FLORIDA DEPARTMENT OF HEALTH

Florida Onsite Sewage Nitrogen Reduction Strategies Study

Task C.22

GCREC Mound Data Summary Report No. 3

Progress Report

September 2011

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In association with

SCHOOL OF MINES 1874 COLORADO

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Florida Onsite Sewage Nitrogen Reduction Strategies Study

TASK C.22
PROGRESS REPORT

GCREC Mound
Data Summary Report No. 3

Prepared for:

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1.0 Background

Task C of the Florida Onsite Sewage Nitrogen Reduction Strategies Study includes monitoring at field sites in Florida to evaluate nitrogen reduction in soil and groundwater, to assess groundwater impacts from various onsite wastewater systems, and to provide data for parameter estimation, verification, and validation of models developed in Task D. The existing mound system at the Gulf Coast Research and Education Center (GCREC) is being monitored to serve as a bridge between the controlled GCREC pilot-scale testing conducted within the same type of soils and the uncontrolled monitoring at home sites in different soils throughout the state. The Task C.5 QAPP documents the objectives, monitoring framework, sample frequency and duration, and analytical methods to be used at the GCREC existing mound system site. The Task C.20 Instrumentation of GCREC Mound System and Plume Progress Reports No. 1 and 2 document the test area design, number and location of monitoring points, and preliminary sample collection and analyses.

2.0 Purpose

This data summary report documents data that was collected from the third GCREC mound monitoring and sampling event which was conducted June 27, 2011 through June 29, 2011. The sample event report was submitted as Sample Event Report No. 3, June 2011, as deliverable under Task C.21. 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 groundwater samples and their analyses in a NELAC certified laboratory.

3.0 Materials and Methods

3.1 Project Site

The GCREC mound is located at the University of Florida Gulf Coast Research and Education Center (GCREC) in southeast Hillsborough County, Florida. The facility is situated on 475 acres of land that were donated by Hillsborough County government. Wastewater from the GCREC research offices and onsite dormitories flow to an existing

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OSTDS. Lab waste from Facility laboratories is not directed to the OSTDS. This existing OSTDS consists of a pressure dosed mound system designed for 2,850 gallons per day. Two septic tanks (2,500 and 1,250 gallons) provide primary treatment followed by a dosing tank (3,000 gallons). The mound drainfield has 4,351 ft^2 of infiltrative area (design hydraulic loading rate of 0.65 gpd/ft^2) with each half of the drainfield receiving alternating doses.

3.2 Operational Monitoring

Wastewater flow to the mound system is measured via two (2) flow meters located on the dose lines to the mound. The two flow meters were installed in December 2009. Prior to July 16, 2010, the GCREC air conditioning systems were discharging considerable quantities of A/C condensate to the sewer. The PNRS II test facility programmable logic controller (PLC) records flow data from these meters. Appendix A summarizes the recorded wastewater flow data for the GCREC mound pumps since PNRS II test facility start-up.

In addition, a weather station is located at the GCREC facility with weather conditions recorded every minute and stored on a private website. Table 1 provides the recorded meteorological data daily averages leading up to and during the sample event. Appendix B provides summary tables of the average monthly recorded meteorological data.

Table 1
Meteorological Data Daily Averages Measured June 24, 2011 – June 29, 2011

Date	Temp Avg 60 cm (°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)
June 24, 2011	79.04	78.61	82.00	73.08	84	1.05	6.22	0.17
June 25, 2011	76.52	76.24	81.15	72.09	88	0.06	5.18	0.15
June 26, 2011	77.08	76.95	80.43	71.39	84	0.00	5.30	0.13
June 27, 2011	78.11	77.83	80.83	71.64	83	0.04	4.82	0.14
June 28, 2011	76.42	76.22	80.49	71.52	87	0.23	4.70	0.12
June 29, 2011	76.79	76.36	80.53	72.01	87	0.02	5.77	0.15

3.3 Monitoring and Sampling Locations and Identification

A sampling grid for groundwater screening was developed downgradient of the soil treatment unit as depicted in Figure 1. A 25-ft by 25-ft grid was staked then locations

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surveyed (x, y, and z). Transect lines AA through R are parallel to the southern edge of the mound and increase (higher letter identification) moving southward from the mound. Transect lines 1 through 15 (from east to west) are perpendicular to the southern edge of the mound. Groundwater monitoring points were installed in May, June, and November 2010. Two types of monitoring points were installed using either hand or drilling methods: drive point samplers and standpipe piezometers. Drive point samplers consist of a stainless steel drive tip and attached 1-in. long screen with a protective "umbrella" (to prevent soil entering and clogging the screen), and flexible tubing that extends to the ground surface (Figure 2). Standpipe piezometers consist of either ¾-in., 1¼-in., or 2-in. diameter PVC with 1-ft, 4-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.20 Progress Reports No. 1 and No. 2 for additional detail).

Each monitoring location has been assigned a unique identification indicating the type of monitoring point (DP = drive point, PZ = standpipe piezometer), grid location (self explanatory), and depth below ground surface (bottom of the drive point or well screen in feet). For example DP-AA9-14 is a drive point sampler located on the grid at AA9 at 14 ft below ground surface. A schematic of the GCREC monitoring network is shown in Figure 1. Figure 3 depicts an installed ¾-in. diameter PVC standpipe piezometer. A complete list of all installed drive points and standpipe piezometers are included in Appendix C.

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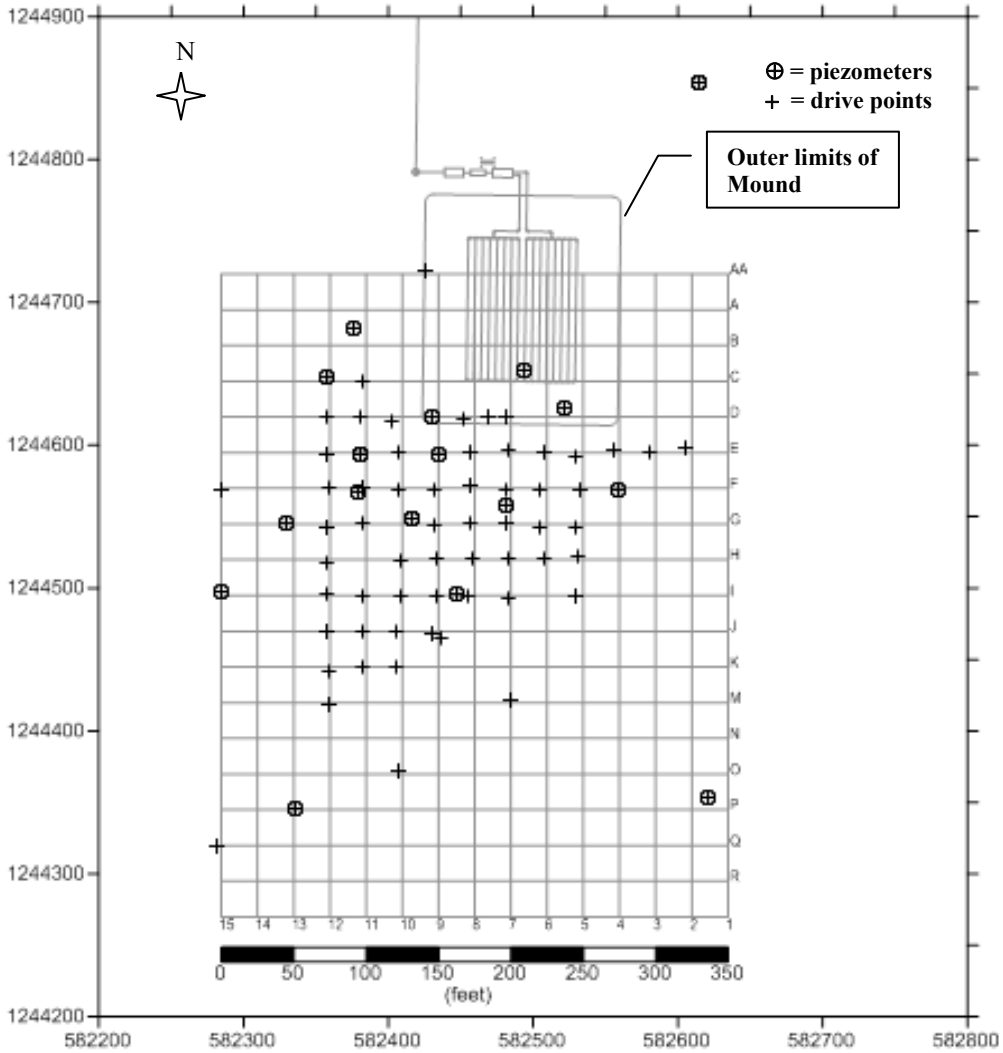

Figure 1
Schematic of GCREC Monitoring Network (UTM coordinates are used)
⊕ denotes piezometers and + denotes drive points

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Figure 2
Stainless Steel Drive Point with Mesh Screen, Umbrella and Tubing

Figure 3
Installed ¾" Diameter PVC Standpipe Piezometer

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3.4 Soil Characteristics

During the instrumentation of the mound, soil cores were collected to the spodic layer at four locations (CD6.5, E9, F4, and west side of the mound [near A9]), and at one location (G10) 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 soil core will provide a general idea of the soil properties within the aquifer. The information will be used when determining appropriate parameters to be used in model development. During the installation of monitoring points during the summer of 2010, a prominent spodic layer was discovered at approximately 4-6 feet below the ground surface. At several locations the top elevation of this layer was determined with handheld methods during this time. Attempts were also made to determine the top and the thickness of the spodic layer at the remaining monitoring well locations during the November drilling event. Whenever this proved impossible, estimations were made.

3.5 Groundwater Elevation Measurements

Groundwater level measurements are used to determine hydraulic gradients, directions of flow, rates of flow, locations of groundwater recharge and discharge, the amount of water in storage, the change in storage over time, and aquifer hydraulic characteristics. Groundwater levels were measured using a hand-cranked steel tape graduated in feet. Groundwater elevations have been monitored frequently at the site to determine the direction and gradient of flow.

3.6 Water Quality Sample Collection and Analyses

Groundwater and septic tank effluent (STE) were collected June 27, 2011 through June 29, 2011 for water quality analysis. A peristaltic pump was used to collect STE directly into the analysis-specific container supplied by the analytical laboratory. Samples were collected from the existing lift station, which supplies STE to the GCREC mound. Groundwater samples were obtained using a peristaltic pump, which was either attached directly to the drive point tubing or to dedicated standpipe piezometer tubing. Samples were collected into the analysis-specific containers after sufficient purging had occurred. 181919202021212222232324242525262627272828292928□□□□□□□□□□□□□□□□□□□□□□□boratory and contained appropriate preservatives. The analysis-specific containers were labeled, placed in coolers and transported on ice to the analytical laboratory. Each sample container was secured in packing material as appropriate to prevent damage and spills, and was recorded on chain-of-custody forms supplied by the laboratory.

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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 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.

Field parameters (pH, specific conductance, temperature (Temp), and dissolved oxygen (DO)) were measured using portable electronic probes with probe tips placed in a flow-cell device as groundwater was being pumped. All samples were analyzed by the laboratory for chloride. Some of the samples were also analyzed for. Additionally, at some of the locations, total alkalinity, chemical oxygen demand (COD), total Kjeldahl nitrogen (TKN-N), ammonia nitrogen (NH_3-N), and nitrate/nitrite nitrogen (NO_X-N), total organic carbon (TOC), dissolved organic carbon (DOC), anions and cations were included. All analyses were performed by an independent and fully certified analytical laboratory (Southern Analytical Laboratory). Table 2 lists the analytical parameters, analytical methods, and detection limits for these analyses.

