	1
	MEAN	26.9		346.7	0.4	1110.3	38.0	136.7		69.4	69.3	15.7	53.7	0.0	53.7	8.7					84.7	0.0	0.0												700.0	27.0
	STD. DEV.	1.3		41.6	0.1	56.1	18.3	112.4		4.7	4.7	12.1	16.5	0.0	16.5	5.4					19.3															
	MIN	25.6	6.9	300.0	0.3	1052.0	22.0	40.0		64.0	64.0	3.0	37.0	0.0	37.0	5.5	42,000				63.0	0.0	0.0												700.0	27.0
	MAX	28.2	7.0	380.0	0.5	1164.0	58.0	260.0		73.0	73.0	27.0	70.0	0.1	70.0	15.0	92,000				100.0	0.0	0.0												700.0	27.0
STE Pump Tank	n	3	3	3	3	3	3	3		3	3	3	3	3	3	3	3			1	3	2	1	1	3	1	1	1	1	1	1	1			1	
	MEAN	28.0		350.0	0.5	1075.7	19.0	48.3		63.4	63.3	10.3	53.0	0.0	53.0	7.9				3.7	72.3	0.0	0.0	4.1	44.3	0.1	56.0	0.3	18.0	0.1	34.0	60.0			600.0	
	STD. DEV.	1.0		26.5	0.4	92.0	4.6	39.1		2.1	2.1	3.5	2.6	0.0	2.6	5.3					21.5	0.0			29.0											
	MIN	26.8	7.1	320.0	0.2	983.0	15.0	20.0		61.0	61.0	7.0	50.0	0.0	50.0	4.4	84,000			3.7	51.0	0.0	0.0	4.1	12.0	0.1	56.0	0.3	18.0	0.1	34.0	60.0			600.0	
	MAX	28.7	7.6	370.0	1.0	1167.0	24.0	93.0		65.0	65.0	14.0	55.0	0.0	55.0	14.0	184,000			3.7	94.0	0.0	0.0	4.1	68.0	0.1	56.0	0.3	18.0	0.1	34.0	60.0			600.0	
ATU Clarifier	n	2	2		2	2	2	2		2	2	2	2	2	2						2	1	1													
	MEAN	26.9			0.9	756.5	6.5	9.0		25.4	17.5	8.9	8.7	7.9	16.5						61.0	2.0	1.7													
	STD. DEV.	1.3			1.0	160.5	6.4	1.4		13.6	7.8	4.5	3.3	5.9	9.2						15.6															
	MIN	25.9	7.5		0.2	643.0	2.0	8.0		15.7	12.0	5.7	6.3	3.7	10.0						50.0	2.0	1.7													
	MAX	27.8	7.7		1.6	870.0	11.0	10.0		35.0	23.0	12.0	11.0	12.0	23.0						72.0	2.0	1.7													
ATU Eff Pump Tank	n	3	3	3	3	3	3	3		3	3	3	3	3	3	3	3			2	3	2	1	2	2	2	2	2	2	2	2	2			1	
	MEAN	27.1		233.3	0.9	904.3	3.3	16.0		35.8	30.9	4.4	26.5	4.9	31.4	7.9	3423.3			0.3	72.0	2.2	0.8	4.0	53.5	0.1	53.5	0.1	17.0	0.0	20.0	52.5			500.0	
	STD. DEV.	1.1		90.7	0.9	243.7	2.5	14.7		24.5	26.6	2.5	25.0	5.5	23.3	5.4	3673.5			0.0	21.7	0.8		2.5	6.4	0.0	2.1	0.0	1.4	0.0	1.4	10.6				
	MIN	25.9	7.4	150.0	0.3	667.0	1.0	7.0		11.2	7.7	2.0	3.4	0.3	6.9	4.0	370			0.3	49.0	1.6	0.8	2.2	49.0	0.1	52.0	0.1	16.0	0.0	19.0	45.0			500.0	
	MAX	27.8	7.7	330.0	1.9	1154.0	6.0	33.0		60.3	60.0	7.0	53.0	11.0	53.3	14.0	7,500			0.3	92.0	2.8	0.8	5.7	58.0	0.1	55.0	0.1	18.0	0.0	21.0	60.0			500.0	
Soil moisture samples																																					
TA1-LY-12-S	n	3	3	1	3	3			1	3	3	3	3	3	3	1			1		3	2	2													
	MEAN	30.0		54.0	6.6	691.0			28.0	37.7	2.0	2.0	0.0	35.7	35.7	0.1			12.0		59.0	47.0	0.0													
	STD. DEV.	1.7			0.2	162.1				19.9	0.9	0.8	0.0	19.7	19.7						2.6	1.4														
	MIN	28.7	6.7	54.0	6.4	546.0			28.0	14.7	1.4	1.4	0.0	13.0	13.0	0.1			12.0		56.0	46.0	0.0													
	MAX	31.9	6.9	54.0	6.8	866.0			28.0	49.4	3.0	3.0	0.0	48.0	48.0	0.1			12.0		61.0	48.0	0.0													
TA1-LY-24-C	n	3	3		3	3				3	3	3	3	3	3						3	2	2													
	MEAN	31.3			6.3	732.0				43.9	5.5	5.5	0.0	38.3	38.4						52.0	31.0	0.0													
	STD. DEV.	2.8			0.2	138.2				13.5	5.8	5.8	0.0	18.2	18.1						29.5	18.4	0.0													
	MIN	28.0	6.1		6.2	576.0				30.0	0.7	0.6	0.0	18.0	18.1						23.0	18.0	0.0													
	MAX	33.1	6.6		6.5	839.0				56.9	12.0	11.9	0.1	53.0	53.0						82.0	44.0	0.1													
TA1-LY-24-S	n	3	3	3	3	3			3	3	3	3	3	3	3	3					3	2	2													
	MEAN	30.7		39.7	6.2	773.3			41.7	48.9	3.2	3.2	0.0	45.7	45.7	0.4					60.3	49.0	0.0													
	STD. DEV.	1.9		22.5	0.5	82.4			34.1	9.5	3.0	3.0	0.0	7.0	7.1	0.2					9.8	5.7														
	MIN	28.9	6.2	22.0	5.8	718.0			20.0	41.4	0.7	0.7	0.0	39.0	39.0	0.2					49.0	45.0	0.0													
	MAX	32.7	6.7	65.0	6.7	868.0			81.0	59.6	6.6	6.5	0.1	53.0	53.1	0.7					66.0	53.0	0.0													
TA1-LY-42-S	n	3	3	2	3	3			2	3	3	3	3	3	3	2					3	2	2													
	MEAN	31.0		10.2	5.7	718.7			13.5	50.5	4.2	4.2	0.0	46.3	46.3	0.0					63.0	44.5	0.0													
	STD. DEV.	2.0		1.1	0.2	238.4			4.9	4.0	5.1	5.1		9.1	9.1	0.0					7.9	12.0														
	MIN	29.1	5.6	9.4	5.5	447.0			10.0	46.0	0.7	0.7	0.0	36.0	36.0	0.0					54.0	36.0	0.0													
	MAX	33.1	6.7	11.0	5.9	893.0			17.0	53.7	10.0	10.0	0.0	53.0	53.0	0.1					69.0	53.0	0.0													
TA2-LY-12-S	n	3	2	1	3	3			1	3	3	3	3	3	3	1			1		3	2	2													
	MEAN	29.3		75.0	6.6	824.3			28.0	38.0	3.0	3.0	0.0	35.0	35.0	0.8			11.0		61.7	33.5	0.0													
	STD. DEV.	1.4			0.2	181.9				17.2	0.7	0.7	0.0	16.7	16.7						14.7	23.3														
	MIN	27.7	6.6	75.0	6.5	616.0			28.0	19.3	2.3	2.3	0.0	17.0	17.0	0.8			11.0		45.0	17.0	0.0													
	MAX	30.1	6.8	75.0	6.8	952.0			28.0	53.2	3.6	3.6	0.0	50.0	50.0	0.8			11.0		73.0	50.0	0.0													
TA2-LY-24-C	n	3	3		3	3				3	3	3	3	3	3						3	2	2													
	MEAN	29.4			5.9	732.3				38.5	3.9	3.9	0.0	34.7	34.7						56.0	31.0	0.0													
	STD. DEV.	1.4			0.4	194.9				19.2	2.2	2.2	0.0	17.2	17.2						20.0	22.6														
	MIN	27.9	6.1		5.5	509.0				16.7	1.7	1.7	0.0	15.0	15.0						33.0	15.0	0.0													
	MAX	30.7	6.8		6.3	868.0				53.0	6.0	6.0	0.0	47.0	47.0						69.0	47.0	0.0													

o:\44237-001\Wpdocs\Report\Draft

Table H.1 (continued)
Statistical Water Quality Summary

Sample ID	Statistical Parameter	Temp (°C)	pH	Total Alkalinity (mg/L)	DO (mg/L)	Specific Conductance (µS)	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							Hydrogen Sulfide (Unionized	Sulfide	TS	Sucralose (ug/L)
																				F^-	Cl^-	NO_3-N^-	NO_2-N^-	PO_4-P^-	SO_4^-	B	Ca	Fe	Mg	Mn	K	Na				
TA2-LY-24-S	n	3	3	3	3	3			3	3	3	3	3	3	3	3					3	2	2													
	MEAN	30.3		44.7	4.8	800.0			55.0	43.2	3.1	3.1	0.0	40.1	40.1	0.5					61.3	35.0	0.2													
	STD. DEV.	1.8		17.8	0.3	251.3			20.0	20.9	1.1	1.1	0.0	20.1	20.1	0.2					21.5	25.5	0.2													
	MIN	28.8	6.2	32.0	4.6	510.0			35.0	19.1	2.1	2.1	0.0	17.0	17.0	0.3					37.0	17.0	0.1													
	MAX	32.3	6.7	65.0	5.1	954.0			75.0	56.4	4.2	4.2	0.0	53.3	53.3	0.8					78.0	53.0	0.3													
TA2-LY-42-S	n	3	3	2	3	3			2	3	3	3	3	3	3	2			2	2	3	3	2	2	2	2	2	2	2	2	2	2				
	MEAN	29.3		16.5	5.3	655.0			38.0	29.6	2.6	2.6	0.0	27.0	27.0	0.2			14.5	0.0	60.3	26.6	0.3	0.1	61.0	0.2	35.5	0.0	11.7	0.0	9.7	62.5				
	STD. DEV.	1.7		7.8	0.7	205.7				14.9	0.4	0.4		14.8	14.8	0.1			2.1	0.0	24.6	14.5	0.2		12.7	0.0	13.4	0.0	4.7	0.0	1.8	36.1				
	MIN	28.2	5.7	11.0	4.5	433.0			38.0	12.5	2.2	2.2	0.0	10.0	10.0	0.1			13.0	0.0	37.0	9.9	0.1	0.0	52.0	0.2	26.0	0.0	8.3	0.0	8.4	37.0				
	MAX	31.3	6.4	22.0	5.9	839.0			38.0	39.2	3.0	3.0	0.0	37.0	37.0	0.3			16.0	0.1	86.0	36.0	0.4	0.1	70.0	0.2	45.0	0.1	15.0	0.0	11.0	88.0				
TA3-LY-12-S	n	3	3	3	3	3			3	3	3	3	3	3	3	3					3	2	2													
	MEAN	29.1		109.0	6.9	700.8			23.3	15.7	1.6	1.5	0.0	14.2	14.2	0.6					64.8	18.4	0.0													
	STD. DEV.	0.7		16.0	0.1	108.7			4.3	12.3	0.4	0.4	0.0	12.1	12.1	0.8					11.0	10.6														
	MIN	28.7	6.9	86.0	6.8	589.0			17.0	2.5	1.0	1.0	0.0	1.5	1.5	0.0					51.0	6.2	0.0													
	MAX	30.1	7.1	120.0	7.0	794.0			26.0	26.6	1.9	1.9	0.0	25.0	25.0	1.8					75.0	25.0	0.0													
TA3-LY-24-C	n	3	3		3	3				3	3	3	3.00	3	3						3	2	2													
	MEAN	29.3			6.0	742.3				34.1	2.7	2.7	0.01	31.3	31.4						52.7	31.0	0.0													
	STD. DEV.	0.7			0.4	135.6				4.3	0.7	0.7	0.00	4.0	4.0						5.5	5.7														
	MIN	28.7	5.7		5.7	630.0				29.8	2.0	2.0	0.00	27.0	27.0						49.0	27.0	0.0													
	MAX	30.1	6.9		6.4	893.0				38.4	3.4	3.4	0.01	35.0	35.0						59.0	35.0	0.0													
TA3-LY-24-S	n	3	3	3	3	3			3	3	3	3	3.00	3	3	3			3	3	3	3	2	3	3	3	3	3	3	3	3	3				
	MEAN	29.4		28.0	6.2	615.0			35.7	23.7	2.4	2.3	1.00	21.3	21.4	0.2			15.7	0.1	62.0	21.3	0.0	0.1	61.7	0.1	30.0	0.0	13.7	0.0	1.7	63.3				
	STD. DEV.	0.8		13.1	0.1	65.5			4.0	7.6	1.2	1.2	1.73	6.5	6.5	0.0			2.1	0.0	1.7	6.5		0.1	5.9	0.0	3.6	0.0	1.5	0.0	0.9	8.1				
	MIN	28.7	6.3	19.0	6.2	549.0			31.0	16.0	1.0	1.0	0.00	15.0	15.0	0.2			14.0	0.1	60.0	15.0	0.0	0.0	55.0	0.1	27.0	0.0	12.0	0.0	0.7	54.0				
	MAX	30.2	6.3	43.0	6.3	680.0			38.0	31.1	3.1	3.1	3.00	28.0	28.0	0.3			18.0	0.2	63.0	28.0	0.0	0.2	66.0	0.2	34.0	0.0	15.0	0.0	2.3	69.0				
TA3-LY-42-S	n	3	3		3	3				3	3	3	3	3	3						3	2	2	1												
	MEAN	29.6			6.3	652.7				28.2	4.3	4.3	0.0	23.9	23.9						51.7	31.0	0.0													
	STD. DEV.	1.6			1.1	131.5				15.8	2.6	2.6	0.0	14.7	14.7						10.7	11.3														
	MIN	27.8	3.4		5.3	502.0				11.5	1.9	1.9	0.0	9.6	9.6						40.0	23.0	0.0	0.0												
	MAX	30.9	6.9		7.4	744.0				42.9	7.1	7.1	0.0	39.0	39.0						61.0	39.0	0.0	0.0												
TA4-LY-12-S	n	3	3	2	3	3			3	3	3	3	3	3	3	3			3	2	3	3	2	2	2	2	2	2	2	2	2	2				
	MEAN	29.9		43.0	7.1	470.7			20.7	30.3	1.9	1.9	0.0	28.3	28.4	3.7			9.3	0.4	67.7	24.7	0.0	3.5	60.0	0.1	46.0	0.0	13.5	0.0	8.3	51.5				
	STD. DEV.	4.6		15.6	0.6	273.1			1.2	12.2	0.8	0.8	0.0	12.5	12.5	2.3			1.5	0.0	8.4	11.6			8.5	0.0	1.4	0.0	0.7	0.0	3.9	6.4				
	MIN	26.6	6.4	32.0	6.4	267.0			20.0	16.4	1.0	1.0	0.0	14.0	14.0	1.9			8.3	0.3	58.0	14.0	0.0	1.3	54.0	0.1	45.0	0.0	13.0	0.0	5.5	47.0				
	MAX	35.2	6.8	54.0	7.6	781.0			22.0	39.4	2.4	2.4	0.1	37.0	37.1	6.3			11.0	0.4	73.0	37.0	0.0	5.7	66.0	0.2	47.0	0.0	14.0	0.0	11.0	56.0				
TA4-LY-24-C	n	3	3	2	3	3			2	3	3	3	3	3	3	2					3	2	2													
	MEAN	28.8		70.0	4.5	711.7			33.5	32.5	3.2	3.2	0.0	29.3	29.3	0.2					57.3	30.0	0.0													
	STD. DEV.	3.1		7.1	0.3	236.2			6.4	5.5	1.4	1.4	0.0	4.2	4.2	0.0					18.7	5.7														
	MIN	26.6	6.6	65.0	4.2	461.0			29.0	28.6	2.2	2.2	0.0	26.0	26.0	0.2					36.0	26.0	0.0													
	MAX	32.3	7.1	75.0	4.7	930.0			38.0	38.8	4.8	4.8	0.0	34.0	34.0	0.2					71.0	34.0	0.0													
TA4-LY-24-S	n	3	3		3	3			1	3	3	3	3	3	3	1					3	2	2													
	MEAN	29.9			6.3	666.0			110.0	38.3	3.3	3.3	0.0	35.0	35.0	0.6					55.0	30.0	0.0													
	STD. DEV.	3.6			0.7	120.9				17.8	0.5	0.5	0.0	17.3	17.3						9.5	21.2														
	MIN	26.4	6.4		5.5	527.0			110.0	17.8	2.8	2.8	0.0	15.0	15.0	0.6					44.0	15.0	0.0													
	MAX	33.5	6.8		6.9	747.0			110.0	48.7	3.7	3.7	0.1	45.0	45.1	0.6					61.0	45.0	0.0													
TA4-LY-42-S	n	3	3		3	3				3	3	3	3	3	3						3	2	2													
	MEAN	29.0			6.0	730.7				30.3	3.6	3.6	0.0	26.7	26.7						66.0	22.5	0.0													
	STD. DEV.	1.9			0.7	100.6				8.8	1.1	1.1	0.0	8.5	8.5						21.3	6.4														
	MIN	26.9	6.1		5.5	617.0				20.8	2.8	2.8	0.0	18.0	18.0						47.0	18.0	0.0													
	MAX	30.7	6.8		6.8	808.0				38.2	4.9	4.9	0.0	35.0	35.0						89.0	27.0	0.0													