Table 2
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)	EPA410.4	10 mg/L
Total Kjeldahl Nitrogen (TKN-N)	EPA351.2	0.05 mg/L
Ammonia Nitrogen (NH_3-N)	EPA350.1	0.01 mg/L
Nitrate/Nitrite Nitrogen (NO_X-N)	EPA353.2	0.01 mg/L
Total Organic Carbon (TOC)	SM 5310B	0.5 mg/L
Dissolved Organic Carbon (DOC)	SM 5310C	1.0 mg/L
Anions		
Fluoride	EPA300.0	0.01 mg/L
Chloride	EPA300.0	0.05 mg/L
Nitrate (NO_3-N)	EPA300.0	0.01 mg/L
Orthophosphate as P	EPA300.0	0.01 mg/L
Sulfate (SO_4)	EPA300.0	0.2 mg/L
Cations		
Boron	EPA200.7	0.1 mg/L
Calcium	EPA200.7	0.05 mg/L
Iron	EPA200.7	0.1 mg/L
Magnesium	EPA200.7	0.05 mg/L
Manganese	EPA200.7	0.01 mg/L

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Potassium	EPA200.7	0.05 mg/L
Sodium	EPA200.7	0.05 mg/L

3.7 Data Management

To allow for a better visualization of the data collected at the site the mapping program **Surfer** was utilized. **Surfer** is a grid-based mapping program that interpolates irregularly spaced XYZ data into a regularly spaced grid. Although there are several methods used in **Surfer** to fill in areas where data is missing, the Kriging method was used as the output gave the most informative graphs. Of note, it is important to realize that the output is based on the program interpolation between known data points, and thus should not be assumed to illustrate reality, but instead an approximation. Furthermore, because **Surfer** cannot project a 3-dimensional view of concentrations with depth, the parameter concentrations from the different sampling locations were compiled into horizontal "slices" of similar depth and then plotted as a planar view, thus allowing the different "slices" to be compared.

4.0 Results

4.1 Soil Characteristics

During the instrumentation of the mound, continuous soil cores were collected to the spodic layer at four locations (CD6.5, E9, F4, and west side of the mound [near A9]), and at one location (G10) a continuous soil core was collected to the confining Hawthorn clay layer. The results of the analysis are presented in Table 3. Although the four shallow soil cores (CD6.5, E9, F4, and near A9) show some variability in soil over the site, a general soil profile trend is present. The top few inches at the site are typically a darker, slightly brown or red fine, silty soil, followed by a light-colored, grey and/or pale yellow fine sand. Mottling is commonly visible 4-5 feet below the ground surface. The continuous soil core from G10 shows the spodic layer (black fine sand with a coffee-like texture). The spodic layer is approximately 3.3 feet thick at that location, and the soil below the spodic layer is a light or yellowish brown, fine to medium sand (Table 3). Similar observations were made during the November drilling event. The Hawthorne clay is considered a confining layer at the site and lies approximately 27 to 30 feet below the ground surface.

During the installation of the shallow drive points in the summer of 2010, the top elevations of the spodic layer was determined at several locations as the installation was done primarily with handheld methods. Efforts were made to determine the elevation and thickness of the spodic layer during the November drilling event; however, this proved to be quite difficult as it was near impossible for the drill operators to "feel" when

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the auger first hit the hard layer and second when it broke through it; hence the depth and thickness of the spodic layer at the new well locations was estimated at that time to be approximately 6 feet below the ground surface with a thickness of approximately 5.5 to 8.5 feet. After the November drilling event, handheld methods were used to better determine the actual elevation of the spodic layer at several additional sites. Table 4 summarizes the locations at which the top elevation of the spodic layer was determined by handheld methods. At all other locations, this elevation was estimated. Figure 4 illustrates a **Surfer** plot of the top elevation of the spodic layer at the site based on both actual and estimated elevations, while Figure 5 illustrates the same but using only elevations verified by handheld methods. Although variations are present, the general trend follows that of the ground surface and that of the groundwater.

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Table 3
June 2010 Small Direct Push Rig (6620 Geoprobe™)
Soil Core Descriptions

Grid Location	Identifier	Surface Elevation (ft)	Depth bgs (ft)	Description
CD6.5	PZ10-CD6-13	129.51	0-0.4’	Grass/fill
			0.4-0.9’	Gray fine sand with yellow and white mottles
			0.9-6.6’	Uniform yellow fine grain sand
			6.5’	Saturation
			6.6-6.7’	Dark brown (10YR 3/3) fine sand
			6.7-10.7’	Light gray (5Y 7/2) fine sand
			10.7-11.5’	Dark brown (10YR 3/3) fine sand
			11.5-12.3’	Yellow (5Y 7/6) fine sand
			12.3-13.45’	Light gray (5Y 7/2) fine sand
			13.45-16.1’	Spodic horizon, dark brown (7.5YR 3/3) fine sand
			16.1-17.4’	Brown (7.5YR 4/4) fine sand
E9	PZ11-E09-10	124.06	0-2.2’	A Horizon top soil
			2.2-2.7’	Pale yellow (5Y 7/3) fine sand with mottles
			2.7-5.8’	Yellowish brown (10YR 5/4) fine sand
			5.8-6.9’	Very dark brown (7.5YR 2.5/3) fine sand
			6.1’	Saturation
			6.9-10.3’	Medium brown (10YR 5/3) fine sand
			10.3-15’	Spodic horizon, black (10YR 2/1) fine sand
F4	PZ13-F04-8	124.42	0-4.2’	A Horizon top soil
			4.2-4.7’	Pale yellow (5Y 8/4) fine sand with mottles
			4.7-13.5’	Spodic horizon, dark brown sand
			6.3’	Saturation
Westside of Mound Near A9		~129	0-7.4’	Mound sand with some mottles
			7.4-8.4’	Dark oxidized sand
			8.4’	Saturation
			8.4-9.4’	Saturated very pale brown fine sand
			9.4-10’	Spodic horizon, dark brown fine sand
			10-12’	Dark yellowish brown (10YR 4/6) fine sand
			12-15’	Dark brown fine sand

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Table 3 (cont.)
June 2010 Small Direct Push Rig (6620 Geoprobe™)
Soil Core Descriptions

Grid Location	Identifier	Surface Elevation (ft)	Depth bgs (ft)	Description
G10	PZ12 Abandoned	123.55	0-1.2’	A Horizon top soil
			1.2-2.8’	White (10YR 8/2) fine sand
			2.8-6.1’	Spodic horizon, black fine sand
			6.1-9’	Brown (10YR 4/3) fine sand
			9’	Saturation
			9-10.1’	Gray (5Y 5/1) fine sand with black mottles
			10.1-13.9’	Black (5Y 2.5/1) fine sand
			13.9-16.6’	Light yellowish brown (10YR 6/4) uniform fine sand
			16.6-19’	Medium sand poorly sorted, well rounded (3mm diameter) with mottles
			19-23’	Pale brown (10YR 6/3) uniform fine sand
			23-27.5’	Very pale brown (10YR 7/3) very fine sand
			27.5-27.9’	Poorly sorted coarse sand
			27.9-30.0’	Greenish gray (Gley1 6/5GY) clay, Hawthorn confining layer

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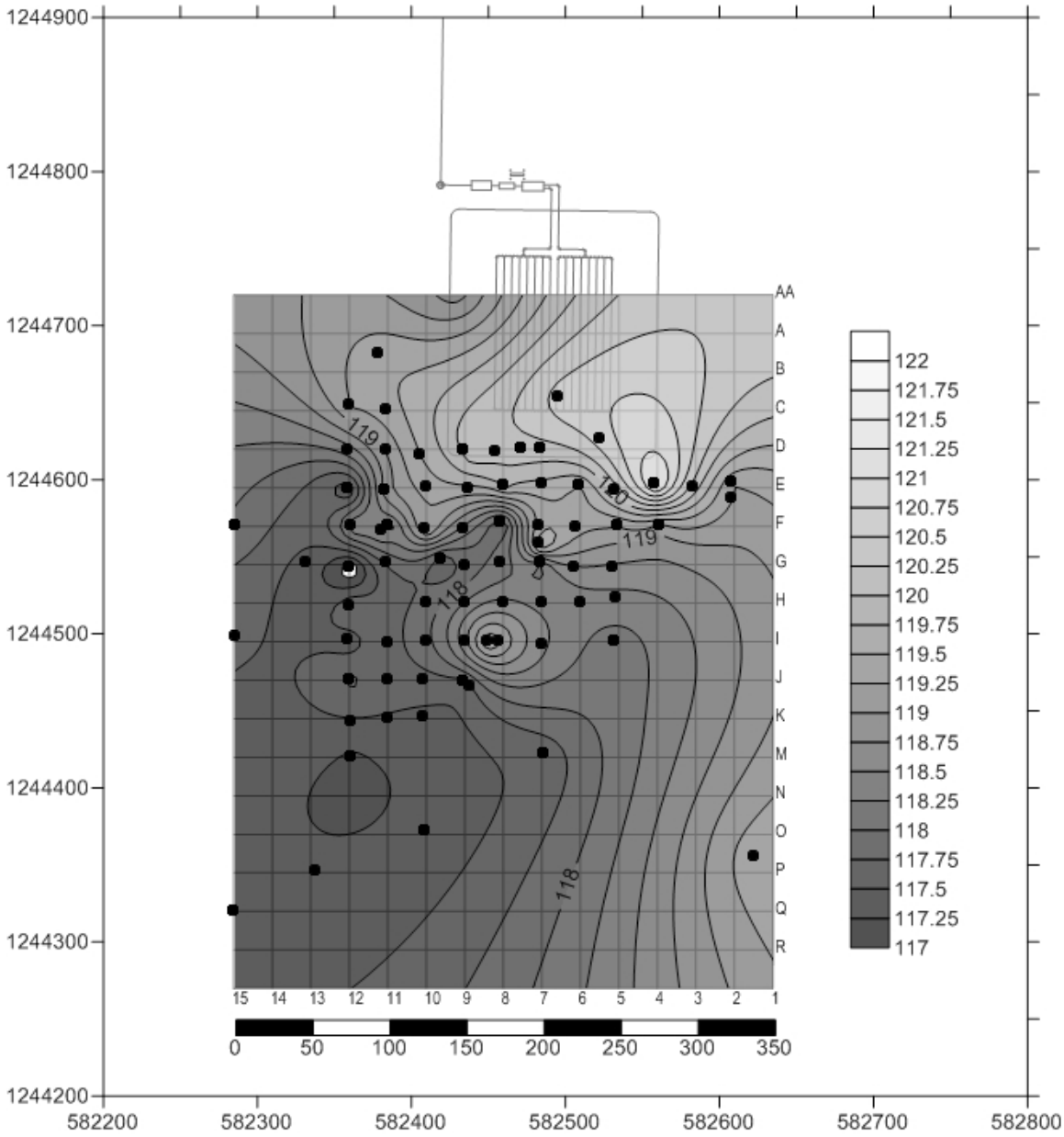

Figure 4

Surfer plot illustrating the top elevation of the spodic layer based on both verified elevations and estimated elevations. The dots represent the locations used for the graph.