o:\44237-001\Wpdocs\Report\Draft

Table H.1 (continued)
Statistical Water Quality Summary

Sample ID	Statistical Parameter	Temp (°C)	pH	Total Alkalinity (mg/L)	DO (mg/L)	Specific Conductance (µS)	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							Hydrogen Sulfide (Unionized	Sulfide	TS	Sucralose (ug/L)
																				F^-	Cl^-	NO_3-N^-	NO_2-N^-	PO_4-P^-	SO_4^-	B	Ca	Fe	Mg	Mn	K	Na				
LY01-BKG-24	n	3	3		3	3				3	3	3	3	3	3						3	1	1													
	MEAN	27.8			6.6	205.0				1.6	1.6	1.6	0.0	0.0	0.0						5.9	0.0	0.0													
	STD. DEV.	2.1			0.1	86.8				0.2	0.2	0.2	0.0	0.0	0.0						2.8															
	MIN	26.3	6.3		6.5	107.0				1.5	1.5	1.5	0.0	0.0	0.0						2.9	0.0	0.0													
	MAX	30.2	7.2		6.7	272.0				1.8	1.8	1.8	0.0	0.0	0.1						8.4	0.0	0.0													
LY02-BKG-42	n	2	2		2	2					1	1	1	1							1															
	MEAN	29.5			6.2	522.0					9.8	9.5	0.3	0.0							12.0															
	STD. DEV.	4.4			0.6	14.1																														
	MIN	26.4	6.5		5.7	512.0					9.8	9.5	0.3	0.0							12.0															
	MAX	32.6	6.7		6.6	532.0					9.8	9.5	0.3	0.0							12.0															
TA1-PAN-12-N	n	1	1		1	1				1	1	1	1	1	1						1															
	MEAN	32.9			5.5	430.0				23.2	6.2	5.2	1.0	17.0	18.0						65.0															
	STD. DEV.																																			
	MIN	32.9	6.8		5.5	430.0				23.2	6.2	5.2	1.0	17.0	18.0						65.0															
	MAX	32.9	6.8		5.5	430.0				23.2	6.2	5.2	1.0	17.0	18.0						65.0															
TA2-PAN-12-N	n	1	1		1	1				1	1	1	1	1	1						1															
	MEAN	32.9			5.5	430.0				23.2	6.2	5.2	1.0	17.0	18.0						65.0															
	STD. DEV.																																			
	MIN	32.9	6.8		5.5	430.0				23.2	6.2	5.2	1.0	17.0	18.0						65.0															
	MAX	32.9	6.8		5.5	430.0				23.2	6.2	5.2	1.0	17.0	18.0						65.0															
TA3-PAN-12-N	n	1	1		1	1				1	1	1	1	1	1						1															
	MEAN	29.1			4.0	324.0				16.3	6.6	6.1	0.6	9.7	10.3						29.0															
	STD. DEV.																																			
	MIN	29.1	5.9		4.0	324.0				16.3	6.6	6.1	0.6	9.7	10.3						29.0															
	MAX	29.1	5.9		4.0	324.0				16.3	6.6	6.1	0.6	9.7	10.3						29.0															
TA4-PAN-12-N	n	1	1		1	1				1	1	1	1	1	1						1															
	MEAN	27.7			4.0	331.0				11.7	5.7	5.3	0.4	6.0	6.4						25.0															
	STD. DEV.																																			
	MIN	27.7	6.5		4.0	331.0				11.7	5.7	5.3	0.4	6.0	6.4						25.0															
	MAX	27.7	6.5		4.0	331.0				11.7	5.7	5.3	0.4	6.0	6.4						25.0															
Groundwater samples																																				
TA1-PZ-09-I7	n	3	3		3	3				3	3	3	3	3	3						3	1	1													
	MEAN	26.1			2.1	296.0				8.4	1.1	1.1	0.0	7.3	7.3						12.8	9.9	0.0													
	STD. DEV.	0.8			1.4	106.7				1.7	0.7	0.7	0.0	2.3	2.3						5.4															
	MIN	25.7	5.5		0.8	209.0				7.0	0.4	0.4	0.0	5.9	5.9						7.3	9.9	0.0													
	MAX	27.0	5.6		3.5	415.0				10.3	1.8	1.8	0.0	9.9	9.9						18.0	9.9	0.0													
TA1-PZ-09-M9	n	3	3		3	3				3	3	3	3	3	3						3	1	1													
	MEAN	26.7			1.3	261.3				7.6	0.8	0.8	0.0	6.8	6.9						15.3	7.2	0.0													
	STD. DEV.	0.4			1.0	41.5				0.9	0.3	0.3	0.0	1.1	1.1						4.0															
	MIN	26.4	5.3		0.6	233.0				6.7	0.5	0.4	0.0	5.6	5.6						13.0	7.2	0.0													
	MAX	27.1	6.0		2.5	309.0				8.5	1.1	1.1	0.0	7.7	7.7						20.0	7.2	0.0													
TA1-PZ-09-N3	n	3	3	1	3	3			1	3	3	3	3	3	3	1		1	1	1	3	1	1	1	1	1	1	1	1	1	1	1				
	MEAN	28.0		65.0	2.7	801.0			72.0	14.4	1.9	1.8	0.1	12.5	12.6	4.2		18.0	16.0	0.0	34.3	15.0	0.3	0.0	62.0	0.1	31.0	0.1	7.7	0.1	10.0	69.0				
	STD. DEV.	0.7			1.6	262.0				7.2	1.2	1.2	0.0	6.9	6.9						5.1															
	MIN	27.3	6.3	65.0	1.1	635.0			72.0	6.3	0.8	0.7	0.1	4.6	4.7	4.2		18.0	16.0	0.0	30.0	15.0	0.3	0.0	62.0	0.1	31.0	0.1	7.7	0.1	10.0	69.0				
	MAX	28.6	6.6	65.0	4.2	1103.0			72.0	20.1	3.1	3.0	0.1	17.0	17.1	4.2		18.0	16.0	0.0	40.0	15.0	0.3	0.0	62.0	0.1	31.0	0.1	7.7	0.1	10.0	69.0				
TA1-PZ-09-O7	n	3	3	2	3	3			2	3	3	3	3	3	3	2					3	1	1	1												
	MEAN	27.2		14.5	1.1	374.3			37.5	9.1	1.3	1.2	0.0	7.9	7.9	2.2					21.3	4.6	0.0													
	STD. DEV.	0.4	0.1	3.5	0.5	110.7			6.4	3.3	0.7	0.7	0.0	2.8	2.8	0.6					6.5															
	MIN	26.9	5.4	12.0	0.7	282.0			33.0	5.5	0.8	0.8	0.0	4.7	4.7	1.8					15.0	4.6	0.0													
	MAX	27.6	5.6	17.0	1.7	497.0			42.0	11.8	2.1	2.1	0.0	9.7	9.7	2.6					28.0	4.6	0.0													

o:\44237-001\Wpdocs\Report\Draft

Table H.1 (continued)
Statistical Water Quality Summary

Sample ID	Statistical Parameter	Temp (°C)	pH	Total Alkalinity (mg/L)	DO (mg/L)	Specific Conductance (µS)	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							Hydrogen Sulfide (Unionized	Sulfide	TS	Sucralose (ug/L)
																				F^-	Cl^-	NO_3-N^-	NO_2-N^-	PO_4-P^-	SO_4^-	B	Ca	Fe	Mg	Mn	K	Na				
TA1-PZ-09-RS16	n	3	3		3	3				3	3	3	3	3	3						3	1	1													
	MEAN	26.0			0.8	269.0				6.8	2.3	2.2	0.1	4.5	4.6						7.9	3.3	0.0													
	STD. DEV.	0.5			0.4	69.5				2.9	1.8	1.8	0.1	1.2	1.2						1.5															
	MIN	25.6	5.7		0.5	189.0				4.3	1.0	0.9	0.0	3.3	3.4						6.8	3.3	0.0													
	MAX	26.6	6.2		1.2	314.0				10.0	4.4	4.3	0.1	5.6	5.7						9.6	3.3	0.0													
TA1-PZ-09-RS18	n	3	3		3	3				3	3	3	3	3	3						3	1	1													
	MEAN	26.3			1.8	300.3				9.2	1.7	1.7	0.0	7.4	7.5						12.7	6.7	0.0													
	STD. DEV.	0.4			2.4	87.8				3.6	0.4	0.4	0.0	3.3	3.3						6.4															
	MIN	25.8	5.5		0.3	200.0				6.0	1.4	1.4	0.0	4.6	4.6						8.2	6.7	0.0													
	MAX	53.1	11.3		4.6	563.0				21.5	3.8	3.8	0.0	17.7	17.7						28.2	6.7	0.0													
TA1-PZ-11-EF2	n	3	3	1	3	3			1	3	3	3	3	3	3	1		1	1	1	3	2	1	1	1	1	1	1	1	1	1	1				
	MEAN	26.5		2.0	2.8	329.0			10.0	12.7	1.2	1.2	0.0	11.5	11.5	0.1		2.1	2.0	0.1	26.0	2.7	0.0	0.0	56.0	0.1	23.0	0.0	5.5	0.0	9.4	16.0				
	STD. DEV.	0.6			3.0	106.6				6.4	0.2	0.2		6.3	6.3						16.1	3.8														
	MIN	25.8	4.2	2.0	0.8	225.0			10.0	6.7	1.0	1.0	0.0	5.4	5.4	0.1		2.1	2.0	0.1	11.0	0.0	0.0	0.0	56.0	0.1	23.0	0.0	5.5	0.0	9.4	16.0				
	MAX	27.0	4.5	2.0	6.3	438.0			10.0	19.4	1.4	1.4	0.0	18.0	18.0	0.1		2.1	2.0	0.1	43.0	5.4	0.0	0.0	56.0	0.1	23.0	0.0	5.5	0.0	9.4	16.0				
TA1-PZ-11-J4	n	3	3	2	3	3			2	3	3	3	3	3	3	2					3	1	1													
	MEAN	27.6		2.0	1.6	256.3			10.5	8.5	1.2	1.1	0.0	7.4	7.4	0.1					16.0	4.7	0.0													
	STD. DEV.	0.4			1.6	37.8			0.7	2.9	0.4	0.4		2.7	2.7	0.0					6.0															
	MIN	27.2	4.4	2.0	0.4	233.0			10.0	5.5	0.8	0.8	0.0	4.7	4.7	0.1					10.0	4.7	0.0													
	MAX	27.9	4.7	2.0	3.4	300.0			11.0	11.2	1.5	1.5	0.0	10.0	10.0	0.1					22.0	4.7	0.0													
TA1-PZ-11-K4	n	3	3	2	3	3			2	3	3	3	3	3	3	2					3	1	1													
	MEAN	27.2		2.0	1.6	254.7			10.0	8.3	1.3	1.3	0.0	7.0	7.0	0.1					14.2	4.8	0.0													
	STD. DEV.	0.7			1.4	30.4				2.4	0.4	0.4		2.3	2.3	0.0					4.7															
	MIN	26.4	4.3	2.0	0.4	231.0			10.0	5.8	1.0	1.0	0.0	4.8	4.8	0.1					9.7	4.8	0.0													
	MAX	27.8	4.7	2.0	3.2	289.0			10.0	10.5	1.8	1.8	0.0	9.3	9.3	0.1					19.0	4.8	0.0													
TA1-PZ-11-L2	n	3	3	2	3	3			2	3	3	3	3	3	3	2		2	2	2	3	2	1	2	2	2	2	2	2	2	2	2				
	MEAN	26.9		2.0	2.8	723.7			15.0	59.5	2.5	2.5	0.0	57.0	57.0	0.2		4.2	3.2	0.1	69.3	41.0	0.0	0.0	44.0	0.1	44.0	0.0	20.0	0.0	9.1	50.0				
	STD. DEV.	1.1			2.8	53.8			7.1	30.7	1.2	1.2	0.0	29.5	29.5	0.1			0.6	0.0	22.3	1.4			4.2	0.0	2.8	0.0	1.4	0.0	5.5	8.5				
	MIN	25.6	4.2	2.0	0.5	676.0			10.0	39.5	1.5	1.5	0.0	38.0	38.0	0.1		4.2	2.8	0.0	55.0	40.0	0.0	0.0	41.0	0.1	42.0	0.0	19.0	0.0	5.2	44.0				
	MAX	27.7	4.5	2.0	5.9	782.0			20.0	94.8	3.8	3.8	0.0	91.0	91.0	0.3		4.2	3.6	0.1	95.0	42.0	0.0	0.0	47.0	0.1	46.0	0.0	21.0	0.0	13.0	56.0				
TA1-PZ-11-L3	n	3	3	2	3	3			2	3	3	3	3	3	3	2					3	1	1													
	MEAN	27.0		2.1	2.5	349.3			10.0	14.1	1.2	1.2	0.0	12.8	12.8	0.1					28.0	17.0	0.0													
	STD. DEV.	1.3	0.2		2.2	50.3				4.3	0.3	0.3		4.3	4.3	0.0					1.0															
	MIN	25.5	4.5	2.1	0.5	310.0			10.0	9.5	1.0	1.0	0.0	8.5	8.5	0.1					27.0	17.0	0.0													
	MAX	27.7	4.8	2.1	4.9	406.0			10.0	18.1	1.6	1.6	0.0	17.0	17.0	0.1					29.0	17.0	0.0													
TA1-PZ-11-L4	n	2	3	2	3	3			2	3	3	3	3	3	3	2					3	1	1													
	MEAN	26.3		2.6	2.6	306.9			13.5	12.2	1.7	1.7	0.0	10.5	10.5	0.2					17.0	5.6	0.0													
	STD. DEV.	0.8		0.8	1.7	92.8			4.9	6.0	0.9	0.9		6.6	6.6	0.2					7.0															
	MIN	25.7	4.4	2.0	1.0	252.0			10.0	8.3	1.1	1.1	0.0	5.6	5.6	0.0					12.0	5.6	0.0													
	MAX	26.9	4.8	3.2	4.4	414.0			17.0	19.1	2.7	2.7	0.0	18.0	18.0	0.4					25.0	5.6	0.0													
TA1-PZ-11-L5	n	3	3	2	3	3			2	3	3	3	3	3	3	2					3	1	1													
	MEAN	27.6		2.1	1.5	278.0			10.0	9.6	1.0	1.0	0.0	8.6	8.6	0.0					14.7	6.2	0.0													
	STD. DEV.	0.2		0.1	1.3	26.6				2.4	0.3	0.3		2.1	2.1	0.0					3.5															
	MIN	27.4	4.4	2.0	0.3	253.0			10.0	6.9	0.7	0.7	0.0	6.2	6.2	0.0					11.0	6.2	0.0													
	MAX	27.8	4.9	2.1	2.8	306.0			10.0	11.3	1.3	1.3	0.0	10.0	10.0	0.0					18.0	6.2	0.0													
TA1-PZ-16-I7	n	3	3		3	3				3	3	3	3	3	3						3	1	1													
	MEAN	25.9			0.5	307.0				11.8	1.6	1.6	0.0	10.2	10.2						14.7	0.0	0.0													
	STD. DEV.	0.6			0.3	14.4				3.3	0.3	0.3	0.0	3.1	3.1																					
	MIN	25.3	5.0		0.3	291.0				8.0	1.4	1.4	0.0	6.6	6.6						13.0	12.0	0.0													
	MAX	26.4	6.2		0.9	319.0				14.0	2.0	2.0	0.0	12.0	12.0						16.0	12.0	0.0													