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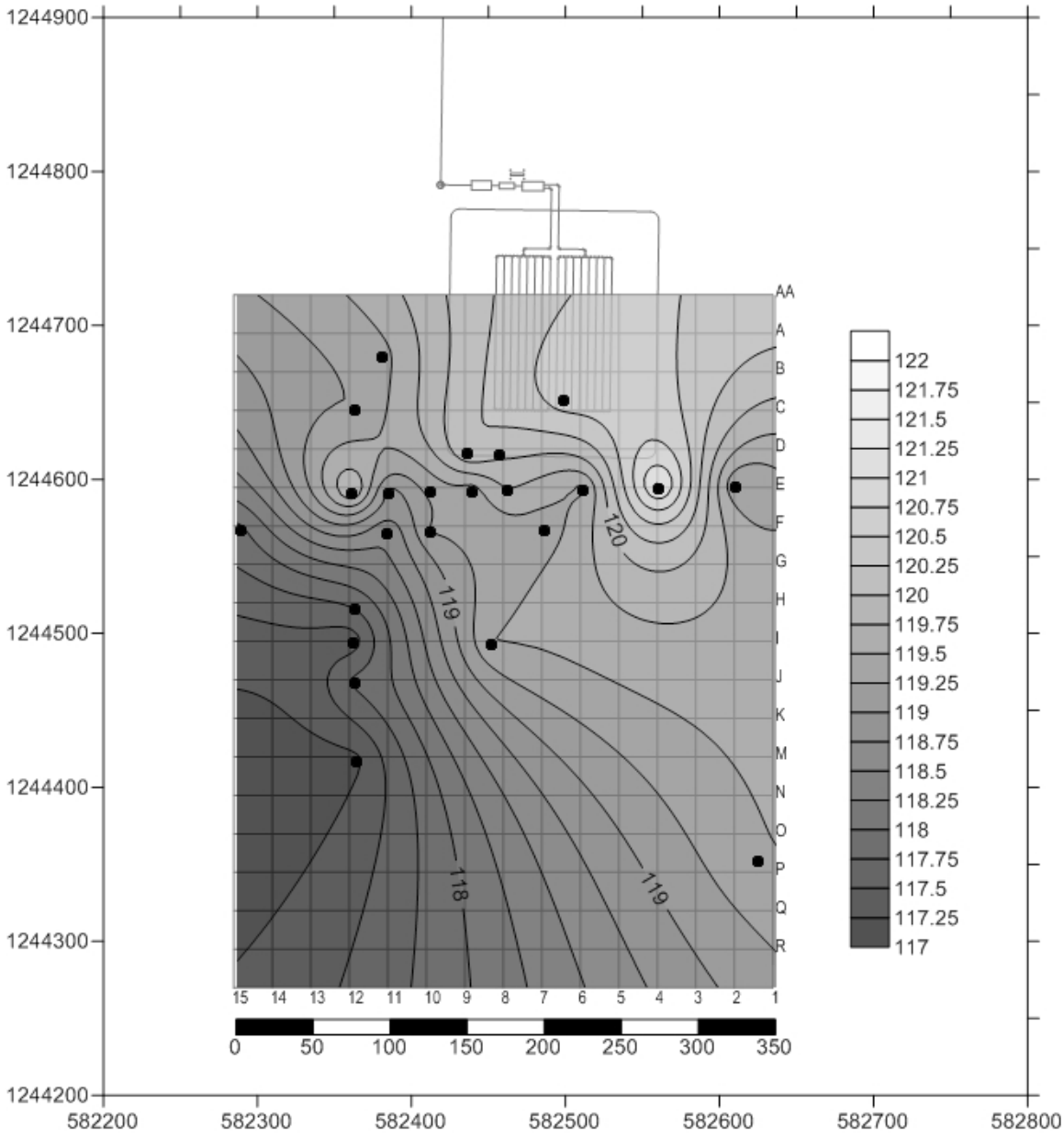

Figure 5

Surfer plot illustrating the top elevation of the spodic layer as verified by hand methods. The dots represent the locations where the elevations were measured.

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Table 4
The Top Elevation of the Spodic Layer as Determined by Hand Methods

Location	Elevation	Location	Elevation
D8	120.06	PZ01-BKG	123.37
D9	120.08	PZ02-PQ1.75	119.46
E2	119.26	PZ03-H11	118.54
E4	121.35	PZ04-BKG	120.62
E6	119.46	PZ05-BKG	121.34
E8	119.77	PZ06-BKG	125.50
E10	119.34	PZ09-I8	119.50
F3	120.06	PZ10-CD6	120.62
F7	119.41	PZ11-E9	119.40
F10	119.27	PZ15-A11	119.42
F15	117.96	PZ16-C12	119.26
H12	117.77	PZ21-E11	118.91
I12	117.38	PZ25-A6.5	120.13
J12	117.80		
N12	117.20		

The G10 continuous soil cores and soil samples from grid locations O10 and E06 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 sodium concentrations as well as particle size distribution summarized in Table 5. The complete soil data set is included Appendix D.

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Table 5
Soil Grain Size Distribution in Percent (%)

Grid ID	Depth Bgs (ft)	Sand Fractions (%)					Total (%)				Texture Class
		Very Fine	Fine	Medium	Coarse	Very Coarse	Sand	Silt	Clay	Other	
		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	>2 mm	
010	0-1.57	9.9	48.0	29.4	6.7	1.4	95.2	*	*	0.4	sand
	1.57-2.49	10.6	50.8	26.8	6.9	2.0	98.1	*	*	0.2	sand
	2.49-3.58	12.3	49.5	25.8	6.3	1.3	95.6	2.6	1.8	0.1	Sand
	3.58-5.1	12.0	49.1	24.9	6.7	1.8	95.0	4.3	0.7	0.2	sand
	5.1-5.6	7.3	42.4	25.1	7.4	2.4	84.1	3.4	12.5	0.6	loamy sand
	5.6-6.2	5.8	39.9	25.1	7.8	3.2	81.8	2.2	16.1	0.9	sandy loam
E06	0-2.4	11.0	48.7	28.3	5.5	1.1	94.6	3.9	1.5	0.2	sand
	2.4-2.9	12.4	47.0	22.7	4.9	1.3	88.1	11.4	0.5	0.2	sand
	2.8-3.9	11.6	49.5	27.4	7.2	2.0	97.5	2.5	0.0	0.2	sand
	2.9-4	12.7	50.5	24.8	5.3	1.0	94.3	4.3	1.4	0.2	sand
	4-4.35	12.8	50.3	25.7	6.6	1.3	96.9	2.8	0.3	0.3	sand
	4.35-4.85	9.4	47.0	26.9	7.3	2.6	93.1	5.2	1.7	1.3	sand
	4.85-5.35	5.8	46.6	26.9	6.1	2.4	88.3	6.2	5.5	1.4	sand
	6-8	5.2	48.0	32.2	6.2	1.0	93.0	4.1	2.9	0.2	sand
G10	0-1.2	11.9	47.6	27.8	5.9	1.1	94.7	3.2	2.1	0.2	sand
	1.2-2.8	10.0	46.7	27.2	6.9	1.5	92.3	3.6	4.1	0.6	sand
	2.8-6.1	11.7	46.6	27.4	7.0	1.4	94.0	4.3	1.6	0.3	sand
	6.1-9	8.9	49.8	26.2	3.9	1.1	90.1	8.8	1.1	0.8	sand
	9-10.1	7.2	44.1	34.4	6.0	0.8	92.6	6.5	0.9	0.1	sand
	10.1-13.9	3.1	37.5	45.9	5.6	0.7	92.4	6.2	1.4	0.0	sand
	13.9-16.6	2.5	33.7	48.3	7.1	1.0	92.8	3.2	3.9	0.3	sand
	16.6-19	2.3	14.2	54.3	19.3	2.2	92.0	5.4	2.6	1.3	sand
	19-23	1.7	40.4	46.8	5.3	0.4	94.7	1.9	3.4	0.5	sand
	23-27.5	4.2	76.2	6.4	0.4	0.1	87.5	8.2	4.2	0.2	sand
	27.5-27.9	4.5	44.7	11.2	7.1	10.9	79.5	3.5	17.0	41.2	sandy loam
	27.9-30									n/a	n/a

* Clay and silt values were not within acceptable limits.

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4.2 Groundwater Levels

Groundwater level monitoring has been conducted over a larger area since additional piezometers were installed in November 2010. Although the groundwater elevations have been found to fluctuate due to periods of dry weather and/or heavy precipitation, continuous monitoring of the groundwater elevations indicates that the general flow-path does not change. Figures 6 through 9 illustrate the surficial groundwater contours as measured within the standpipe piezometers on four dates (April 13, 2011, May 13, 2011, June 17, 2011, and June 28, 2011). The groundwater level measured within PZ18-R12 was omitted from the plots (Figures 6 through 9) as the high water level reading significantly skews the contours produced by **Surfer.** It is unclear why the water level

appears slightly higher at this piezometer, however it may be influenced by the nearby drainage ditch. Table 5 shows the actual measured water levels. Based on the output illustrated in these plots the direction of flow is estimated at 220 degrees to true north, and the gradient is estimated to range from 0.0066 to 0.0094. Clearly variations in gradient are apparent in Figure 6 through 9; however it is not clear if those variations are due to an anomaly in measurement or an artifact of using **Surfer**. A summary of all recorded groundwater elevations taken at the standpipe piezometers within the grid is presented in Appendix E.

Table 5
Standpipe Piezometer Groundwater Level Measured

Identification	Location	Water Table Elevation (ft)			
		April 13, 2011	May 13, 2011	June 17, 2011	June 28, 2011
PZ01-BKG-9	PZ-1	124.32	122.67	121.56	121.73
PZ02-PQ1.75-9	PZ-2	119.22	118.59	118.26	118.80
PZ03-H11-6	PZ-3	120.18	119.49	119.20	119.74
PZ04-BKG-9	PZ-4	123.10	121.72	120.85	121.11
PZ05-BKG-9	PZ-5	122.41	120.80		
PZ06-BKG-12	PZ-6				121.92
PZ07-D5-7	PZ-7	121.40	120.25	119.72	120.26
PZ08-FG7-6	PZ-8	120.71	119.75	119.33	119.93
PZ09-I8-5	PZ-9	120.12	119.40	119.06	119.63
PZ10-CD6-13	PZ-10	121.61	120.46	119.90	120.40
PZ11-E9-10	PZ-11	120.76	119.79	119.36	119.96
PZ12-G10	abandoned				
PZ13-F4-8	PZ-13	121.23	120.09	119.68	120.15
PZ14-G13-7	PZ-14	119.66	118.94	118.71	119.26
PZ15-A11-6	PZ-15	120.89	119.87	119.36	119.88
PZ16-C12-28	PZ-16	120.43	119.49	119.07	119.63
PZ17-I15-26	PZ-17	119.22	118.57	118.42	118.93
PZ18-R12-26	PZ-18	119.13*	119.28*	119.01*	119.28*
PZ19-G10-26	PZ-19	120.20	119.37	119.02	119.60
PZ20-G10-15	PZ-20	120.21	119.38	119.03	119.62
PZ21-E11-26	PZ-21	120.28	119.39	119.01	119.58
PZ22-E11-15	PZ-22	120.26	119.37	119.00	119.57
PZ23-D9-27	PZ-23	120.77	119.76	119.31	119.85

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Table 5
Standpipe Piezometer Groundwater Level Measured

Identification	Location	Water Table Elevation (ft)			
		April 13, 2011	May 13, 2011	June 17, 2011	June 28, 2011
PZ24-BKG-26	PZ-24	122.80	121.43	120.52	120.80
PZ25-A6.5	PZ-25	121.88	120.68	120.12	120.58
PZ26-EF2	PZ-26	121.93	120.77	120.25	120.78
PZ27	PZ-27			119.45	120.01
PZ28	PZ-28			119.34	
PZ29	PZ-29			120.51	
PZ30	PZ-30			120.52	120.91

Note: If blank – no data was collected, * indicates that data was eliminated from data set due to noted high reading likely influenced by neighboring drainage ditch.