o:\44237-001\Wpdocs\Report\Draft

Table H.1 (continued)
Statistical Water Quality Summary

Sample ID	Statistical Parameter	Temp (°C)	pH	Total Alkalinity (mg/L)	DO (mg/L)	Specific Conductance (µS)	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							Hydrogen Sulfide (Unionized	Sulfide	TS	Sucralose (ug/L)
																				F^-	Cl^-	NO_3-N^-	NO_2-N^-	PO_4-P^-	SO_4^-	B	Ca	Fe	Mg	Mn	K	Na				
TA1-PZ-16-M9	n	3	3		3	3				3	3	3	3	3	3						3	1	1													
	MEAN	26.1			0.5	295.3				10.7	1.0	1.0	0.0	9.7	9.7						14.3	11.0	0.0													
	STD. DEV.	0.7			0.3	19.1				2.5	0.5	0.5	0.0	2.3	2.3						1.5															
	MIN	25.3	4.9		0.2	275.0				7.9	0.6	0.6	0.0	7.0	7.0						13.0	11.0	0.0													
	MAX	26.5	5.9		0.8	313.0				12.6	1.6	1.6	0.0	11.0	11.0						16.0	11.0	0.0													
TA1-PZ-16-N3	n	3	3		3	3				3	3	3	3	3	3						3	1	1													
	MEAN	26.1			0.4	281.3				9.2	1.4	1.4	0.0	7.8	7.8						14.7	8.1	0.0													
	STD. DEV.	1.1			0.2	5.1				0.7	0.5	0.5	0.0	0.8	0.8						0.6															
	MIN	24.9	5.0		0.2	277.0				8.6	0.8	0.8	0.0	6.9	6.9						14.0	8.1	0.0													
	MAX	27.0	5.7		0.6	287.0				10.0	1.7	1.7	0.0	8.3	8.3						15.0	8.1	0.0													
TA1-PZ-16-O7	n	3	3	2	3	3			2	3	3	3	3	3	3	2					3	1	1													
	MEAN	26.1		5.8	0.2	296.3			21.0	9.2	0.9	0.9	0.0	8.3	8.3	1.0					13.0	9.7	0.0													
	STD. DEV.	0.9		0.8	0.0	26.0			11.3	2.0	0.6	0.6	0.0	2.4	2.4	1.3					1.7															
	MIN	25.0	5.0	5.2	0.2	268.0			13.0	6.9	0.2	0.2	0.0	5.5	5.5	0.1					11.0	9.7	0.0													
	MAX	26.7	5.8	6.3	0.2	319.0			29.0	10.8	1.4	1.4	0.0	9.7	9.7	1.9					14.0	9.7	0.0													
TA1-PZ-16-RS16	n	3	3		3	3				3	3	3	3	3	3						3	1	1													
	MEAN	25.6			0.2	351.0				9.3	2.0	1.9	0.0	7.3	7.3						14.0	7.9	0.0													
	STD. DEV.	0.8			0.2	73.1				1.7	0.4	0.4	0.0	1.5	1.5						1.0															
	MIN	24.8	5.1		0.1	296.0				7.4	1.7	1.7	0.0	5.6	5.6						13.0	7.9	0.0													
	MAX	26.4	6.2		0.4	434.0				10.8	2.4	2.4	0.0	8.4	8.4						15.0	7.9	0.0													
TA1-PZ-16-RS18	n	3	3		3	3				3	3	3	3	3	3						3	1	1													
	MEAN	26.0			1.7	310.0				6.9	1.0	1.0	0.0	5.9	5.9						10.9	7.0	0.0													
	STD. DEV.	0.3			2.5	32.1				0.8	0.6	0.6	0.0	1.2	1.2						1.1															
	MIN	25.8	5.4		0.1	275.0				6.0	0.3	0.3	0.0	4.6	4.6						9.8	7.0	0.0													
	MAX	26.3	6.3		4.6	338.0				7.5	1.4	1.4	0.0	7.0	7.0						12.0	7.0	0.0													
TA2-PZ-09-I7	n	3	3		3	3				3	3	3	3	3	3						2	2	1													
	MEAN	26.7			1.1	297.3				8.8	1.7	1.7	0.0	7.0	7.1						18.0	10.3	0.0													
	STD. DEV.	0.9			1.0	49.3				2.1	0.4	0.4	0.0	1.8	1.8						11.3															
	MIN	26.1	5.2		0.3	264.0				6.9	1.3	1.2	0.0	5.6	5.7						10.0	5.6	0.0													
	MAX	27.7	5.8		2.3	354.0				11.0	2.0	2.0	0.1	9.1	9.1						26.0	15.0	0.0													
TA2-PZ-09-L8	n	3	3		3	3				3	3	3	3	3	3						3	1	1													
	MEAN	27.4			2.4	449.3				8.6	2.9	2.9	0.1	5.6	5.7						18.7	3.7	0.0													
	STD. DEV.	0.4			1.6	28.3				3.2	1.8	1.7	0.1	1.9	1.9						4.5															
	MIN	26.9	5.9		0.6	419.0				4.9	1.2	1.2	0.0	3.7	3.7						14.0	3.7	0.0													
	MAX	27.7	6.6		3.8	475.0				10.5	4.7	4.6	0.1	7.4	7.5						23.0	3.7	0.0													
TA2-PZ-09-M4	n	3	3	1	3	3			1	3	3	3	3	3	3	1		1	1	1	3	1	1	1	1	1	1	1	1	1	1				
	MEAN	26.4		8.4	0.7	434.7			49.0	16.7	3.8	3.8	0.0	12.9	12.9	2.8		3.1	2.5	0.0	20.0	11.0	0.0	0.0	57.0	0.1	30.0	0.0	7.0	0.1	9.1	24.0				
	STD. DEV.	0.7			0.3	68.9				8.9	3.5	3.5	0.0	5.4	5.4						11.4															
	MIN	25.7	5.3	8.4	0.5	373.0			49.0	9.9	1.3	1.3	0.0	8.6	8.6	2.8		3.1	2.5	0.0	6.9	11.0	0.0	0.0	57.0	0.1	30.0	0.0	7.0	0.1	9.1	24.0				
	MAX	27.1	6.0	8.4	1.0	509.0			49.0	26.8	7.8	7.8	0.1	19.0	19.0	2.8		3.1	2.5	0.0	28.0	11.0	0.0	0.0	57.0	0.1	30.0	0.0	7.0	0.1	9.1	24.0				
TA2-PZ-09-N7	n	3	3	1	3	3			1	3	3	3	3	3	3	1					3	1	1													
	MEAN	27.0		9.4	0.4	361.7			15.0	15.6	3.2	3.2	0.0	12.4	12.4	1.0					27.3	13.0	0.0													
	STD. DEV.	0.6			0.1	95.0				7.3	2.8	2.8	0.0	5.0	4.9						10.3															
	MIN	26.6	5.4	9.4	0.3	253.0			15.0	8.9	1.4	1.4	0.0	7.1	7.2	1.0					16.0	13.0	0.0													
	MAX	27.7	6.3	9.4	0.4	429.0			15.0	23.4	6.4	6.4	0.1	17.0	17.0	1.0					36.0	13.0	0.0													
TA2-PZ-09-TU19	n	3	3		3	3				3	3	3	3	3	3						3	1	1													
	MEAN	26.5			0.8	182.3				7.6	1.9	1.9	0.0	5.7	5.7						4.1	6.6	0.0													
	STD. DEV.	0.3			0.6	8.1				1.2	0.5	0.5	0.0	1.0	0.9						0.7															
	MIN	26.3	4.2		0.2	173.0				6.8	1.3	1.3	0.0	4.7	4.8						3.5	6.6	0.0													
	MAX	26.8	4.7		1.2	188.0				8.9	2.3	2.3	0.1	6.6	6.6						4.9	6.6	0.0													

o:\44237-001\Wpdocs\Report\Draft

Table H.1 (continued)
Statistical Water Quality Summary

Sample ID	Statistical Parameter	Temp (°C)	pH	Total Alkalinity (mg/L)	DO (mg/L)	Specific Conductance (µS)	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							Hydrogen Sulfide (Unionized	Sulfide	TS	Sucralose (ug/L)
																				F^-	Cl^-	NO_3-N^-	NO_2-N^-	PO_4-P^-	SO_4^-	B	Ca	Fe	Mg	Mn	K	Na				
TA2-PZ-09-TU21	n	3	3		3	3				3	3	3	3	3	3						3	1	1														
	MEAN	26.4			0.4	169.3				4.9	1.2	1.2	0.0	3.7	3.7						3.6	4.4	0.0														
	STD. DEV.	0.4			0.1	1.2				1.1	0.4	0.4	0.0	1.0	1.0						1.0																
	MIN	26.0	4.4		0.3	168.0				3.8	0.8	0.7	0.0	2.5	2.5						2.7	4.4	0.0														
	MAX	26.8	4.6		0.4	170.0				6.0	1.6	1.6	0.0	4.4	4.4						4.6	4.4	0.0														
TA2-PZ-10-H5	n	3	3	2	3	3			2	3	3	3	3	3	3	2					3	1	1														
	MEAN	26.3		2.0	1.7	342.7			17.0	13.5	1.8	1.8	0.0	11.7	11.7	0.1					22.7	10.0	0.0														
	STD. DEV.	0.9			1.4	55.9			9.9	2.4	0.5	0.5	0.0	2.1	2.1	0.1					9.3																
	MIN	25.5	4.3	2.0	0.4	306.0			10.0	11.9	1.3	1.3	0.0	10.0	10.0	0.0					15.0	10.0	0.0														
	MAX	27.3	4.9	2.0	3.1	407.0			24.0	16.2	2.2	2.2	0.0	14.0	14.0	0.2					33.0	10.0	0.0														
TA2-PZ-10-J5	n	3	3	2	3	3			2	3	3	3	3	3	3	2					3	1	1														
	MEAN	26.8		2.1	2.4	429.7			15.0	18.3	1.6	1.6	0.0	16.7	16.7	0.2					35.0	14.0	0.0														
	STD. DEV.	1.0		0.1	1.7	75.1			2.8	3.6	0.6	0.6	0.0	3.1	3.1	0.2					15.1																
	MIN	25.7	4.3	2.0	0.5	365.0			13.0	15.0	1.0	1.0	0.0	14.0	14.0	0.0					23.0	14.0	0.0														
	MAX	27.7	5.1	2.1	3.7	512.0			17.0	22.1	2.1	2.1	0.0	20.0	20.0	0.3					52.0	14.0	0.0														
TA2-PZ-10-K5	n	3	3	2	3	3			2	3	3	3	3	3	3	2					3	1	1														
	MEAN	27.0		2.0	2.4	459.0			15.5	17.8	1.5	1.5	0.0	16.3	16.3	0.0					35.7	15.0	0.0														
	STD. DEV.	1.2	0.4		1.7	57.4			6.4	2.3	0.1	0.1	0.0	2.3	2.3	0.0					10.8																
	MIN	25.7	4.3	2.0	0.4	412.0			11.0	16.4	1.4	1.4	0.0	15.0	15.0	0.0					28.0	15.0	0.0														
	MAX	27.8	5.0	2.0	3.5	523.0			20.0	20.5	1.5	1.5	0.0	19.0	19.0	0.1					48.0	15.0	0.0														
TA2-PZ-10-L2	n	3	3	2	3	3			2	3	3	3	3	3	3	2					3	1	1														
	MEAN	26.4		2.0	1.3	326.0			12.5	9.9	1.7	1.7	0.0	8.1	8.1	0.2					18.6	6.2	0.0														
	STD. DEV.	0.7			1.1	86.6			3.5	4.7	0.5	0.5	0.0	4.2	4.2	0.1					11.8																
	MIN	25.6	4.2	2.0	0.4	264.0			10.0	6.7	1.4	1.4	0.0	5.2	5.2	0.1					9.8	6.2	0.0														
	MAX	26.9	4.6	2.0	2.6	425.0			15.0	15.3	2.3	2.3	0.0	13.0	13.0	0.3					32.0	6.2	0.0														
TA2-PZ-10-L3	n	3	3	2	3	3			2	3	3	3	3	3	3	1					3	1	1														
	MEAN	26.4		2.0	1.3	333.7			12.5	10.0	1.5	1.5	0.0	8.5	8.5	0.2					20.0	8.8	0.0														
	STD. DEV.	0.8			0.9	73.5			3.5	2.4	0.3	0.3	0.0	2.7	2.7						8.9																
	MIN	25.5	4.2	2.0	0.4	283.0			10.0	7.4	1.1	1.1	0.0	5.7	5.7	0.2					13.0	8.8	0.0														
	MAX	26.9	4.5	2.0	2.2	418.0			15.0	12.1	1.7	1.7	0.0	11.0	11.0	0.2					30.0	8.8	0.0														
TA2-PZ-10-L4	n	3	3	2	3	3			2	3	3	3	3	3	3	2		2	2	2	3	2	1	2	2	2	2	2	2	2	2				
	MEAN	26.7		2.0	1.8	566.0			11.5	26.4	2.1	2.1	0.0	24.3	24.3	0.0		3.4	3.0	0.1	49.0	18.0	0.0	0.0	62.0	0.1	31.0	0.0	8.8	0.0	10.5	35.5				
	STD. DEV.	0.7			1.4	126.0			2.1	13.1	0.4	0.4		12.9	12.9	0.0		0.9	1.0	0.0	17.1	4.2			2.8	0.0	5.7	0.0	1.8	0.0	0.7	0.7				
	MIN	25.9	4.3	2.0	0.2	450.0			10.0	16.6	1.6	1.6	0.0	15.0	15.0	0.0		2.7	2.3	0.1	33.0	15.0	0.0	0.0	60.0	0.1	27.0	0.0	7.5	0.0	10.0	35.0				
	MAX	27.2	4.6	2.0	2.7	700.0			13.0	41.3	2.4	2.4	0.0	39.0	39.0	0.0		4.0	3.7	0.1	67.0	21.0	0.0	0.0	64.0	0.1	35.0	0.0	10.0	0.0	11.0	36.0				
TA2-PZ-10-L5	n	3	3	2	3	3			2	3	3	3	3	3	3	2					3	1	1														
	MEAN	26.8		2.0	1.7	470.0			12.5	15.3	1.5	1.5	0.0	13.9	13.9	0.1					38.0	12.0	0.0														
	STD. DEV.	0.9			1.0	52.1			3.5	5.4	0.3	0.3	0.0	5.4	5.5	0.0					8.0																
	MIN	25.8	4.2	2.0	0.8	410.0			10.0	10.9	1.3	1.3	0.0	9.6	9.6	0.1					30.0	12.0	0.0														
	MAX	27.4	4.8	2.0	2.7	504.0			15.0	21.3	1.8	1.8	0.0	20.0	20.0	0.1					46.0	12.0	0.0														
TA2-PZ-10-L6	n	3	3	2	3	3			2	3	3	3	3	3	3	2					3	1	1														
	MEAN	26.8		2.0	1.8	424.3			26.0	17.7	1.7	1.6	0.0	16.0	16.0	0.4					33.3	12.0	0.0														
	STD. DEV.	0.8			1.4	44.4			22.6	2.6	1.0	1.0	0.0	3.6	3.6	0.4					8.0																
	MIN	25.9	4.3	2.0	0.7	375.0			10.0	14.8	1.0	1.0	0.0	12.0	12.0	0.1					25.0	12.0	0.0														
	MAX	27.5	4.6	2.0	3.4	461.0			42.0	20.0	2.8	2.8	0.0	19.0	19.0	0.7					41.0	12.0	0.0														
TA2-PZ-16-I7	n	3	3		3	3				3	3	3	3	3	3						3	1	1														
	MEAN	26.0			0.2	209.7				2.9	0.6	0.6	0.0	2.3	2.3						6.9	1.9	0.0														
	STD. DEV.	1.2			0.1	4.5				1.4	0.4	0.4	0.0	1.1	1.1						0.7																
	MIN	24.6	5.2		0.2	205.0				2.0	0.3	0.2	0.0	1.4	1.4						6.1	1.9	0.0														
	MAX	26.9	5.7		0.3	214.0				4.5	1.0	1.0	0.0	3.5	3.5						7.3	1.9	0.0														

o:\44237-001\Wpdocs\Report\Draft

Table H.1 (continued)
Statistical Water Quality Summary

Sample ID	Statistical Parameter	Temp (°C)	pH	Total Alkalinity (mg/L)	DO (mg/L)	Specific Conductance (µS)	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							Hydrogen Sulfide (Unionized	Sulfide	TS	Sucralose (ug/L)
																				F^-	Cl^-	NO_3-N^-	NO_2-N^-	PO_4-P^-	SO_4^-	B	Ca	Fe	Mg	Mn	K	Na				
TA2-PZ-16-L8	n	3	3		3	3				3	3	3	3	3	3						3	1	1													
	MEAN	26.3			0.2	219.0				2.9	0.7	0.7	0.0	2.2	2.2						6.6	1.8	0.0													
	STD. DEV.	1.2			0.1	9.6				1.6	0.3	0.3	0.0	1.3	1.3						0.6															
	MIN	24.9	5.6		0.1	208.0				1.7	0.5	0.5	0.0	1.1	1.1						6.0	1.8	0.0													
	MAX	27.3	5.8		0.2	226.0				4.7	1.1	1.1	0.0	3.6	3.6						7.1	1.8	0.0													
TA2-PZ-16-M4	n	3	3		3	3				3	3	3	3	3	3						3	1	1													
	MEAN	25.8			0.3	227.0				2.1	0.5	0.5	0.0	1.6	1.6						6.4	1.9	0.0													
	STD. DEV.	1.0			0.2	14.5				0.4	0.1	0.1	0.0	0.4	0.4						0.7															
	MIN	24.7	5.3		0.1	212.0				1.6	0.4	0.4	0.0	1.2	1.2						5.9	1.9	0.0													
	MAX	26.5	5.7		0.4	241.0				2.5	0.6	0.6	0.0	1.9	1.9						7.2	1.9	0.0													
TA2-PZ-16-N7	n	3	3		3	3				3	3	3	3	3	3						3	1	1													
	MEAN	26.0			0.3	214.0				2.4	0.5	0.5	0.0	1.9	1.9						6.1	1.4	0.0													
	STD. DEV.	0.8			0.3	4.4				1.2	0.3	0.3	0.0	1.0	1.0						0.6															
	MIN	25.1	5.3		0.1	211.0				1.6	0.2	0.2	0.0	1.2	1.2						5.6	1.4	0.0													
	MAX	26.7	6.1		0.6	219.0				3.8	0.8	0.7	0.1	3.0	3.1						6.8	1.4	0.0													
TA2-PZ-16-TU19	n	2	3		3	3				3	3	3	3	3	3						3	1	1													
	MEAN	25.8			0.3	196.7				3.5	0.6	0.6	0.0	2.9	2.9						6.1	2.0	0.0													
	STD. DEV.	0.1			0.2	8.6				2.1	0.1	0.1	0.0	2.0	2.1						0.4															
	MIN	25.7	5.2		0.2	189.0				2.0	0.6	0.5	0.0	1.4	1.4						5.8	2.0	0.0													
	MAX	25.9	5.3		0.5	206.0				5.9	0.7	0.7	0.1	5.2	5.3						6.5	2.0	0.0													
TA2-PZ-16-TU21	n	3	3		3	3				3	3	3	3	3	3						3	1	1													
	MEAN	25.7			0.3	187.7				2.6	0.7	0.7	0.0	1.9	1.9						5.3	1.3	0.0													
	STD. DEV.	0.4			0.2	3.8				1.5	0.4	0.4	0.0	1.3	1.3						0.3															
	MIN	25.2	5.0		0.2	185.0				1.6	0.3	0.3	0.0	1.0	1.0						5.0	1.3	0.0													
	MAX	25.9	5.2		0.6	192.0				4.3	1.0	0.9	0.0	3.3	3.3						5.6	1.3	0.0													
TA3-PZ-09-I7	n	3	3		3	3				3	3	3	3	3	3						3	1	1													
	MEAN	27.2			3.5	1134.3				8.2	2.2	2.1	0.0	6.1	6.1						18.3	6.5	0.1													
	STD. DEV.	0.7			0.3	611.9				2.3	0.2	0.2	0.0	2.2	2.1						10.2															
	MIN	26.6	7.0		3.3	689.0				5.7	2.0	1.9	0.0	3.7	3.8						11.0	6.5	0.1													
	MAX	27.9	7.1		3.8	1832.0				10.0	2.4	2.4	0.1	7.9	7.9						30.0	6.5	0.1													
TA3-PZ-09-M9	n	3	3		3	3				3	3	3	3	3	3						3	1	1													
	MEAN	26.4			1.0	619.3				9.0	2.6	2.6	0.0	6.4	6.4						16.7	5.6	0.1													
	STD. DEV.	0.9			0.8	362.7				1.7	0.7	0.7	0.0	1.6	1.5						5.7															
	MIN	25.8	6.4		0.3	367.0				7.5	1.9	1.9	0.0	5.4	5.5						12.0	5.6	0.1													
	MAX	27.4	6.5		1.8	1035.0				10.9	3.3	3.2	0.1	8.2	8.2						23.0	5.6	0.1													
TA3-PZ-09-N3	n	3	3	1	3	3			1	3	3	3	3	3	3	1					3	1	1													
	MEAN	26.7		65.0	0.5	682.0			58.0	10.1	2.9	2.8	0.1	7.2	7.3	1.9					21.3	11.0	0.0													
	STD. DEV.	0.8			0.2	224.2				3.1	1.2	1.2	0.1	4.0	4.0						3.1															
	MIN	25.9	6.4	65.0	0.4	535.0			58.0	7.3	2.0	1.9	0.1	3.1	3.2	1.9					18.0	11.0	0.0													
	MAX	27.5	6.7	65.0	0.7	940.0			58.0	13.4	4.2	4.1	0.2	11.0	11.2	1.9					24.0	11.0	0.0													
TA3-PZ-09-O7	n	3	3		3	3				3	3	3	3	3	3					1	3	1														
	MEAN	26.2			0.6	593.3				8.8	2.3	2.2	0.1	6.4	6.5					18.0	15.1	0.1														
	STD. DEV.	0.4	0.3		0.3	264.2				2.4	0.2	0.1	0.0	2.3	2.3						7.4															
	MIN	25.9	6.1		0.3	398.0				6.0	2.2	2.1	0.1	3.8	3.9					18.0	7.2	0.1														
	MAX	26.7	6.6		0.9	894.0				10.5	2.5	2.3	0.2	8.2	8.3					18.0	22.0	0.1														
TA3-PZ-09-ST14	n	3	3		3	3				3	3	3	3	3	3						3	1	1													
	MEAN	26.4			0.5	220.3				6.3	1.2	1.2	0.0	5.1	5.1						6.0	3.5	0.0													
	STD. DEV.	0.5			0.2	37.6				1.9	0.3	0.3	0.0	1.7	1.6						1.7															
	MIN	25.9	4.6		0.4	184.0				4.3	0.8	0.8	0.0	3.5	3.5						4.9	3.5	0.0													
	MAX	26.9	4.6		0.7	259.0				8.1	1.4	1.4	0.0	6.8	6.8						8.0	3.5	0.0													