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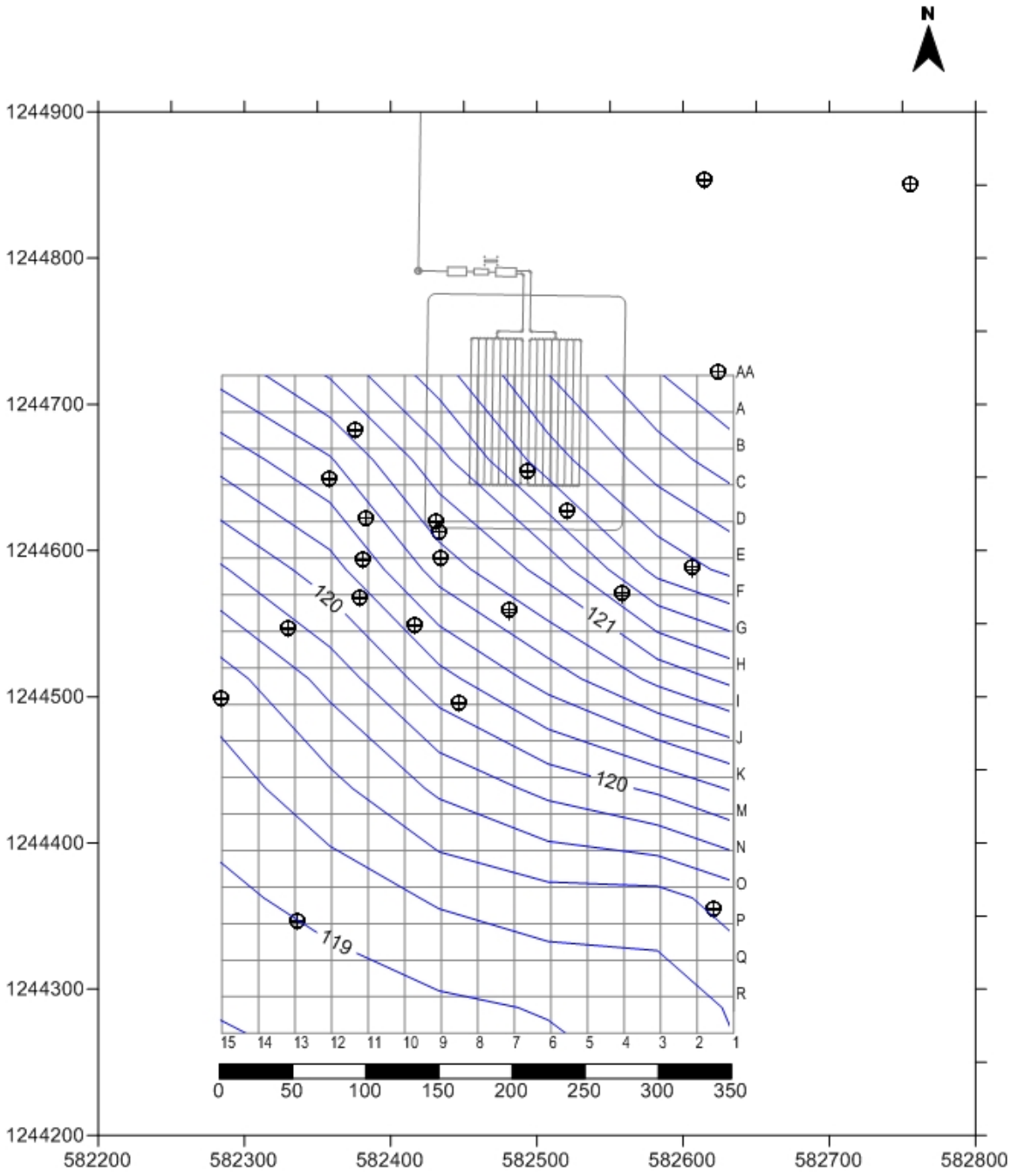

Figure 6
Surficial Groundwater Contours on April 13, 2011

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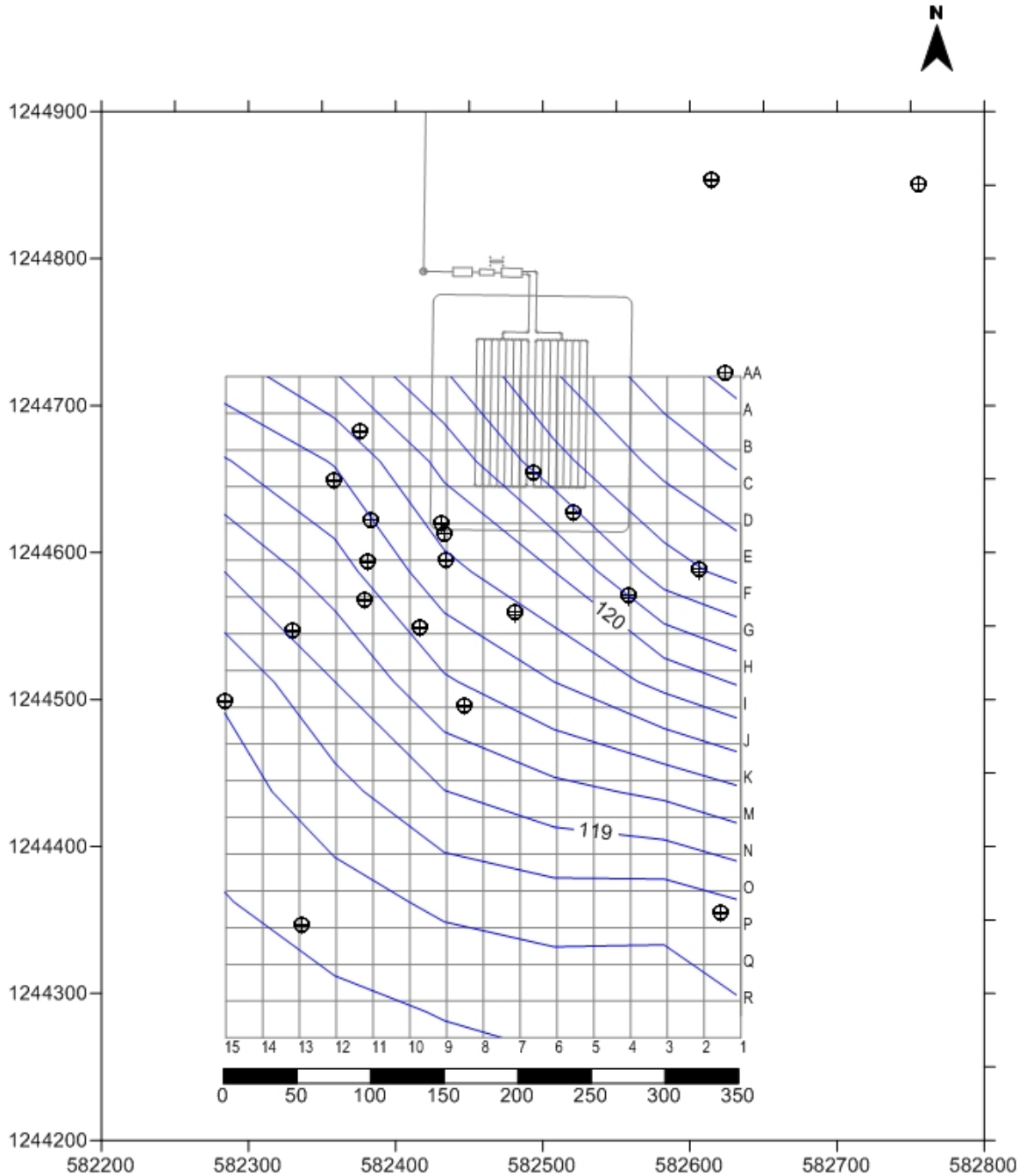

Figure 7

Surficial Groundwater Contours on May 13, 2011

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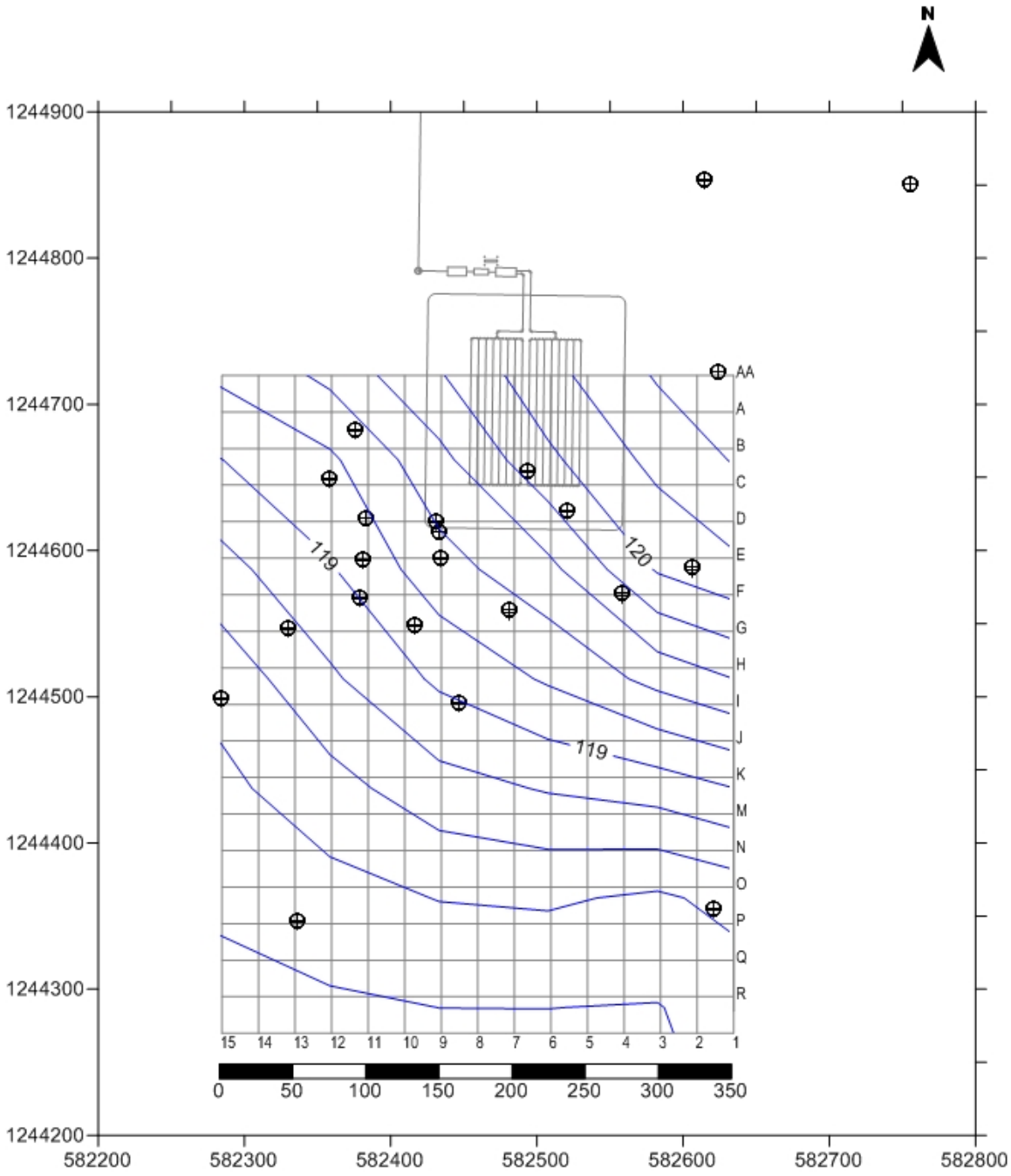

Figure 8
Surficial Groundwater Contours on June 17, 2011

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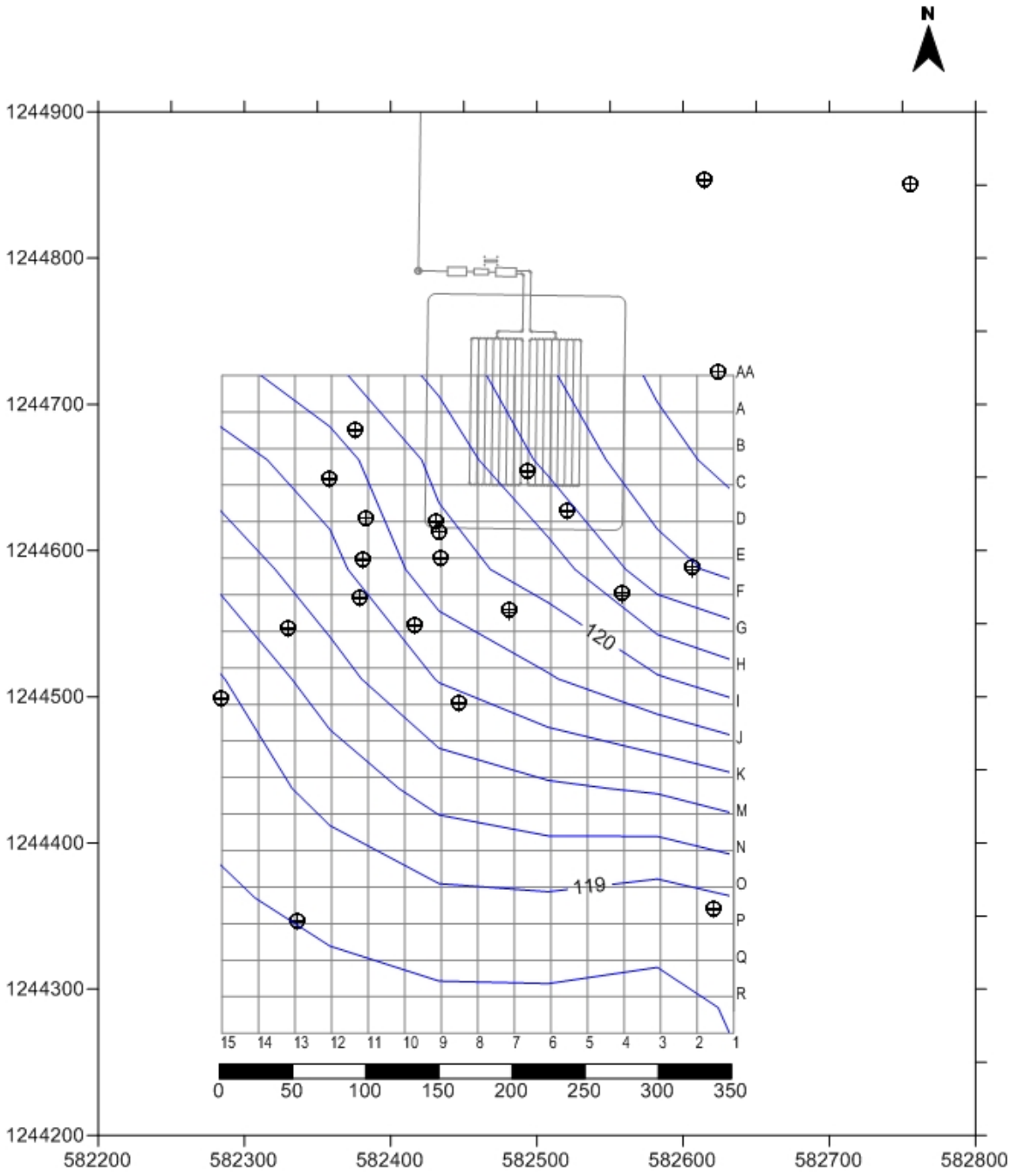

Figure 9
Surficial Groundwater Contours on June 28, 2011

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4.3 Water Quality Analyses

4.3.1 Field Parameters

Field parameters (temperature, pH, dissolved oxygen (DO), and specific conductivity) were measured at all the sampling locations during the June 2011 sampling event. Clearly variations were expected as the chemical composition of the groundwater varies due to the discharge of STE. However, similar to the results from the December and March sampling events, these variations were not large. In fact the temperature was found to range from 23.9 to 30.2 but the inter-quartile range (IQR) was between 24.5 to 26.0, pH varied from 4.0 to 6.1 with an IQR from 4.7 to 5.1, DO varied from 0.1 to 5.1 with an IQR from 0.3 to 1.0, and finally the conductivity varied from 80 to 752 with an IQR from 281 to 368 (Table 6). Large variations in field parameters at any one monitoring event are not expected; however slight seasonal variations may occur. Temperature does play a role in both the magnitude of nitrification and denitrification; however, the potential seasonal variations at the site are not expected to be significant enough for measurable rate changes. Furthermore, although slight variation in pH may occur, the bacteria responsible for denitrification are not highly sensitive to pH fluctuations, and while near neutral pH may be optimal for denitrification; research has shown that low pH levels have little to no impact on the process. Although high levels of DO may inhibit denitrification, the concentrations of DO seen at the site are only slightly above the limiting level of 1 mg/L, and thus little effect is expected. Instead, further analysis of the field parameters may provide additional information regarding plume extent. The complete field parameter data set is included in Appendix F.

Table 6
Field Parameters

	Dec 9, 2010		March 29 - April 4, 2011		June 27 – June 29, 2011	
Field Parameters	**Range**	**IQR**	**Range**	**IQR**	**Range**	**IQR**
Temperature (°C)	20.7 -27.6	21.8 - 22.7	19.4 - 28.9	21.9 - 23.9	23.9-30.2	24.5-26.0
pH	4.2 - 5.7	4.8 - 5.0	4.3 - 7.6	5.0 - 5.6	4.0-6.1	4.7-5.1
DO (mg/L)	0.4 - 3.3	0.8 - 1.4	0.2 - 10.9	0.8 - 2.2	0.1-5.1	0.3-1.0
Specific conductance (µS)	163 - 649	292 - 342	59 - 295	182 - 351	80-752	281-368
Chloride (mg/L)					3-82	9-21

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4.3.2 Correlations

Correlations between various parameters were conducted to determine if for example the NOX concentration could be estimated in the absence of actual field data. Such estimates can then provide insight into expected nitrogen removal or can be used to approximate a difficult to obtain parameter value. Based on the data collected to date, the relationship between chloride and specific conductance and the concentration of NOX has an observed strong correlation. Figure 10 illustrates the correlation between specific conductance and the concentration of chloride based on the June data. Figure 11 illustrates the correlation between the concentrations of chloride and NOX.

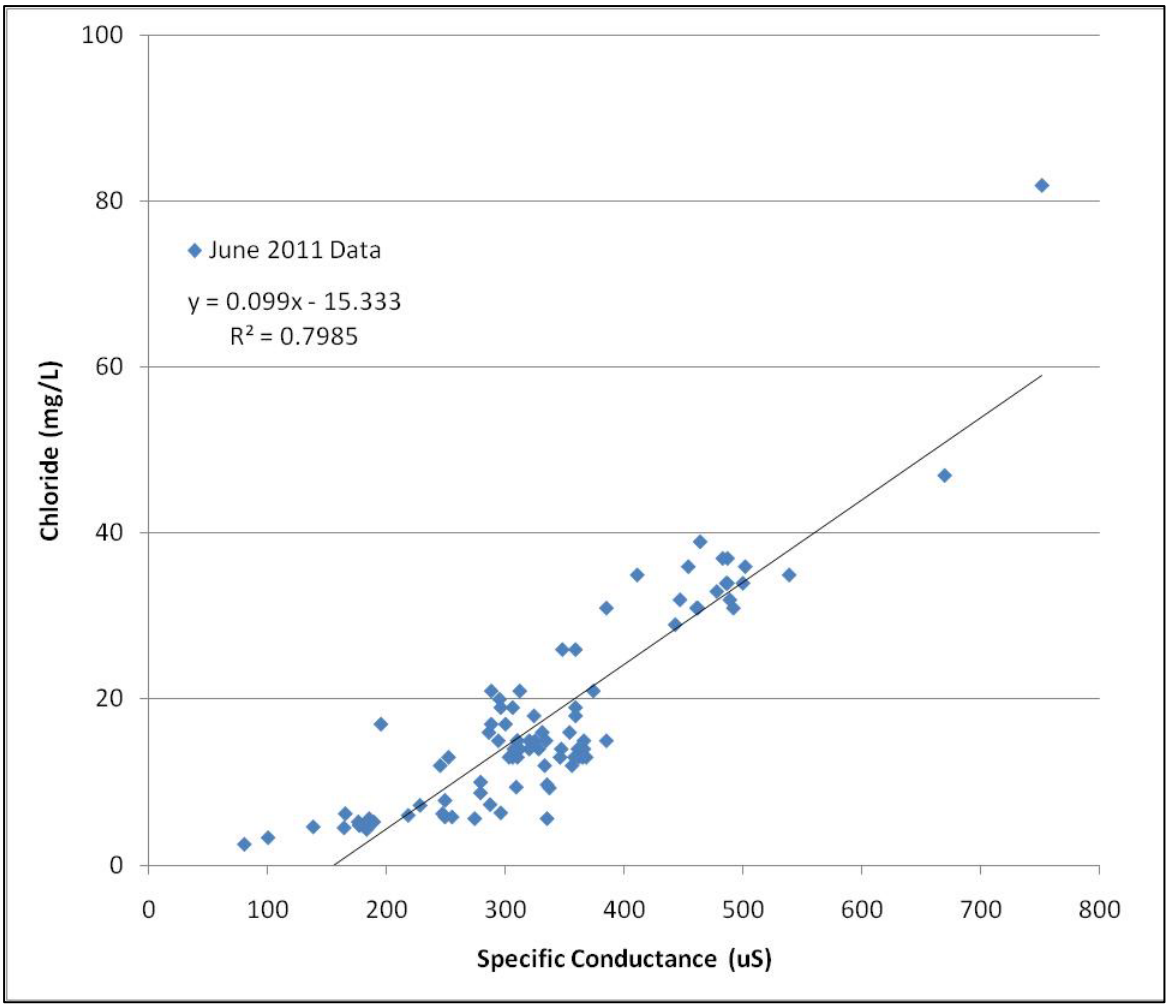

Figure 10
Correlation Between the Specific Conductance (uS) and Concentrations of Chloride (mg/L)

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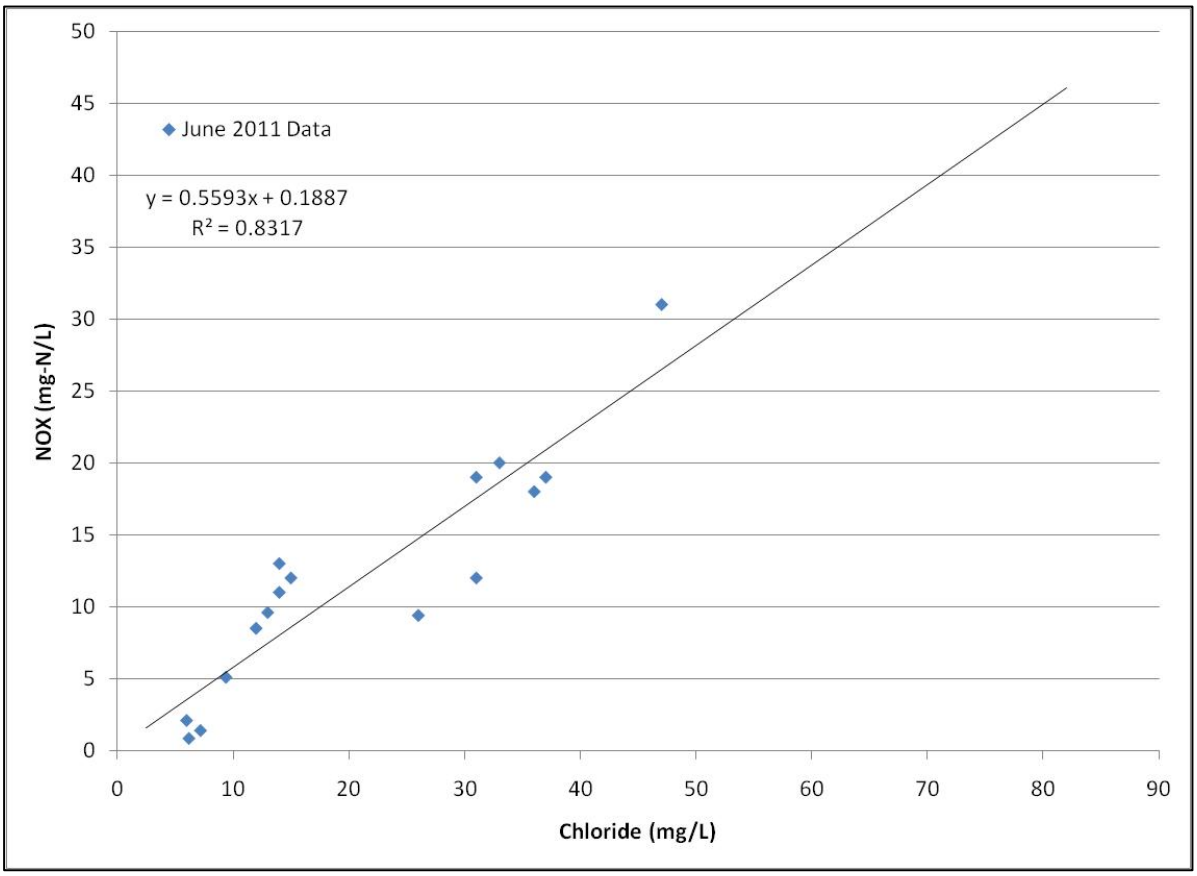

Figure 11
Correlation Between the Specific Conductance (uS) and Concentrations of Chloride (mg/L)

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. Although the June sampling event again provides further insight into the existing nitrogen plume, it did not provide enough information to make any conclusive interpretations. The complete water quality analytical results for Sample Event No. 3 are listed in Table 1, Appendix F, and the statistical summary of the water quality is presented in Table 1, Appendix G. The laboratory report containing the raw analytical data is included in Appendix H.