o:\44237-001\Wpdocs\Report\Draft

Table H.1 (continued)
Statistical Water Quality Summary

Sample ID	Statistical Parameter	Temp (°C)	pH	Total Alkalinity (mg/L)	DO (mg/L)	Specific Conductance (µS)	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							Hydrogen Sulfide (Unionized	Sulfide	TS	Sucralose (ug/L)
																				F^-	Cl^-	NO_3-N^-	NO_2-N^-	PO_4-P^-	SO_4^-	B	Ca	Fe	Mg	Mn	K	Na				
TA3-PZ-09-ST16	n	3	3		3	3				3	3	3	3	3	3						3	1	1													
	MEAN	26.8			1.1	320.0				6.4	1.9	1.9	0.0	4.5	4.5						7.0	4.4	0.0													
	STD. DEV.	0.5			0.5	80.7				0.7	0.7	0.6	0.0	1.2	1.1						2.3															
	MIN	26.2	5.5		0.5	243.0				6.0	1.5	1.5	0.0	3.4	3.5						5.6	4.4	0.0													
	MAX	27.1	5.7		1.5	404.0				7.2	2.7	2.6	0.1	5.7	5.7						9.6	4.4	0.0													
TA3-PZ-10-J5	n	3	3	1	3	3			1	3	3	3	3	3	3	1					3	1	1													
	MEAN	26.6		2.0	1.8	325.0			10.0	10.0	1.1	1.0	0.1	8.8	8.9	0.0					16.7	10.0														
	STD. DEV.	0.5			0.7	14.9				1.6	0.1	0.1	0.2	1.6	1.7						1.5															
	MIN	26.0	4.3	2.0	1.0	308.0			10.0	8.2	1.0	0.9	0.0	7.0	7.0	0.0					15.0	10.0	0.0													
	MAX	26.9	5.1	2.0	2.3	336.0			10.0	11.2	1.2	1.2	0.3	10.0	10.3	0.0					18.0	10.0	0.0													
TA3-PZ-10-K5	n	3	3	2	3	3			2	3	3	3	3	3	3	2					3	1	1													
	MEAN	26.4		2.0	1.4	341.3			12.0	11.1	1.5	1.4	0.1	9.6	9.7	0.0					12.0	12.0	0.0													
	STD. DEV.	0.9			0.8	25.0			1.4	2.3	0.3	0.1	0.2	2.1	2.3	0.0					10.6															
	MIN	25.4	4.4	2.0	0.5	324.0			11.0	9.6	1.3	1.3	0.0	8.3	8.3	0.0					0.1	12.0	0.0													
	MAX	27.0	5.0	2.0	1.9	370.0			13.0	13.8	1.8	1.5	0.3	12.0	12.3	0.0					20.0	12.0	0.0													
TA3-PZ-10-L5	n	3	3	2	3	3			2	3	3	3	3	3	3	1					3	1	1													
	MEAN	26.6		2.0	1.2	364.7			18.5	12.7	1.6	1.5	0.1	11.1	11.2	0.3					23.0	15.0	0.0													
	STD. DEV.	0.9			0.7	52.5			2.1	4.1	0.3	0.2	0.1	3.8	3.9						4.6															
	MIN	25.6	4.4	2.0	0.3	324.0			17.0	8.7	1.3	1.3	0.0	7.4	7.4	0.3					19.0	15.0	0.0													
	MAX	27.1	5.0	2.0	1.7	424.0			20.0	16.8	1.8	1.6	0.2	15.0	15.2	0.3					28.0	15.0	0.0													
TA3-PZ-11-EF2	n	3	3	2	3	3			2	3	3	3	3	3	3	2		1	1	1	3	2	2	1	1	1	1	1	1	1	1	1				
	MEAN	26.6		2.1	2.6	301.7			12.5	13.7	1.4	1.2	0.2	12.3	12.5	0.0		0.8	0.6	0.0	15.0	13.2	5.0	0.0	48.0	0.1	24.0	0.0	6.5	0.1	9.5	8.7				
	STD. DEV.	0.9		0.1	2.3	31.1			3.5	4.2	0.2	0.2	0.3	4.1	4.4	0.0					6.1	5.4	7.0													
	MIN	25.7	4.8	2.0	0.4	269.0			10.0	11.1	1.2	0.9	0.0	9.9	9.9	0.0		0.8	0.6	0.0	11.0	9.3	0.0	0.0	48.0	0.1	24.0	0.0	6.5	0.1	9.5	8.7				
	MAX	27.4	5.3	2.1	5.0	331.0			15.0	18.5	1.5	1.4	0.6	17.0	17.6	0.0		0.8	0.6	0.0	22.0	17.0	9.9	0.0	48.0	0.1	24.0	0.0	6.5	0.1	9.5	8.7				
TA3-PZ-11-I2	n	3	3	2	3	3			2	3	3	3	3	3	3	2		2	2	2	3	2	1	2	2	2	2	2	2	2	2	2				1
	MEAN	26.5		2.0	2.3	377.3			13.5	16.8	1.1	1.1	0.0	15.7	15.7	0.1		1.8	1.2	0.1	26.7	16.0	0.0	0.0	46.5	0.1	25.5	0.0	9.4	0.1	7.8	17.5				4.3
	STD. DEV.	1.0			1.3	4.5			4.9	2.1	0.1	0.1	0.0	2.1	2.1	0.0		0.9	0.5	0.0	6.7	2.8			12.0		0.7			0.0	0.4	2.1				
	MIN	25.5	4.3	2.0	0.8	373.0			10.0	15.1	1.1	1.0	0.0	14.0	14.0	0.0		1.1	0.9	0.1	19.0	14.0	0.0	0.0	38.0	0.1	25.0	0.0	9.4	0.1	7.5	16.0				4.3
	MAX	27.4	5.0	2.0	3.1	382.0			17.0	19.1	1.2	1.2	0.1	18.0	18.1	0.1		2.4	1.6	0.1	31.0	18.0	0.0	0.0	55.0	0.1	26.0	0.0	9.4	0.1	8.1	19.0				4.3
TA3-PZ-11-L2	n	3	3	2	3	3			2	3	3	3	3	3	3	2		2	2	2	3	2	1	1	2	2	2	2	2	2	2	2				
	MEAN	26.6		2.1	2.1	439.0			12.5	19.8	2.2	2.1	0.0	17.6	17.7	0.1		2.6	2.4	0.1	33.7	21.0	0.0	0.0	53.0	0.1	31.5	0.0	12.3	0.1	8.8	28.5				
	STD. DEV.	1.0		0.1	1.0	154.5			3.5	10.9	0.9	0.9	0.1	10.1	10.0	0.0		1.6	1.3	0.1	6.4	11.3			4.2	0.0	7.8	0.0	5.2	0.0	0.6	7.8				
	MIN	26.0	4.4	2.0	1.1	340.0			10.0	11.8	1.4	1.4	0.0	9.9	10.0	0.1		1.5	1.4	0.0	30.0	13.0	0.0	0.0	50.0	0.1	26.0	0.0	8.6	0.1	8.4	23.0				
	MAX	27.7	5.4	2.1	3.1	617.0			15.0	32.2	3.2	3.2	0.1	29.0	29.0	0.1		3.7	3.3	0.1	41.0	29.0	0.0	0.0	56.0	0.1	37.0	0.0	16.0	0.1	9.2	34.0				
TA3-PZ-11-L3	n	3	3	2	3	3			2	3	3	3	3	3	3	2		1	1	1	3	1	1	1	1	1	1	1	1	1	1	1				
	MEAN	26.3		2.1	1.7	384.7			10.0	14.4	1.8	1.8	0.0	12.6	12.6	0.1		2.0	1.7	0.1	25.7	21.0	0.0	0.0	51.0	0.1	33.0	0.0	12.0	0.0	8.9	28.0				
	STD. DEV.	1.1	0.5	0.1	0.8	124.6				9.1	1.0	1.0		8.1	8.1	0.1					7.6															
	MIN	25.3	4.3	2.0	1.3	279.0			10.0	6.0	1.1	1.1	0.0	4.9	4.9	0.1		2.0	1.7	0.1	19.0	21.0	0.0	0.0	51.0	0.1	33.0	0.0	12.0	0.0	8.9	28.0				
	MAX	27.4	5.1	2.1	2.6	522.0			10.0	24.0	3.0	3.0	0.0	21.0	21.0	0.2		2.0	1.7	0.1	34.0	21.0	0.0	0.0	51.0	0.1	33.0	0.0	12.0	0.0	8.9	28.0				
TA3-PZ-11-L4	n	3	3	2	3	3			2	3	3	3	3	3	3	2					3	1	1													
	MEAN	26.7		2.0	1.8	377.7			15.0	13.1	1.3	1.2	0.1	11.8	11.8	0.0					24.3	18.0	0.0													
	STD. DEV.	0.7			0.9	107.2			2.8	5.9	0.2	0.2	0.1	5.9	6.0	0.0					6.1															
	MIN	25.9	4.4	2.0	0.7	283.0			13.0	7.7	1.1	1.1	0.0	6.3	6.3	0.0					19.0	18.0	0.0													
	MAX	27.2	5.1	2.0	2.3	494.0			17.0	19.4	1.4	1.4	0.2	18.0	18.2	0.1					31.0	18.0	0.0													
TA3-PZ-16-I7	n	3	3		3	3				3	3	3	3	3	3						3	1	1													
	MEAN	25.9			0.3	288.7				5.9	1.5	1.5	0.0	4.4	4.4						8.4	4.0	0.0													
	STD. DEV.	0.9			0.2	6.8				1.0	0.4	0.4	0.0	0.7	0.7						0.5															
	MIN	25.1	5.7		0.1	281.0				5.2	1.2	1.2	0.0	4.0	4.0						8.0	4.0	0.0													
	MAX	26.9	6.1		0.4	294.0				7.1	1.9	1.9	0.1	5.2	5.2						8.9	4.0	0.0													

o:\44237-001\Wpdocs\Report\Draft

Table H.1 (continued)
Statistical Water Quality Summary

Sample ID	Statistical Parameter	Temp (°C)	pH	Total Alkalinity (mg/L)	DO (mg/L)	Specific Conductance (µS)	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							Hydrogen Sulfide (Unionized	Sulfide	TS	Sucralose (ug/L)
																				F^-	Cl^-	NO_3-N^-	NO_2-N^-	PO_4-P^-	SO_4^-	B	Ca	Fe	Mg	Mn	K	Na				
TA3-PZ-16-M9	n	3	3		3	3				3	3	3	3	3	3						3	1	1													
	MEAN	25.8			0.2	286.0				6.5	1.3	1.3	0.0	5.2	5.2						9.4	4.2	0.0													
	STD. DEV.	0.7			0.1	2.0				1.2	0.3	0.4	0.0	0.9	0.9						0.8															
	MIN	25.1	5.4		0.2	284.0				5.2	1.0	0.9	0.0	4.2	4.2						8.5	4.2	0.0													
	MAX	26.4	5.8		0.3	288.0				7.4	1.6	1.6	0.0	6.0	6.0						9.9	4.2	0.0													
TA3-PZ-16-N3	n	3	3		3	3			1	3	3	3	3	3	3	1					3	1	1													
	MEAN	25.7			0.2	315.7			54.0	11.4	1.7	1.7	0.0	9.7	9.8	3.5					16.3	10.0	0.0													
	STD. DEV.	0.7	0.2		0.1	15.1				1.9	0.9	0.9	0.0	1.4	1.4						0.6															
	MIN	24.9	5.5		0.2	305.0			54.0	9.2	1.0	1.0	0.0	8.2	8.2	3.5					16.0	10.0	0.0													
	MAX	26.1	5.8		0.3	333.0			54.0	12.7	2.7	2.7	0.0	11.0	11.0	3.5					17.0	10.0	0.0													
TA3-PZ-16-O7	n	3	3		3	3				3	3	3	3	3	3						3	1	1													
	MEAN	25.6			0.3	302.3				8.6	1.6	1.6	0.0	7.0	7.0						12.0	8.6	0.0													
	STD. DEV.	0.3			0.2	12.1				2.1	0.6	0.5	0.0	2.4	2.3						1.7															
	MIN	25.2	5.3		0.1	291.0				6.3	1.0	1.0	0.0	4.3	4.3						10.0	8.6	0.0													
	MAX	25.8	5.7		0.5	315.0				10.5	2.0	2.0	0.0	8.6	8.6						13.0	8.6	0.0													
TA3-PZ-16-ST14	n	3	3		3	3				3	3	3	3	3	3						3	1	1													
	MEAN	25.6			0.4	276.3				6.3	1.0	1.0	0.0	5.3	5.3						8.6	5.6	0.0													
	STD. DEV.	0.4			0.1	10.4				1.5	0.3	0.3		1.5	1.5						0.5															
	MIN	25.1	5.1		0.3	268.0				4.8	0.7	0.7	0.0	3.6	3.6						8.2	5.6	0.0													
	MAX	25.9	5.3		0.4	288.0				7.8	1.2	1.2	0.0	6.6	6.6						9.2	5.6	0.0													
TA3-PZ-16-ST16	n	3	3		3	3				3	3	3	3	3	3						3	1	1													
	MEAN	25.8			0.3	267.0				6.0	1.2	1.2	0.0	4.8	4.8						8.0	4.3	0.0													
	STD. DEV.	0.6			0.1	5.6				0.5	0.5	0.5	0.0	0.9	0.9						0.7															
	MIN	25.1	5.2		0.2	262.0				5.4	0.7	0.7	0.0	4.3	4.3						7.3	4.3	0.0													
	MAX	26.3	5.4		0.4	273.0				6.5	1.7	1.7	0.0	5.8	5.8						8.6	4.3	0.0													
TA4-PZ-09-I7	n	3	3		3	3				3	3	3	3	3	3						3	1	1											1		
	MEAN	27.1			1.1	296.3				7.3	2.3	2.3	0.1	4.9	5.0						10.9	5.0	0.0											6.8		
	STD. DEV.	1.2			0.1	51.4				3.6	1.5	1.5	0.1	2.2	2.2						2.8															
	MIN	25.8	5.0		1.0	237.0				3.3	0.6	0.6	0.0	2.7	2.7						8.6	5.0	0.0											6.8		
	MAX	27.9	5.9		1.1	326.0				10.4	3.4	3.2	0.2	7.0	7.2						14.0	5.0	0.0											6.8		
TA4-PZ-09-L8	n	3	3		3	3				3	3	3	3	3	3						3	1	1											1		
	MEAN	26.8			1.0	417.7				7.5	2.3	2.2	0.1	5.2	5.3						9.3	4.3	0.1											5.2		
	STD. DEV.	1.0			0.7	158.2				2.5	0.3	0.2	0.0	2.6	2.5						3.1															
	MIN	25.7	6.2		0.4	294.0				5.8	2.1	2.0	0.1	3.2	3.3						5.9	4.3	0.1											5.2		
	MAX	27.6	6.4		1.8	596.0				10.4	2.6	2.5	0.1	8.1	8.2						12.0	4.3	0.1											5.2		
TA4-PZ-09-M4	n	3	3	1	3	3			1	3	3	3	3	3	3	1					3	1	1													
	MEAN	26.5		65.0	0.5	568.7			24.0	11.2	1.7	1.7	0.0	9.5	9.5	0.3					23.3	12.0	0.2													
	STD. DEV.	0.9			0.2	60.7				4.5	0.3	0.3	0.0	4.3	4.3						7.4															
	MIN	25.6	6.3	65.0	0.3	518.0			24.0	6.1	1.5	1.5	0.0	4.5	4.6	0.3					15.0	12.0	0.2													
	MAX	27.3	6.7	65.0	0.6	636.0			24.0	14.1	2.1	2.1	0.1	12.0	12.0	0.3					29.0	12.0	0.2													
TA4-PZ-09-N7	n	3	3	1	3	3			1	3	3	3	3	3	3	1					3	1	1											1		
	MEAN	26.8		10.0	1.4	313.3			83.0	12.7	3.4	3.3	0.1	9.4	9.5	3.9					12.4	15.0	0.0											2.2		
	STD. DEV.	1.0	0.2		0.5	52.6				5.9	1.0	1.0	0.0	5.2	5.2						3.9															
	MIN	25.7	5.2	10.0	1.0	259.0			83.0	7.0	2.2	2.1	0.1	4.8	4.9	3.9					8.3	15.0	0.0											2.2		
	MAX	27.4	5.6	10.0	1.9	364.0			83.0	18.8	4.1	4.0	0.1	15.0	15.1	3.9					16.0	15.0	0.0											2.2		
TA4-PZ-09-TU14	n	3	3		3	3				3	3	3	3	3	3						3	1	1											1		
	MEAN	26.7			0.6	184.3				5.4	0.8	0.8	0.0	4.6	4.6						4.8	6.5	0.0											0.9		
	STD. DEV.	1.1			0.2	22.0				1.1	0.6	0.6	0.0	1.7	1.6						0.6															
	MIN	25.5	4.6		0.4	159.0				4.6	0.1	0.1	0.0	3.4	3.5						4.2	6.5	0.0											0.9		
	MAX	27.6	5.4		0.7	198.0				6.6	1.2	1.1	0.1	6.5	6.5						5.2	6.5	0.0											0.9		

o:\44237-001\Wpdocs\Report\Draft

Table H.1 (continued)
Statistical Water Quality Summary

Sample ID	Statistical Parameter	Temp (°C)	pH	Total Alkalinity (mg/L)	DO (mg/L)	Specific Conductance (µS)	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							Hydrogen Sulfide (Unionized	Sulfide	TS	Sucralose (ug/L)
																				F^-	Cl^-	NO_3-N^-	NO_2-N^-	PO_4-P^-	SO_4^-	B	Ca	Fe	Mg	Mn	K	Na				
TA4-PZ-09-TU16	n	3	3		3	3				3	3	3	3	3	3						3	1	1												1		
	MEAN	26.7			0.7	220.3				9.2	2.7	2.7	0.0	6.5	6.5						4.8	8.8	0.0												0.1		
	STD. DEV.	1.0			0.1	44.2				1.6	1.2	1.2	0.0	2.0	2.0						0.9															
	MIN	25.5	5.0		0.6	190.0				7.7	2.0	2.0	0.0	5.0	5.1						4.0	8.8	0.0												0.1		
	MAX	27.5	5.4		0.8	271.0				10.8	4.1	4.0	0.1	8.8	8.8						5.8	8.8	0.0												0.1		
TA4-PZ-10-H5	n	3	3	2	3	3			2	3	3	3	3	3	3	2					3	1	1												1		
	MEAN	27.0		2.0	1.5	247.0			11.0	9.2	1.7	1.7	0.0	7.5	7.5	0.0					13.1	5.5	0.0												1.7		
	STD. DEV.	0.5			0.3	74.7				2.1	0.7	0.7		1.9	1.9	0.0					10.7															
	MIN	26.5	4.0	2.0	1.2	179.0			11.0	6.8	1.3	1.3	0.0	5.5	5.5	0.0					4.5	5.5	0.0												1.7		
	MAX	27.4	5.5	2.0	1.8	327.0			11.0	10.5	2.5	2.5	0.0	9.2	9.2	0.1					25.0	5.5	0.0												1.7		
TA4-PZ-10-J5	n	3	3	2	3	3			2	3	3	3	3	3	3	2					3	1	1												1		
	MEAN	27.0		2.0	2.2	333.3			10.0	12.3	2.0	1.9	0.0	10.3	10.4	0.0					19.3	8.0	0.0												0.9		
	STD. DEV.	0.7			0.2	49.0				3.0	0.9	0.9	0.0	2.1	2.1	0.0					6.4															
	MIN	26.2	4.0	2.0	2.1	284.0			10.0	9.0	1.0	1.0	0.0	8.0	8.0	0.0					12.0	8.0	0.0												0.9		
	MAX	27.6	5.6	2.0	2.4	382.0			10.0	14.8	2.8	2.7	0.1	12.0	12.1	0.1					23.0	8.0	0.0												0.9		
TA4-PZ-10-K5	n	3	3	2	3	3			2	3	3	3	3	3	3	2		2	2	2	3	2	1	2	2	2	2	2	2	2	2	2			1		
	MEAN	26.9		2.0	1.9	372.3			10.0	16.0	1.3	1.2	0.1	14.7	14.7	0.3		2.1	1.5	0.2	28.7	13.0	0.0	0.0	53.0	0.1	27.0	0.1	6.3	0.0	6.9	19.5			21.0		
	STD. DEV.	0.6			0.8	33.3				3.2	0.3	0.4	0.1	3.2	3.3	0.1		0.4	0.4	0.0	7.0	2.8			4.2	0.0	5.7	0.0	1.8	0.0	2.5	3.5					
	MIN	26.2	4.2	2.0	1.2	334.0			10.0	12.3	1.0	0.9	0.0	11.0	11.0	0.2		1.8	1.2	0.2	22.0	11.0	0.0	0.0	50.0	0.1	23.0	0.0	5.0	0.0	5.1	17.0			21.0		
	MAX	27.4	5.3	2.0	2.7	394.0			10.0	18.0	1.6	1.6	0.1	17.0	17.1	0.3		2.3	1.8	0.2	36.0	15.0	0.0	0.0	56.0	0.1	31.0	0.1	7.5	0.0	8.7	22.0			21.0		
TA4-PZ-11-EF2	n	3	3	2	3	3			2	3	3	3	3	3	3	2					3	1	1												1		
	MEAN	27.0		2.0	1.5	235.7			16.5	9.6	1.6	1.6	0.0	8.0	8.0	0.0					12.6	6.4	0.0												0.1		
	STD. DEV.	0.9	0.2		0.1	83.4			7.8	3.6	0.5	0.5		3.5	3.5	0.0					12.6															
	MIN	26.0	3.9	2.0	1.4	187.0			11.0	6.6	1.1	1.1	0.0	5.5	5.5	0.0					3.9	6.4	0.0												0.1		
	MAX	27.8	4.2	2.0	1.6	332.0			22.0	13.6	2.1	2.1	0.0	12.0	12.0	0.0					27.0	6.4	0.0												0.1		
TA4-PZ-11-L2	n	3	3	2	3	3			2	3	3	3	3	3	3	2		2	2	2	3	2	1	2	2	2	2	2	2	2	2	2				1
	MEAN	27.5		2.1	1.6	321.3			10.0	16.7	1.7	1.7	0.0	15.0	15.0	0.0		2.2	1.6	0.2	18.5	10.7	0.0	0.0	51.5	0.1	27.5	0.0	5.2	0.1	5.9	8.0				0.5
	STD. DEV.	1.5		0.1	0.7	81.5				7.2	0.2	0.2	0.0	7.0	7.0	0.0		0.1	0.2	0.0	11.9	1.8			12.0		2.1		0.6	0.0	0.4	1.8				
	MIN	26.1	4.5	2.0	0.9	267.0			10.0	11.6	1.6	1.6	0.0	10.0	10.0	0.0		2.1	1.4	0.1	9.4	9.4	0.0	0.0	43.0	0.1	26.0	0.0	4.7	0.1	5.6	6.7				0.5
	MAX	29.1	4.8	2.1	2.3	415.0			10.0	24.9	1.9	1.9	0.0	23.0	23.0	0.0		2.2	1.7	0.2	32.0	12.0	0.0	0.0	60.0	0.1	29.0	0.0	5.6	0.1	6.2	9.3				0.5
TA4-PZ-11-L3	n	3	3	2	3	3			2	3	3	3	3	3	3	2					3	1	1													
	MEAN	26.7		2.0	1.1	292.7			17.0	11.7	1.4	1.4	0.0	10.3	10.3	0.1					19.0	9.4	0.0													
	STD. DEV.	0.9			0.3	46.8				3.5	0.2	0.2	0.0	3.3	3.4	0.1					4.6															
	MIN	25.8	4.2	2.0	0.9	249.0			17.0	8.7	1.2	1.2	0.0	7.5	7.5	0.0					15.0	9.4	0.0													
	MAX	27.5	4.4	2.0	1.4	342.0			17.0	15.6	1.6	1.5	0.1	14.0	14.1	0.1					24.0	9.4	0.0													
TA4-PZ-11-L4	n	3	3	2	3	3			2	3	3	3	3	3	3	2		2	2	2	3	2	1	2	2	2	2	2	2	2	2	2				
	MEAN	26.7		2.0	1.7	365.7			12.5	16.2	1.8	1.8	0.0	14.3	14.4	0.0		1.5	1.3	0.1	29.3	11.5	0.0	0.0	52.5	0.1	24.0	0.0	6.1	0.0	5.9	21.0				
	STD. DEV.	0.7			0.2	47.1			3.5	4.5	0.4	0.3	0.0	4.2	4.2	0.0		0.8	0.7	0.0	3.8	0.7			0.7	0.0	4.2	0.0	0.8	0.0	0.8	1.4				
	MIN	26.0	4.2	2.0	1.6	338.0			10.0	12.5	1.5	1.5	0.0	11.0	11.0	0.0		1.0	0.9	0.1	25.0	11.0	0.0	0.0	52.0	0.1	21.0	0.0	5.5	0.0	5.3	20.0				
	MAX	27.4	4.4	2.0	2.0	420.0			15.0	21.2	2.2	2.1	0.1	19.0	19.1	0.0		2.1	1.8	0.2	32.0	12.0	0.0	0.0	53.0	0.1	27.0	0.0	6.6	0.0	6.4	22.0				
TA4-PZ-11-L5	n	3	3	2	3	3			2	3	3	3	3	3	3	2					3	1	1													
	MEAN	26.6		2.0	1.4	383.0			12.0	17.1	2.1	2.1	0.0	15.0	15.0	0.2					29.7	11.0	0.0													
	STD. DEV.	0.6			0.5	39.3			1.4	3.9	0.9	0.9		3.6	3.6	0.1					6.5															
	MIN	25.9	4.2	2.0	0.9	341.0			11.0	12.6	1.6	1.6	0.0	11.0	11.0	0.1					23.0	11.0	0.0													
	MAX	27.1	5.2	2.0	1.9	419.0			13.0	19.6	3.1	3.1	0.0	18.0	18.0	0.2					36.0	11.0	0.0													

o:\44237-001\Wpdocs\Report\Draft

Table H.1 (continued)
Statistical Water Quality Summary

Sample ID	Statistical Parameter	Temp (°C)	pH	Total Alkalinity (mg/L)	DO (mg/L)	Specific Conductance (µS)	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							Hydrogen Sulfide (Unionized	Sulfide	TS	Sucralose (ug/L)
																				F^-	Cl^-	NO_3-N^-	NO_2-N^-	PO_4-P^-	SO_4^-	B	Ca	Fe	Mg	Mn	K	Na				
TA4-PZ-11-L6	n	3	3	2	3	3			2	3	3	3	3	3	3	2					3	1	1													
	MEAN	26.7		2.0	1.4	415.3			19.5	15.0	1.7	1.7	0.0	13.3	13.3	0.1					26.3	11.0	0.0													
	STD. DEV.	0.6			0.6	115.5			13.4	1.7	0.6	0.6		2.1	2.1	0.0					7.8															
	MIN	26.0	4.3	2.0	0.7	331.0			10.0	13.3	1.1	1.1	0.0	11.0	11.0	0.1					20.0	11.0	0.0													
	MAX	27.1	5.2	2.0	1.7	547.0			29.0	16.6	2.3	2.3	0.0	15.0	15.0	0.1					35.0	11.0	0.0													
TA4-PZ-16-I7	n	3	3		3	3				3	3	3	3	3	3						3	1	1													
	MEAN	25.9			0.3	235.3				5.1	0.9	0.9	0.0	4.2	4.2						7.2	1.4	0.0													
	STD. DEV.	0.8			0.2	23.8				2.8	0.1	0.1	0.0	2.7	2.7						1.9															
	MIN	25.0	4.7		0.2	214.0				2.2	0.8	0.8	0.0	1.4	1.4						5.2	1.4	0.0													
	MAX	26.6	5.5		0.6	261.0				7.7	1.0	1.0	0.0	6.7	6.7						8.9	1.4	0.0													
TA4-PZ-16-L8	n	3	3		3	3				3	3	3	3	3	3						3	1	1													
	MEAN	26.0			0.4	239.0				6.3	1.2	1.2	0.0	5.1	5.1						7.8	2.2	0.0													
	STD. DEV.	0.8			0.3	22.1				2.9	0.4	0.4	0.0	2.7	2.7						1.6															
	MIN	25.1	5.1		0.2	222.0				3.1	0.9	0.8	0.0	2.2	2.2						6.0	2.2	0.0													
	MAX	26.6	5.5		0.7	264.0				8.7	1.7	1.6	0.1	7.6	7.6						9.1	2.2	0.0													
TA4-PZ-16-M4	n	3	3		3	3				3	3	3	3	3	3						3	1	1													
	MEAN	25.8			0.2	227.7				7.7	2.1	2.1	0.0	5.5	5.5						8.5	3.6	0.0													
	STD. DEV.	1.0	0.1		0.1	3.8				1.2	0.6	0.6		1.7	1.7						1.3															
	MIN	24.8	5.2		0.1	225.0				6.3	1.6	1.6	0.0	3.6	3.6						7.4	3.6	0.0													
	MAX	26.7	5.3		0.3	232.0				8.6	2.7	2.7	0.0	6.5	6.5						9.9	3.6	0.0													
TA4-PZ-16-N7	n	3	3		3	3				3	3	3	3	3	3						3	1	1													
	MEAN	26.0			0.2	236.7				7.8	1.2	1.2	0.0	6.6	6.6						9.5	2.8	0.0													
	STD. DEV.	0.8	0.1		0.2	15.5				2.8	0.5	0.5	0.0	3.3	3.3						2.5															
	MIN	25.1	5.1		0.1	221.0				4.5	0.7	0.7	0.0	2.8	2.8						7.1	2.8	0.0													
	MAX	26.7	5.2		0.4	252.0				9.6	1.7	1.7	0.0	8.5	8.5						12.0	2.8	0.0													
TA4-PZ-16-TU14	n	3	3		3	3				3	3	3	3	3	3						3	1	1													
	MEAN	26.0			0.2	249.7				2.6	0.8	0.8	0.0	1.8	1.8						5.0	0.8	0.0													
	STD. DEV.	1.0			0.1	41.0				1.3	0.2	0.2	0.0	1.2	1.2						1.1															
	MIN	24.9	5.1		0.1	226.0				1.5	0.6	0.6	0.0	0.8	0.8						4.1	0.8	0.0													
	MAX	26.6	6.0		0.3	297.0				4.0	0.9	0.9	0.0	3.1	3.1						6.2	0.8	0.0													
TA4-PZ-16-TU16	n	3	3		3	3				3	3	3	3	3	3						3	1	1													
	MEAN	25.8			0.2	245.3				3.6	0.9	0.8	0.0	2.7	2.7						5.2	1.5	0.0													
	STD. DEV.	1.0			0.1	10.4				1.6	0.3	0.3	0.0	1.4	1.4						0.5															
	MIN	24.6	5.1		0.2	237.0				2.2	0.7	0.6	0.0	1.5	1.5						4.8	1.5	0.0													
	MAX	26.4	5.3		0.3	257.0				5.4	1.2	1.2	0.0	4.2	4.2						5.7	1.5	0.0													
PZ01-BKG-09	n	3	3		3	3				3	3	3	3	3	3						3	1	1													
	MEAN	28.8			2.8	70.7				0.3	0.3	0.3	0.0	0.0	0.0						5.0	0.0	0.0													
	STD. DEV.	0.3			1.8	35.0				0.2	0.2	0.2		0.0	0.0						0.7															
	MIN	28.5	4.3		0.8	48.0				0.1	0.1	0.1	0.0	0.0	0.0						4.4	0.0	0.0													
	MAX	29.1	4.9		4.3	111.0				0.4	0.4	0.4	0.0	0.0	0.0						5.7	0.0	0.0													
PZ04-BKG-09	n	3	3		3	3				3	3	3	3	3	3						3	1	1													
	MEAN	26.8			3.8	124.0				7.4	1.7	1.7	0.0	5.6	5.6						2.7	1.0	0.0													
	STD. DEV.	0.7	0.2		1.1	37.3				5.1	0.7	0.7	0.0	4.5	4.5						3.0															
	MIN	26.2	5.1		2.6	100.0				2.4	1.3	1.3	0.0	1.0	1.0							1.0	0.0													
	MAX	27.6	5.5		4.5	167.0				12.5	2.5	2.5	0.0	10.0	10.0						6.0	1.0	0.0													
PZ05-BKG-09	n	1.00	1.00		1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00						1.00	1.00	1.00													
	MEAN	25.90	5.30		0.20	66.00				1.84	1.20	1.19	0.01	0.64	0.65						3.10	0.64	0.01													
	STD. DEV.																																				
	MIN	25.90	5.30		0.20	66.00				1.84	1.20	1.19	0.01	0.64	0.65						3.10	0.64	0.01													
	MAX	25.90	5.30		0.20	66.00				1.84	1.20	1.19	0.01	0.64	0.65						3.10	0.64	0.01													
PZ24-BKG-26	n	3	3	2	3	3			2	3	3	3	3	3	3	2					3	1	1													
	MEAN	25.5		4.7	1.6	287.7			10.0	12.7	1.6	1.6	0.0	11.1	11.1	0.4					16.7	9.3	0.0													
	STD. DEV.	0.3	0.1	0.7	1.0	5.7				2.1	0.6	0.6	0.0	1.6	1.6	0.4					0.6															
	MIN	25.3	5.0	4.2	0.5	283.0			10.0	10.3	1.0	1.0	0.0	9.3	9.3	0.1					16.0	9.3	0.0													
	MAX	25.8	5.1	5.2	2.4	294.0			10.0	14.0	2.0	2.0	0.0	12.0	12.0	0.7					17.0	9.3	0.0													