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4.3.4 Nitrate/Nitrite Concentrations with Depth

Although great care was taken to install the drive points at specific depths (e.g. 5, 7 and 9 feet below ground surface [bgs] in June of 2010, and 14, 21 and 27 feet bgs during the November drilling event), the reality is that the points are located at all different elevations from 92.85 feet to 120.82 feet. **Surfer** is an excellent tool for contour mapping; however, as it cannot project a 3-dimensional view of concentrations with depth. Thus, it was deemed necessary to "lump" the concentrations of parameters from the different sampling locations into "slices" of similar depth, allowing the different "slices" to be compared. With 121 drive points installed at different depths below the ground surface at 63 different locations outside of the mound, deciding on a logical way to separate the drive points into a few select "slices" that would represent a selection of elevation depths provided a challenge.

Samples were collected at 62 locations during the December sampling event. Based on the distribution of points with depth, four "slices" were chosen for the December data. The bottom three slices were separated into five-foot intervals, and the top group was divided into a ten-foot interval as that group comprises primarily drive points within the spodic layer. A **Surfer** schematic illustrating the "slices" of NOX concentration with depth from December 9, 2010 is presented in Figure 11. During the comprehensive sampling event in March 2011, samples were collected at all drive point locations. As a result of the additional data points, the data could be divided into five "slices" separated into five-foot intervals, as shown in Figure 12. For this June sampling event, NOX was analyzed for limited locations, but the field parameters and chloride concentrations were collected from the majority of the drive point locations. Therefore, the chloride data can be divided into five "slices" separated into five-foot intervals, as shown in Figure 13.

Similar to the results in December (Figure 11) and March (Figure 12) for NOX, the chloride results from the June sampling event show that the plume appears to be confined in a southwesterly direction from the center of the mound. The lowest concentrations are at the deeper depths. The highest concentrations were found at 110-115 feet above sea level close to the mound from approximately AA9 and north along the 9-transect (Figure 13).

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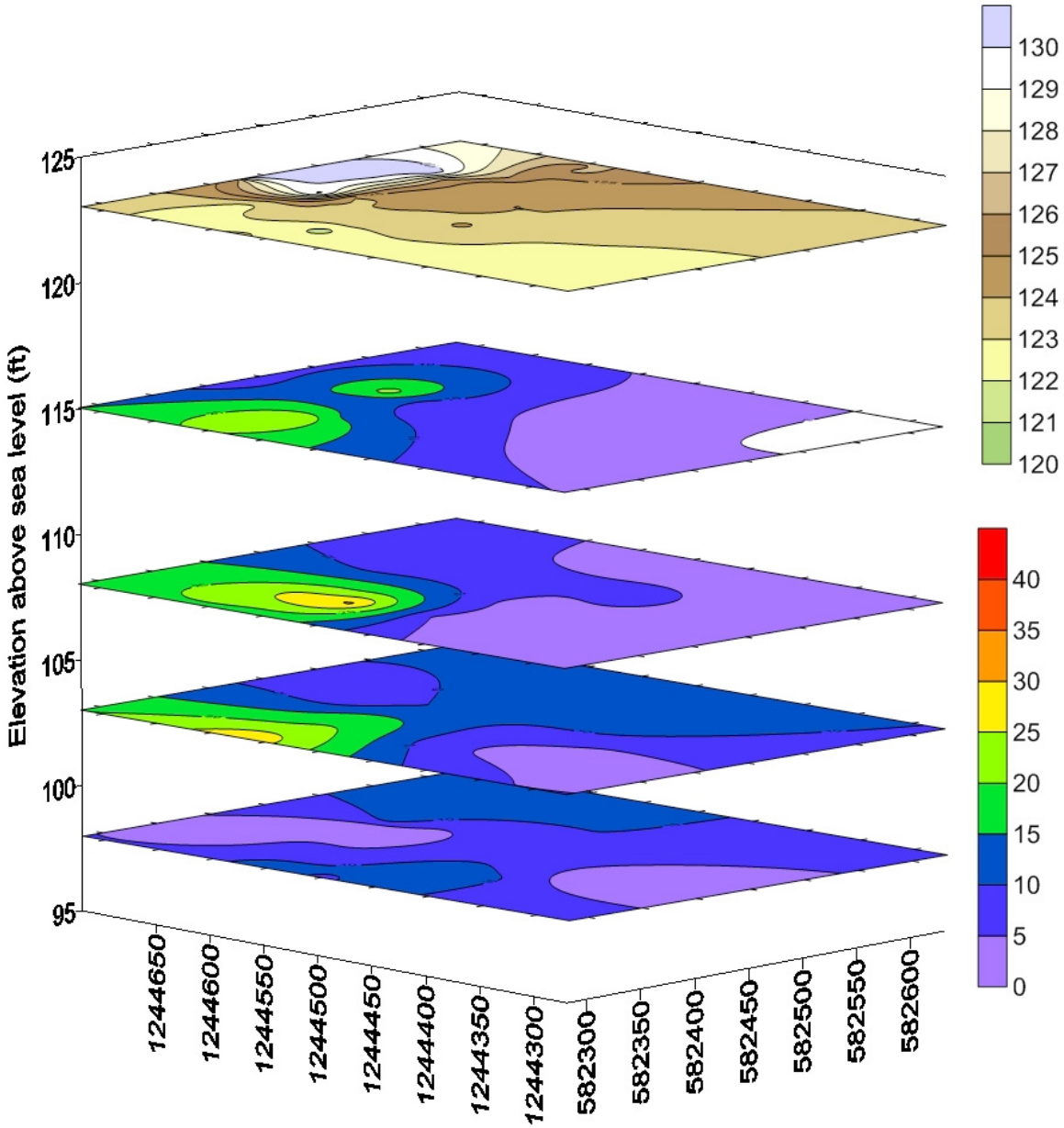

Figure 11

A layered schematic (using Surfer) illustrating NOX concentrations in the subsurface at four different elevation intervals (based on the December 2010 sampling event). The top slice provides a contour map of the surface elevation. UTM coordinates are provided to correlate the schematic to Figure 1.

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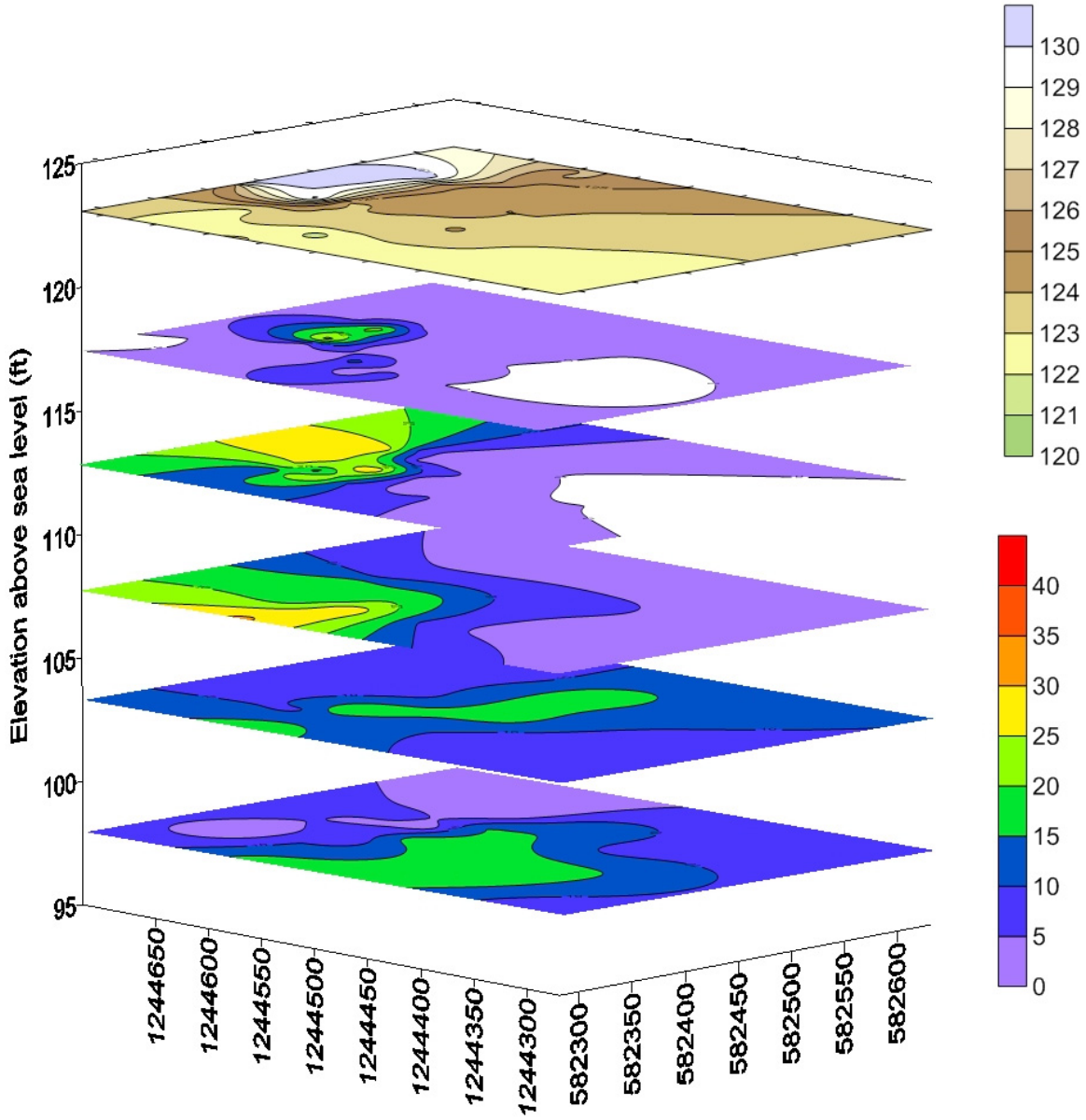

Figure 12

A layered schematic (using Surfer) illustrating NOX concentrations in the subsurface at four different elevation intervals (based on the March 2011 sampling event). The top slice provides a contour map of the surface elevation. UTM coordinates are provided to correlate the schematic to Figure 1.