o:\44237-001\Wpdocs\Report\Draft

Table H.1 (continued)
Statistical Water Quality Summary

Sample ID	Statistical Parameter	Temp (°C)	pH	Total Alkalinity (mg/L)	DO (mg/L)	Specific Conductance (µS)	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							Hydrogen Sulfide (Unionized	Sulfide	TS	Sucralose (ug/L)
																				F^-	Cl^-	NO_3-N^-	NO_2-N^-	PO_4-P^-	SO_4^-	B	Ca	Fe	Mg	Mn	K	Na				
PZ29-BKG09	n	3	3	3	3	3			2	3	3	3	3	3	3	2					3	1	1													1
	MEAN	27.7		2.8	1.5	213.0			10.0	5.6	1.5	1.4	0.0	4.2	4.2	0.1					6.8	4.7	0.0													0.0
	STD. DEV.	1.8		0.6	0.3	1.7				0.9	0.5	0.5		0.6	0.6	0.0					0.8															
	MIN	26.5	4.9	2.1	1.1	211.0			10.0	4.6	1.0	1.0	0.0	3.6	3.6	0.1					6.4	4.7	0.0													0.0
	MAX	29.8	5.5	3.2	1.7	214.0			10.0	6.2	1.9	1.9	0.0	4.7	4.7	0.1					7.7	4.7	0.0													0.0
PZ30-BKG-16	n	3	3	3	3	3			2	3	3	3	3	3	3	2					3	1	1													1
	MEAN	26.6		12.6	1.4	308.3			12.5	12.3	1.1	1.1	0.0	11.2	11.2	0.1					16.0	9.5	0.0													0.0
	STD. DEV.	0.2		8.2	1.0	22.2			3.5	1.2	0.3	0.3	0.0	1.4	1.4	0.0					1.0															
	MIN	26.3	5.3	7.4	0.4	288.0			10.0	10.9	0.9	0.8	0.0	9.5	9.5	0.0					15.0	9.5	0.0													0.0
	MAX	26.7	5.6	22.0	2.4	332.0			15.0	13.0	1.4	1.4	0.0	12.0	12.0	0.1					17.0	9.5	0.0													0.0
PZ31-BKG-26	n	3	3	3	3	3			2	3	3	3	3	3	3	2					3	1	1													1
	MEAN	26.5		4.5	2.0	320.7			10.0	14.7	1.3	1.2	0.1	13.3	13.5	0.1					19.0	13.0	0.0													0.0
	STD. DEV.	0.2		0.6	1.4	4.5				0.6	0.1	0.1	0.1	0.6	0.5	0.0																				
	MIN	26.3	5.0	4.2	1.2	316.0			10.0	14.2	1.2	1.1	0.0	13.0	13.1	0.1					19.0	13.0	0.0													0.0
	MAX	26.7	5.1	5.2	3.7	325.0			10.0	15.4	1.4	1.4	0.2	14.0	14.0	0.1					19.0	13.0	0.0													0.0
PZ32-BKG09	n	3	3	3	3	3			2	3	3	3	3	3	3	2					3	1	1													1
	MEAN	28.5		2.0	3.4	197.7			10.5	5.3	1.2	1.2	0.0	4.1	4.1	0.0					5.5	3.8	0.0													0.0
	STD. DEV.	0.8	0.1		1.4	45.4			0.7	1.4	0.2	0.2	0.0	1.2	1.2	0.0					1.5															
	MIN	27.6	4.4	2.0	2.2	163.0			10.0	4.2	1.1	1.1	0.0	3.1	3.1	0.0					4.0	3.8	0.0													0.0
	MAX	29.2	4.5	2.0	4.9	249.0			11.0	6.9	1.4	1.4	0.0	5.5	5.5	0.0					6.9	3.8	0.0													0.0
PZ33-BKG-16	n	3	3	3	3	3			2	3	3	3	3	3	3	2					3	1	1													1
	MEAN	27.2		4.5	1.0	296.0			10.0	14.7	1.7	1.6	0.1	13.0	13.1	0.0					15.0	17.0	0.0													0.0
	STD. DEV.	0.2		0.6	0.6	39.9				4.2	0.7	0.7	0.0	3.5	3.5	0.0					1.0															
	MIN	27.0	4.9	4.2	0.4	270.0			10.0	12.1	1.1	1.0	0.0	11.0	11.0	0.0					14.0	17.0	0.0													0.0
	MAX	27.4	5.2	5.2	1.5	342.0			10.0	19.5	2.5	2.4	0.1	17.0	17.1	0.0					16.0	17.0	0.0													0.0
PZ34-BKG-26	n	3	3	3	3	3			2	3	3	3	3	3	3	2					3	1	1													1
	MEAN	26.6		11.2	1.9	321.7			10.0	9.1	2.3	2.2	0.1	6.8	6.9	0.5					21.3	5.1	0.0													0.0
	STD. DEV.	0.2		6.1	0.8	8.1				0.8	1.2	1.3	0.1	1.8	1.8	0.2					1.2															
	MIN	26.4	5.2	6.3	1.2	316.0			10.0	8.4	1.4	1.2	0.1	5.1	5.2	0.4					20.0	5.1	0.0													0.0
	MAX	26.8	5.9	18.0	2.8	331.0			10.0	10.0	3.7	3.6	0.2	8.6	8.8	0.7					22.0	5.1	0.0													0.0
PZ35-BKG09	n	3	3	3	3	3				3	3	3	3	3	3						3	1	1													
	MEAN	26.6		120.0	1.1	633.3				6.1	1.9	1.8	0.0	4.2	4.2						12.1	3.0	0.1													
	STD. DEV.	0.4		10.0	0.7	204.0				1.2	0.3	0.3	0.0	1.3	1.3						4.3															
	MIN	26.1	6.0	110.0	0.3	473.0				5.3	1.6	1.6	0.0	3.1	3.1						9.2	3.0	0.1													
	MAX	26.9	6.6	130.0	1.6	863.0				7.4	2.2	2.2	0.0	5.6	5.6						17.0	3.0	0.1													
PZ36-BKG-16	n	3	3	3	3	3				3	3	3	3	3	3						3	1	1													
	MEAN	25.9		7.1	0.3	275.3				10.4	1.6	1.5	0.0	8.9	8.9						10.3	14.0	0.0													
	STD. DEV.	0.2		5.2	0.1	39.6				5.1	0.7	0.7	0.0	4.6	4.6						4.1															
	MIN	25.7	5.1	3.2	0.2	251.0				6.8	0.9	0.9	0.0	5.3	5.3						7.8	14.0	0.0													
	MAX	26.1	5.4	13.0	0.4	321.0				16.3	2.3	2.3	0.1	14.0	14.0						15.0	14.0	0.0													
PZ37-BKG-26	n	2	3	3	3	3			2	3	3	3	3	3	3	2					3	1	1													
	MEAN	25.4		4.9	0.7	322.0			10.5	15.6	1.6	1.6	0.0	14.0	14.0	1.1					17.7	14.0	0.0													
	STD. DEV.			1.2	0.9	17.3			0.7	1.3	0.7	0.7	0.0	1.0	1.0	0.9					2.1															
	MIN	25.4	5.0	4.2	0.1	302.0			10.0	14.1	1.1	1.1	0.0	13.0	13.0	0.5					16.0	14.0	0.0													
	MAX	25.4	5.2	6.3	1.7	333.0			11.0	16.4	2.4	2.4	0.0	15.0	15.0	1.7					20.0	14.0	0.0													
PZ38-BKG09	n	3	3	3	3	3				3	3	3	3	3	3						3	1	1													
	MEAN	25.9		39.3	0.3	331.3				1.4	0.6	0.6	0.0	0.8	0.8						7.6	0.6	0.0													
	STD. DEV.	0.7		30.9	0.1	192.7				0.2	0.3	0.3	0.0	0.2	0.2						2.1															
	MIN	25.2	5.9	21.0	0.2	196.0				1.2	0.4	0.4	0.0	0.6	0.6						6.2	0.6	0.0													
	MAX	26.6	6.2	75.0	0.4	552.0				1.6	1.0	1.0	0.0	1.0	1.0						10.0	0.6	0.0													

o:\44237-001\Wpdocs\Report\Draft

Table H.1 (continued)
Statistical Water Quality Summary

Sample ID	Statistical Parameter	Temp (°C)	pH	Total Alkalinity (mg/L)	DO (mg/L)	Specific Conductance (µS)	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							Hydrogen Sulfide (Unionized	Sulfide	TS	Sucralose (ug/L)
																				F^-	Cl^-	NO_3-N^-	NO_2-N^-	PO_4-P^-	SO_4^-	B	Ca	Fe	Mg	Mn	K	Na				
PZ39-BKG-16	n	3	3	3	3	3				3	3	3	3	3	3						3	1	1													
	MEAN	25.4		39.3	0.3	267.7				4.1	1.3	1.3	0.0	2.8	2.8						6.4	2.0	0.0													
	STD. DEV.	0.7		12.7	0.1	62.9				0.4	0.3	0.3	0.0	0.7	0.7						0.6															
	MIN	24.6	5.8	32.0	0.2	226.0				3.7	1.1	1.1	0.0	2.0	2.0						5.8	2.0	0.0													
	MAX	25.9	6.2	54.0	0.4	340.0				4.4	1.7	1.7	0.0	3.3	3.3						7.0	2.0	0.0													
PZ40-BKG-26	n	3	3	3	3	3				3	3	3	3	3	3						3	1	1													
	MEAN	24.9		4.5	0.8	295.0				10.1	1.3	1.3	0.0	8.8	8.8						14.3	9.6	0.0													
	STD. DEV.	0.1		0.6	1.0	15.5				1.9	0.6	0.6	0.0	1.4	1.4						1.2															
	MIN	24.9	5.0	4.2	0.1	279.0				8.0	0.8	0.8	0.0	7.2	7.2						13.0	9.6	0.0													
	MAX	25.0	5.2	5.2	1.9	310.0				11.6	2.0	2.0	0.0	9.6	9.6						15.0	9.6	0.0													
PZ-41	n	1.00	1.00		1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00						1.00	1.00	1.00													
	MEAN	27.80	5.00		6.80	901.00				59.40	8.40	8.38	0.02	51.00	51.02						68.00	51.00	0.01													
	STD. DEV.																																				
	MIN	27.80	5.00		6.80	901.00				59.40	8.40	8.38	0.02	51.00	51.02						68.00	51.00	0.01													
	MAX	27.80	5.00		6.80	901.00				59.40	8.40	8.38	0.02	51.00	51.02						68.00	51.00	0.01													
PZ-42	n	1.00	1.00		1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00						1.00	1.00	1.00													
	MEAN	27.60	5.00		5.80	882.00				56.80	4.80	4.73	0.07	52.00	52.07						73.00	52.00	0.05													
	STD. DEV.																																				
	MIN	27.60	5.00		5.80	882.00				56.80	4.80	4.73	0.07	52.00	52.07						73.00	52.00	0.05													
	MAX	27.60	5.00		5.80	882.00				56.80	4.80	4.73	0.07	52.00	52.07						73.00	52.00	0.05													
PZ-43	n	1.0	1.0		1.0	1.0				1.0	1.0	1.0	1.0	1.0	1.0						1.0	1.0	1.0													
	MEAN	27.7	5.0		4.7	98.0				4.1	1.4	1.4	0.0	2.7	2.7						1.7	2.7	0.0													
	STD. DEV.																																				
	MIN	27.7	5.0		4.7	98.0				4.1	1.4	1.4	0.0	2.7	2.7						1.7	2.7	0.0													
	MAX	27.7	5.0		4.7	98.0				4.1	1.4	1.4	0.0	2.7	2.7						1.7	2.7	0.0													
PZ-44	n	1.0	1.0		1.0	1.0				1.0	1.0	1.0	1.0	1.0	1.0						1.0	1.0	1.0													
	MEAN	28.5	4.6		2.8	831.0				51.9	3.9	3.9	0.0	48.0	48.0						67.0	48.0	0.0													
	STD. DEV.																																				
	MIN	28.5	4.6		2.8	831.0				51.9	3.9	3.9	0.0	48.0	48.0						67.0	48.0	0.0													
	MAX	28.5	4.6		2.8	831.0				51.9	3.9	3.9	0.0	48.0	48.0						67.0	48.0	0.0													
PZ-45	n	1.0	1.0		1.0	1.0				1.0	1.0	1.0	1.0	1.0	1.0						1.0	1.0	1.0													
	MEAN	28.3	4.6		3.5	371.0				15.5	2.5	2.4	0.1	13.0	13.1						22.0	13.0	0.0													
	STD. DEV.																																				
	MIN	28.3	4.6		3.5	371.0				15.5	2.5	2.4	0.1	13.0	13.1						22.0	13.0	0.0													
	MAX	28.3	4.6		3.5	371.0				15.5	2.5	2.4	0.1	13.0	13.1						22.0	13.0	0.0													
PZ-46	n	1.0	1.0		1.0	1.0				1.0	1.0	1.0	1.0	1.0	1.0						1.0	1.0	1.0													
	MEAN	26.7	4.6		1.2	730.0				43.6	2.6	2.6	0.0	41.0	41.0						60.0	41.0	0.0													
	STD. DEV.																																				
	MIN	26.7	4.6		1.2	730.0				43.6	2.6	2.6	0.0	41.0	41.0						60.0	41.0	0.0													
	MAX	26.7	4.6		1.2	730.0				43.6	2.6	2.6	0.0	41.0	41.0						60.0	41.0	0.0													
PZ-47	n	1.0	1.0		1.0	1.0				1.0	1.0	1.0	1.0	1.0	1.0						1.0	1.0	1.0													
	MEAN	27.0	4.8		1.7	313.0				8.0	1.1	1.1	0.0	6.9	6.9						23.0	6.9	0.0													
	STD. DEV.																																				
	MIN	27.0	4.8		1.7	313.0				8.0	1.1	1.1	0.0	6.9	6.9						23.0	6.9	0.0													
	MAX	27.0	4.8		1.7	313.0				8.0	1.1	1.1	0.0	6.9	6.9						23.0	6.9	0.0													
PZ-48	n	1.0	1.0		1.0	1.0				1.0	1.0	1.0	1.0	1.0	1.0						1.0	1.0	1.0													
	MEAN	26.7	4.7		0.3	195.0				3.1	0.8	0.7	0.0	2.3	2.3						8.9	2.3	0.0													
	STD. DEV.																																				
	MIN	26.7	4.7		0.3	195.0				3.1	0.8	0.7	0.0	2.3	2.3						8.9	2.3	0.0													
	MAX	26.7	4.7		0.3	195.0				3.1	0.8	0.7	0.0	2.3	2.3						8.9	2.3	0.0													