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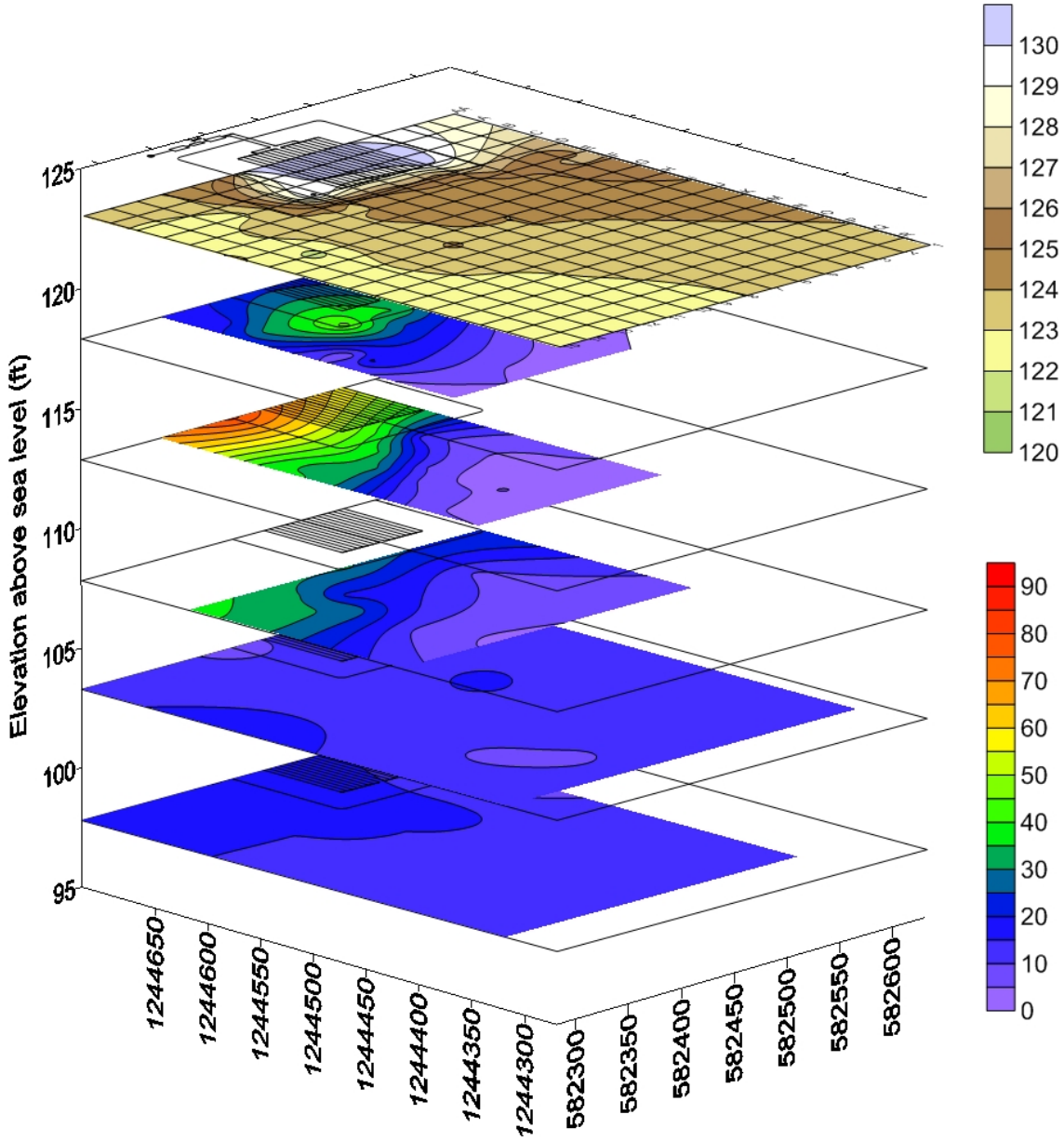

Figure 13

A layered schematic (using Surfer) illustrating Chloride concentrations in the sub-surface at five different elevation intervals (based on the June 2011 sampling event). UTM coordinates are provided to correlate the schematic to Figure 1.

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5.0 GCREC Data Summary Report No. 3: Summary and Recommendations

5.1 Summary

The results of the data collected to date has provided additional understanding of the extent of the spodic layer, allowed for estimations of groundwater flow, gradient and velocity, and provided additional insights into the general trend of the NOX plume. Results of Sample Event No. 3 indicate that:

- Although the groundwater levels fluctuate, the direction of flow remains constant at 220 degrees to true north.
- The groundwater gradient has been found to range from 0.0066 to 0.0094.
- Initial analysis suggests that the groundwater velocity range is from 0.66 to 0.94 ft/day.
- Additional verification of the elevation of the top of the spodic layer show that it follows the same trend as that of the groundwater.
- A good correlation has been established between specific conductance and concentrations of chloride (R^2=0.7).
- The chloride plume appears to follow the extent and movement of the NOX plume and be in a southwesterly direction with elevated concentrations in the spodic layer closer to the mound and higher elevations just below the spodic layer further away from the mound. The concentration is lowest just above the confining layer.
- Any potential interference from the elevated concentrations of NOX observed in PZ24 is still being evaluated.

5.2 Recommendations

The results of Sample Event No. 3 will be used to gain additional insights into the NOX plume and provide additional information needed for the development of the simple groundwater model in Task D. The project team will continuously evaluate all results including those that particularly result from implementation of the recommendations and make further adaptations as needed.

Following is a list with select recommendations:

- Additional analyses of field parameters will give a better understanding of if and how they may correlate to nitrogen reduction.
- Continuous groundwater level monitoring, will provide information needed to determine the necessary parameters for model development.
- Comprehensive sampling at the site will provide additional information that is needed for plume identification and for nitrogen fate and transport determination.

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Appendix A: GCREC Mound Wastewater Flow Data

Table A.1
GCREC Mound Metered Wastewater Flow Data

Date Range	Flow Meter Totalized Pump 1 to GCREC Mound (avg. gpd)	Flow Meter Totalized Pump 2 to GCREC Mound (avg. gpd)	Total Recorded Flow (avg. gpd)
Before A/C Condensate Diversion			
12/21/10 – 7/16/10	1,650	591	2,241
After A/C Condensate Diversion			
7/19/10 – 7/5/11	994	1,235	2,229

Table A.2
Summary of Daily Wastewater Flows (PLC Recorded)

	Date Range	Average Recorded Flow (gpd)	Std. Dev.	MIN (gpd)	MAX (gpd)
Before A/C Condensate Diversion					
Pump 1 to Mound	6/14/10 – 7/16/10	5,422	1,565	3,013	9,117
Pump 2 to Mound		-	-	-	-
Sum of Both Pumps		5,422	1,565	3,013	9,117
After A/C Condensate Diversion					
Pump 1 to Mound	7/16/10 – 6/27/11	984	680	0	3,548
Pump 2 to Mound		1,249	784	0	5,022
Sum of Both Pumps		2,233	1,017	584	5,730

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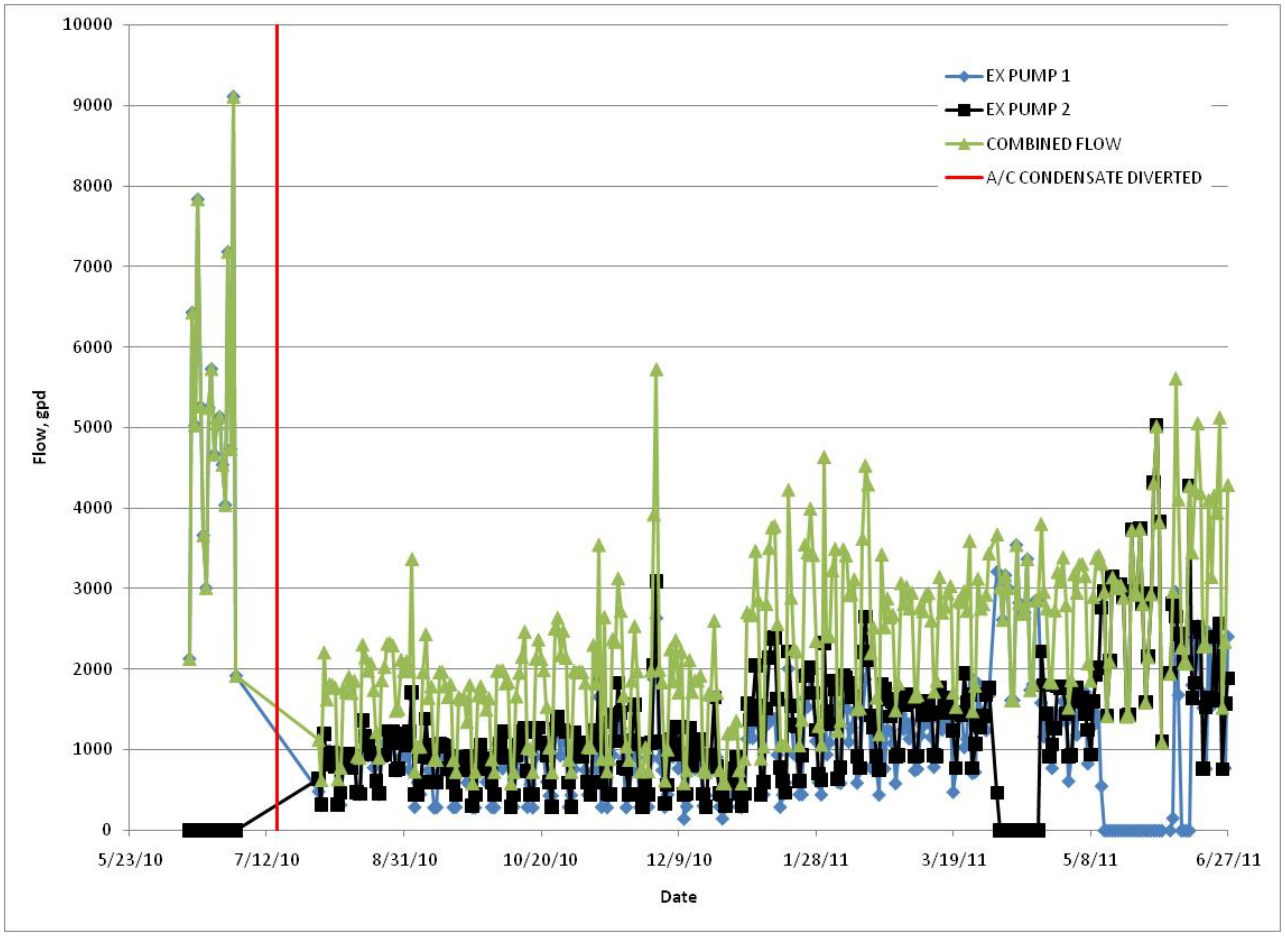

Figure A.1
PLC Recorded Daily Wastewater Flows
(6/14/10 – 6/27/11)

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Appendix B: GCREC Weather Station Data

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Table B.1
Monthly Recorded Meteorological Data

Period	60cm T avg (°F)	60cm T min (°F)	60cm T 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 max (mph)	WDir avg 10m (deg)	ET avg (in)
Jan-10	53.10	23.97	82.38	59.67	51.13	66.63	44.57	76	3.19	0.57	7.60	32.80	348	0.05
Feb-10	53.75	30.84	78.96	59.86	54.32	65.75	43.97	74	2.22	0.47	7.85	36.13	348	0.07
Mar-10	59.24	32.89	82.26	62.09	55.31	68.11	48.75	73	6.15	0.44	8.25	38.27	289	0.10
Apr-10	69.78	44.74	88.54	70.78	63.00	75.72	59.50	74	2.79	0.52	7.46	44.17	94	0.15
May-10	77.78	62.37	93.63	79.11	73.17	83.97	68.62	77	0.89	0.13	6.75	31.10	126	0.18
Jun-10	80.91	65.84	99.09	82.32	76.69	88.63	72.87	80	8.25	1.30	5.85	50.47	116	0.19
Jul-10	80.67	68.00	96.21	82.58	77.49	87.03	74.05	82	7.30	0.48	5.95	35.37	103	0.18
Aug-10	80.54	70.59	96.87	82.63	79.11	87.85	75.03	85	13.51	1.74	5.78	43.53	154	0.16
Sep-10	78.91	63.43	95.88	80.83	78.17	83.39	72.11	82	3.42	0.55	6.33	41.60	84	0.16
Oct-10	71.98	51.24	93.00	74.97	71.83	78.62	61.55	73	0.01	0.01	5.56	32.00	31	0.11
Nov-10	65.75	39.95	86.77	69.47	64.33	75.34	56.97	76	1.24	0.16	6.52	30.53	55	0.07
Dec-10	50.64	22.86	78.37	60.71	54.61	71.33	39.83	71	0.50	0.05	7.33	36.77	354	0.04
Jan-11	57.65	29.23	79.54	61.34	56.86	65.07	49.01	77	4.13	0.49	7.08	44.07	319	0.06
Feb-11	62.95	34.76	85.21	63.94	57.76	69.58	54.40	78	0.47	0.07	6.38	35.57	75	0.09
Mar-11	66.56	39.12	88.66	68.35	61.45	73.83	56.59	75	6.89	0.47	7.41	44.13	82	0.12
Apr-11	73.3	46.33	93.02	74.09	66.49	79.99	62.81	73	0.94	0.31	6.67	26.67	2877	0.17
May-11	76.07	50.68	96.04	78.67	73.58	84.22	64.22	71	1.05	0.28	6.61	44.47	2976	0.19
Jun-11	79.5	63.07	98.83	81.83	76.96	87.12	69.97	76	4.86	0.43	6.08	37.53	2880	0.18