o:\44237-0011\Wpdocs\Report\Draft

Table H.1 (continued)
Statistical Water Quality Summary

Sample ID	Statistical Parameter	Temp (°C)	pH	Total Alkalinity (mg/L)	DO (mg/L)	Specific Conductance (µS)	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							Hydrogen Sulfide (Unionized)	Sulfide	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-49	n	1.0	1.0		1.0	1.0				1.0	1.0	1.0	1.0	1.0	1.0						1.0	1.0	1.0													
	MEAN	26.4	4.6		2.6	434.0				17.6	1.6	1.6	0.0	16.0	16.0						32.0	16.0	0.0													
	STD. DEV.																																			
	MIN	26.4	4.6		2.6	434.0				17.6	1.6	1.6	0.0	16.0	16.0						32.0	16.0	0.0													
	MAX	26.4	4.6		2.6	434.0				17.6	1.6	1.6	0.0	16.0	16.0						32.0	16.0	0.0													
PZ-50	n	1.0	1.0		1.0	1.0				1.0	1.0	1.0	1.0	1.0	1.0						1.0	1.0	1.0													
	MEAN	26.9	5.5		4.7	191.0				5.2	1.7	1.7	0.0	3.5	3.5						5.3	3.5	0.0													
	STD. DEV.																																			
	MIN	26.9	5.5		4.7	191.0				5.2	1.7	1.7	0.0	3.5	3.5						5.3	3.5	0.0													
	MAX	26.9	5.5		4.7	191.0				5.2	1.7	1.7	0.0	3.5	3.5						5.3	3.5	0.0													
PZ-51	n	1.0	1.0		1.0	1.0				1.0	1.0	1.0	1.0	1.0	1.0						1.0	1.0	1.0													
	MEAN	26.1	5.6		3.6	112.0				1.5	0.7	0.7	0.0	0.7	0.7						1.5	0.7	0.0													
	STD. DEV.																																			
	MIN	26.1	5.6		3.6	112.0				1.5	0.7	0.7	0.0	0.7	0.7						1.5	0.7	0.0													
	MAX	26.1	5.6		3.6	112.0				1.5	0.7	0.7	0.0	0.7	0.7						1.5	0.7	0.0													
PZ-52	n	1.0	1.0		1.0	1.0				1.0	1.0	1.0	1.0	1.0	1.0						1.0	1.0	1.0													
	MEAN	25.6	5.9		5.0	531.0				22.1	2.1	2.1	0.0	20.0	20.0						30.0	20.0	0.0													
	STD. DEV.																																			
	MIN	25.6	5.9		5.0	531.0				22.1	2.1	2.1	0.0	20.0	20.0						30.0	20.0	0.0													
	MAX	25.6	5.9		5.0	531.0				22.1	2.1	2.1	0.0	20.0	20.0						30.0	20.0	0.0													
PZ-53	n	1.0	1.0		1.0	1.0				1.0	1.0	1.0	1.0	1.0	1.0						1.0	1.0	1.0													
	MEAN	26.0	5.3		2.7	135.0				5.7	1.1	1.1	0.0	4.6	4.6						2.1	4.6	0.0													
	STD. DEV.																																			
	MIN	26.0	5.3		2.7	135.0				5.7	1.1	1.1	0.0	4.6	4.6						2.1	4.6	0.0													
	MAX	26.0	5.3		2.7	135.0				5.7	1.1	1.1	0.0	4.6	4.6						2.1	4.6	0.0													
PNRS II samples																																				
TA5-Denite Tank	n	1	2	1	2	2	1		1	2	2	2	2	2	2	1	1				2	1	1		2											
	MEAN	27.1		190.0	0.1	1031.0	1.0		150.0	4.9	4.9	3.8	1.0	0.0	1.0	1.6					46.5	0.0	0.0		200.0											
	STD. DEV.					72.1				4.0	4.0	3.3	0.7	0.0	0.7						2.1				84.9											
	MIN	27.1	4.4	190.0	0.1	980.0	1.0		150.0	2.0	2.0	1.5	0.5	0.0	0.5	1.6	1.0				45.0	0.0	0.0		140.0											
	MAX	27.1	6.5	190.0	0.1	1082.0	1.0		150.0	7.7	7.7	6.2	1.5	0.0	1.5	1.6	1.0				48.0	0.0	0.0		260.0											
TA5-LINER-SP	n	3	3	1	3	3	1	1	2	4	4	4	4	4	4	2					2	2	2		1								1			
	MEAN	30.4		240.0	3.5	840.7	6.0	2.0	135.0	5.5	3.2	3.0	0.2	2.4	2.5	3.6					52.5	0.9	0.1		35.0								0.7			
	STD. DEV.	3.1			1.0	74.9			21.2	4.4	2.2	2.0	0.2	2.4	2.6	3.6					4.9	1.0	0.1													
	MIN	27.0	6.4	240.0	2.7	786.0	6.0	2.0	120.0	1.4	1.1	1.1	0.0	0.3	0.3	1.0					49.0	0.2	0.0		35.0								0.7			
	MAX	33.2	6.6	240.0	4.6	926.0	6.0	2.0	150.0	11.6	5.7	5.3	0.4	5.9	6.3	6.1					56.0	1.6	0.2		35.0								0.7			
TA5-LY-C	n	3	3	1	3	3	1	1	2	3	3	3	3	3	3	2	2				3	2	2		2								2	1		
	MEAN	30.6		75.0	6.2	732.0	1.0	2.0	51.0	32.5	3.5	3.5	0.0	29.0	29.0	2.7					57.3	32.0	0.0		58.0								1.0	0.3		
	STD. DEV.	4.1			0.3	128.3			35.4	5.6	1.5	1.5	0.0	6.0	6.0	2.1					5.0	4.2			11.3								1.1			
	MIN	27.9	6.4	75.0	5.9	653.0	1.0	2.0	26.0	26.2	2.1	2.1	0.0	23.0	23.0	1.2	1.0				52.0	29.0	0.0		50.0								0.3	0.3		
	MAX	35.3	7.2	75.0	6.4	880.0	1.0	2.0	76.0	37.1	5.1	5.1	0.0	35.0	35.0	4.1	1.0				62.0	35.0	0.0		66.0								1.8	0.3		
TA5-PZ-I	n	3	3	2	3	3	2	2	2	3	3	3	3	3	3	2	2				2	1	1		2								2	1		1
	MEAN	26.7		2.1	0.9	345.7	1.0	2.0	12.0	10.2	1.3	1.3	0.0	8.9	8.9	0.0	1.0				19.0	5.3	0.0		81.0								0.0	0.1		5.1
	STD. DEV.	0.4			0.5	32.1			1.4	6.5	0.7	0.7	0.0	6.2	6.2	0.0					5.7				9.9											
	MIN	26.4	4.2	2.1	0.4	312.0	1.0	2.0	11.0	5.8	0.5	0.5	0.0	5.3	5.3	0.0	1.0				15.0	5.3	0.0		74.0								0.0	0.1		5.1
	MAX	27.1	4.7	2.1	1.3	376.0	1.0	2.0	13.0	17.7	1.8	1.8	0.0	16.0	16.0	0.0	1.0				23.0	5.3	0.0		88.0								0.0	0.1		5.1
TA6-Denite Tank	n	3	3	2	3	3	2	2	2	3	3	3	3	3	3	2	2				3	1	1		3								2	2		
	MEAN	27.3		150.0	0.6	926.3	3.0	4.5	120.0	3.7	3.6	3.3	0.4	0.1	0.5	3.9					54.0	0.2	0.0		146.7								2.1	2.7		
	STD. DEV.	0.6		28.3	0.4	134.9	1.4	3.5		0.9	0.9	1.1	0.2	0.1	0.2	2.9	126.6				21.3				55.1								1.6	1.3		
	MIN	26.9	5.9	130.0	0.1	844.0	2.0	2.0	120.0	2.7	2.6	2.0	0.1	0.1	0.2	1.8	1.0				31.0	0.2	0.0		110.0								1.0	1.7		
	MAX	28.0	6.8	170.0	0.9	1082.0	4.0	7.0	120.0	4.5	4.3	3.9	0.6	0.2	0.7	5.9	180.0				73.0	0.2	0.0		210.0								3.2	3.6		

o:\44237-001\Wpdocs\Report\Draft

Table H.1 (continued)
Statistical Water Quality Summary

Sample ID	Statistical Parameter	Temp (°C)	pH	Total Alkalinity (mg/L)	DO (mg/L)	Specific Conductance (µS)	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							Hydrogen Sulfide (Unionized)	Sulfide	TS	Sucralose (ug/L)
																				F^-	Cl^-	NO_3-N^-	NO_2-N^-	PO_4-P^-	SO_4^-	B	Ca	Fe	Mg	Mn	K	Na				
TA6-LINER-SP	n	2	2	1	2	2	1	1	1	2	2	2	2	2	2	1	1				2	1	1		1								1			
	MEAN	27.4		230.0	4.6	890.0	2.0	2.0	130.0	5.9	4.4	4.0	0.4	1.5	1.8	3.6					57.5	0.1	0.0		35.0								0.7			
	STD. DEV.	0.6			2.2	241.8				4.6	2.7	2.4	0.3	1.9	2.2						12.0															
	MIN	27.0	6.4	230.0	3.0	719.0	2.0	2.0	130.0	2.6	2.5	2.4	0.1	0.1	0.2	3.6	1.0				49.0	0.1	0.0		35.0								0.7			
	MAX	27.8	6.6	230.0	6.1	1061.0	2.0	2.0	130.0	9.1	6.3	5.7	0.6	2.8	3.4	3.6	1.0				66.0	0.1	0.0		35.0								0.7			
TA6-LY-C	n	3	3	3	3	3	1	1	3	3	3	3	3	3	3	3	2				3	2	2		2								2	2		
	MEAN	29.0		105.0	5.9	573.3	1.0	2.0	55.3	9.6	2.1	2.1	0.0	7.5	7.5	0.8					52.7	9.9	0.0		49.5								9.2	10.7		
	STD. DEV.	2.9		37.7	0.5	196.3			26.3	10.2	0.2	0.2	0.0	10.0	10.0	1.0					21.5	12.8			13.4								12.5	14.6		
	MIN	27.0	5.9	65.0	5.3	403.0	1.0	2.0	35.0	3.0	1.9	1.9	0.0	0.9	0.9	0.1	1.0				31.0	0.9	0.0		40.0								0.3	0.4		
	MAX	32.3	6.6	140.0	6.4	788.0	1.0	2.0	85.0	21.3	2.3	2.3	0.0	19.0	19.0	1.9	1.0				74.0	19.0	0.0		59.0								18.0	21.0		
TA6-PZ-I	n	3	3	2	3	3	2	2	2	3	3	3	3	3	3	2	2				3	1	1		2								2	1		1
	MEAN	28.1		31.7	2.2	340.3	6.0	2.0	34.5	17.8	2.2	2.2	0.0	15.7	15.7	0.0					13.3	13.0	0.0		53.5								0.1	0.2		0.0
	STD. DEV.	2.5		31.5	1.7	29.9	5.7		7.8	3.4	0.9	0.9		3.8	3.8	0.0					6.2				31.8								0.1			
	MIN	26.4	4.8	9.4	0.6	317.0	2.0	2.0	29.0	15.6	1.6	1.6	0.0	13.0	13.0	0.0	1.0				7.8	13.0	0.0		31.0								0.0	0.2		0.0
	MAX	30.9	6.1	54.0	4.0	374.0	10.0	2.0	40.0	21.7	3.2	3.2	0.0	20.0	20.0	0.0	1.0				20.0	13.0	0.0		76.0								0.2	0.2		0.0
Blanks																																					
EB	n	3	3	3	3	3			3	3	3	3	3	3	3			2	3	3	3	3	1	3	3	3	3	3	3	3	3	3				
	MEAN	23.9		2.0	3.6	3.7			10.0	0.1	0.1	0.0	0.0	0.0	0.0			0.5	0.7	0.0	0.1	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.1				
	STD. DEV.	0.6			0.2	2.9				0.0	0.0			0.0	0.0				0.4	0.0	0.0			0.0	0.0	0.0										
	MIN	23.5	6.8	2.0	3.4	2.0			10.0	0.1	0.1	0.0	0.0	0.0	0.0			0.5	0.5	0.0	0.1	0.0	0.0		0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.1				
	MAX	24.5	8.2	2.0	3.7	7.0			10.0	0.1	0.1	0.0	0.0	0.0	0.0			0.5	1.2	0.1	0.1	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.1				
FB-DI	n	3	3	3	3	3				3	3	3	3	3	3						3	1	1													
	MEAN	26.2		2.0	4.0	4.0				0.1	0.1	0.0	0.0	0.0	0.0						0.1	0.0	0.0													
	STD. DEV.	3.8		0.1	0.7	3.5				0.0	0.0			0.0	0.0						0.1															
	MIN	23.6	6.8	2.0	3.6	2.0				0.1	0.1	0.0	0.0	0.0	0.0						0.1	0.0	0.0													
	MAX	30.5	8.2	2.1	4.8	8.0				0.1	0.1	0.0	0.0	0.0	0.0						0.2	0.0	0.0													
FB-Tap	n	3	3	3	3	3				3	3	3	3	3	3						3	1	1													
	MEAN	27.9		136.7	3.7	282.3				0.2	0.2	0.1	0.1	0.1	0.1						18.7	0.1	0.0													
	STD. DEV.	2.4		15.3	0.9	240.4				0.1	0.1	0.1	0.1	0.0	0.1						4.9															
	MIN	25.7	6.3	120.0	2.9	5.0				0.1	0.1	0.0	0.0	0.0	0.0						13.0	0.1	0.0													
	MAX	30.5	7.2	150.0	4.6	431.0				0.3	0.3	0.2	0.2	0.1	0.2						22.0	0.1	0.0													

Notes:

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

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

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

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.

Orange - shaded data points indicate too many colonies were present. The numeric value represents the dilution factor times the maximum reportable number of colonies.

Purple-shaded data points indicate results based upon colony counts outside the method indicated ideal range.

o:\44237-001\Wpdocs\Report\Draft