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Appendix C: GCREC Mound Sample Identification

Table C.1
GCREC Mound Sample Identification

	Grid Location	Sample Identification	Notes	Bottom Elevation (ft)
1	Lift Station	STE PumpTank	Wastewater Sample	N/A
2	Bkgd, North	PZ01-BKG-9	1 1/4" Standpipe Piezometer, 4' screen	120.33
3	Bkgd, North	PZ04-BKG-9	1 1/4" Standpipe Piezometer, 4' screen	118.66
4	Bkgd, North	PZ24-BKG-26	2" Standpipe Piezometer, 5' screen	101.41
5	Bkgd, East	PZ05-BKG-9	1 1/4" Standpipe Piezometer, 4' screen	117.39
6	Bkgd, NW	PZ06-BKG-12	1 1/4" Standpipe Piezometer, 4' screen	118.10
7	AA9	DP-AA9-14	SST Drive Point	110.68
8	AA9	DP-AA9-22	SST Drive Point	103.08
9	AA9	DP-AA9-27	SST Drive Point	98.28
10	A6.5	PZ25-A6.5-10	3/4" Standpipe Piezometer, 3.5' screen	119.62
11	A11	PZ15-A11-6	3/4" Standpipe Piezometer, 5' screen	118.84
12	CD6.5	PZ10-CD6-13	3/4" Standpipe Piezometer, 5' screen	116.03
13	C11	DP-C11-8	SST Drive Point	116.18
14	C12	PZ16-C12-28	3/4" Standpipe Piezometer, 1' screen	94.75
15	D5.5	PZ07-D05-7	1 1/4" Standpipe Piezometer, 4' screen	118.89
16	D7	DP-D07-5	SST Drive Point	120.82
17	D7	DP-D07-7	SST Drive Point	118.86
18	D7	DP-D07-9	SST Drive Point	116.79
19	D7.5	DP-D7.5-14	SST Drive Point	111.24
20	D7.5	DP-D7.5-20	SST Drive Point	105.31
21	D7.5	DP-D7.5-26	SST Drive Point	99.24
22	D8	DP-D08-9	SST Drive Point	116.31
23	D9	DP-D09-6	SST Drive Point	118.35
24	D9	DP-D09-8	SST Drive Point	116.45
25	D9	DP-D09-15	SST Drive Point, taped to PZ riser	109.45
26	D9	DP-D09-21	SST Drive Point, taped to PZ riser	103.45
27	D9	DP-D09-27	SST Drive Point, taped to PZ riser	97.45
28	D9	PZ23-D09-27	2" Standpipe Piezometer, 5' screen	97.41
29	D10	DP-D10-8	SST Drive Point	116.31

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Table C.1
GCREC Mound Sample Identification

	Grid Location	Sample Identification	Notes	Bottom Elevation (ft)
30	D11	DP-D11-11	SST Drive Point	113.29
31	D12	DP-D12-11	SST Drive Point	112.46
32	E2	DP-E02-6	SST Drive Point	119.55
33	E2	DP-E02-8	SST Drive Point	117.55
34	E3	DP-E03-10	SST Drive Point	115.26
35	E4	DP-E04-6	SST Drive Point	119.71
36	E4	DP-E04-8	SST Drive Point	117.71
37	E5	DP-E05-6	SST Drive Point	118.58
38	E6	DP-E06-6	SST Drive Point	118.86
39	E6	DP-E06-8	SST Drive Point	116.86
40	E7	DP-E07-10	SST Drive Point	114.74
41	E8	DP-E08-6	SST Drive Point	118.41
42	E8	DP-E08-8	SST Drive Point	116.41
43	E9	PZ11-E09-10	3/4" Standpipe Piezometer, 5' screen	114.56
44	E10	DP-E10-6	SST Drive Point	118.21
45	E11	DP-E11-12	SST Drive Point	111.98
46	E11	PZ21-E11-26	2" Standpipe Piezometer, 5' screen	111.98
47	E11	PZ22-E11-15	3/4" Standpipe Piezometer, 10' screen	111.98
48	E12	DP-E12-10	SST Drive Point	113.22
49	E12	DP-E12-15	SST Drive Point	107.75
50	E12	DP-E12-22	SST Drive Point	101.65
51	E12	DP-E12-28	SST Drive Point	95.80
52	F3	DP-F03-8	SST Drive Point	116.44
53	F4	PZ13-F04-8	3/4" Standpipe Piezometer, 5' screen	116.31
54	F4	DP-F04-17	SST Drive Point	108.06
55	F4	DP-F04-22	SST Drive Point	102.95
56	F4	DP-F04-32	SST Drive Point	92.85
57	F5	DP-F05-5	SST Drive Point	119.94
58	F5	DP-F05-31	SST Drive Point	93.89
59	F6	DP-F06-10	SST Drive Point	115.03
60	F7	DP-F07-6	SST Drive Point	118.25
61	FG7	PZ08-FG7-6	1 1/4" Standpipe Piezometer, 4' screen	118.25

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Table C.1
GCREC Mound Sample Identification

	Grid Location	Sample Identification	Notes	Bottom Elevation (ft)
62	F8	DP-F08-14	SST Drive Point	110.43
63	F8	DP-F08-20	SST Drive Point	103.96
64	F8	DP-F08-28	SST Drive Point	96.18
65	F9	DP-F09-5	SST Drive Point	118.98
66	F10	DP-F10-11	SST Drive Point	112.93
67	F11	DP-F11-11	SST Drive Point	112.68
68	F11	DP-F11-15	SST Drive Point	108.88
69	F11	DP-F11-18	SST Drive Point	105.73
70	F11	DP-F11-21	SST Drive Point	102.93
71	F11	DP-F11-24	SST Drive Point	99.88
72	F11	DP-F11-27	SST Drive Point	96.73
73	F12	DP-F12-10	SST Drive Point	112.77
74	F15	DP-F15-14	SST Drive Point	108.81
75	F15	DP-F15-20	SST Drive Point	102.84
76	F15	DP-F15-26	SST Drive Point	97.00
77	G5	DP-G05-6	SST Drive Point	118.51
78	G6	DP-G06-7	SST Drive Point	116.95
79	G7	DP-G07-13	SST Drive Point	111.63
80	G7	DP-G07-15	SST Drive Point	109.56
81	G7	DP-G07-17	SST Drive Point	106.76
82	G7	DP-G07-21	SST Drive Point	103.31
83	G7	DP-G07-24	SST Drive Point	100.51
84	G7	DP-G07-27	SST Drive Point	97.61
85	G8	DP-G08-5	SST Drive Point	119.54
86	G9	DP-G09-11	SST Drive Point	112.99
87	G9.75	PZ19-G10-26	2" Standpipe Piezometer, 5' screen	97.55
88	G9.75	PZ20-G10-15	3/4" Standpipe Piezometer, 10' screen	108.50
89	G11	DP-G11-8	SST Drive Point	115.27
90	G12	DP-G12-9	SST Drive Point	114.44
91	G12	DP-G12-15	SST Drive Point	108.37
92	G12	DP-G12-18	SST Drive Point	105.27
93	G12	DP-G12-21	SST Drive Point	102.32

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Table C.1
GCREC Mound Sample Identification

	Grid Location	Sample Identification	Notes	Bottom Elevation (ft)
94	G12	DP-G12-24	SST Drive Point	99.72
95	G12	DP-G12-27	SST Drive Point	96.37
96	G13	PZ14-G13-7	1 1/4" Standpipe Piezometer, 4' screen	115.11
97	H5	DP-H05-7	SST Drive Point	117.13
98	H6	DP-H06-7	SST Drive Point	117.33
99	H7	DP-H07-8	SST Drive Point	116.32
100	H8	DP-H08-10	SST Drive Point	113.84
101	H9	DP-H09-12	SST Drive Point	111.74
102	H10	DP-H10-11	SST Drive Point	112.68
103	H11	PZ03-H11-6	1 1/4" Standpipe Piezometer, 4' screen	121.47
104	H12	DP-H12-5	SST Drive Point	118.01
105	I6	DP-I06-14	SST Drive Point	110.24
106	I6	DP-I06-20	SST Drive Point	103.99
107	I6	DP-I06-26	SST Drive Point	97.94
108	I7	DP-I07-8	SST Drive Point	115.67
109	I8	DP-I08-5	SST Drive Point	118.56
110	I8.5	PZ09-I08-5	1 1/4" Standpipe Piezometer, 4' screen	118.93
111	I9	DP-I09-11	SST Drive Point	112.96
112	I10	DP-I10-6	SST Drive Point	117.72
113	I11	DP-I11-10	SST Drive Point	113.50
114	I12	DP-I12-6	SST Drive Point	117.54
115	I15	PZ17-I15-26	3/4" Standpipe Piezometer,1' screen	97.09
116	J8	DP-J08-6	SST Drive Point	118.02
117	J9	DP-J09-12	SST Drive Point	112.05
118	J9	DP-J09-14	SST Drive Point	109.61
119	J9	DP-J09-20	SST Drive Point	103.36
120	J9	DP-J09-26	SST Drive Point	97.11
121	J10	DP-J10-6	SST Drive Point	117.32
122	J11	DP-J11-12	SST Drive Point	111.99
123	J12	DP-J12-13	SST Drive Point	110.44
124	J12	DP-J12-15	SST Drive Point	108.26
125	J12	DP-J12-20	SST Drive Point	102.61

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Table C.1
GCREC Mound Sample Identification

	Grid Location	Sample Identification	Notes	Bottom Elevation (ft)
126	J12	DP-J12-27	SST Drive Point	96.36
127	K10	DP-K10-7	SST Drive Point	116.41
128	K11	DP-K11-13	SST Drive Point	110.43
129	K12	DP-K12-5	SST Drive Point	117.68
130	M7	DP-M07-15	SST Drive Point	108.98
131	M7	DP-M07-21	SST Drive Point	102.65
132	M7	DP-M07-27	SST Drive Point	96.95
133	M12	DP-M12-10	SST Drive Point	112.79
134	N12	DP-N12-14	SST Drive Point	108.40
135	N12	DP-N12-18	SST Drive Point	104.75
136	N12	DP-N12-21	SST Drive Point	101.73
137	N12	DP-N12-24	SST Drive Point	98.75
138	N12	DP-N12-27	SST Drive Point	95.63
139	O10	DP-O10-12	SST Drive Point	110.71
140	O10	DP-O10-18	SST Drive Point	104.56
141	O10	DP-O10-24	SST Drive Point	98.56
142	PQ1.75	PZ02-P02-9	1 1/4" Standpipe Piezometer, 4' screen	115.24
143	Q15	DP-Q15-15	SST Drive Point	108.20
144	Q15	DP-Q15-21	SST Drive Point	102.29
145	Q15	DP-Q15-26	SST Drive Point	96.40
146	R12	PZ18-R12-26	3/4" Standpipe Piezometer, 1' screen	96.56

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Appendix D: Soil Analytical Results

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Table D.1
Soil Analytical Results

ID#	Sample ID	Depth	pH	BufpH	CEC	TN[1]	TKN	ON[2]	NH3-N	NOx-N	TIN[3]	OrgMt	Est. TOC[4]	K	Ca	Mg	Na
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%	0.68% OM	mg/kg	mg/kg	mg/kg	mg/kg
1	O-10	0-1.57'	6.10	7.80	6.92	800.92	799.0897	797.44	1.65	1.83	3.48	2.11	1.43	27.19	634.0	50.20	23.68
2	O-10	1.57-2.49'	5.30	7.89	2.36	115.37	114.3235	113.31	1.02	1.05	2.06	0.20	0.14	12.89	42.86	1.58	21.25
3	O-10	2.49-3.58'	5.40	7.92	2.19	49.20	48.9296	48.06	0.87	0.27	1.14	0.14	0.10	11.81	38.34	1.99	23.84
4	O-10	3.58-5.1'	5.20	7.92	2.15	41.04	40.777	39.92	0.86	0.26	1.12	0.14	0.10	13.01	39.47	1.88	22.10
5	O-10	5.1-5.6'	4.70	7.76	3.79	66.94	66.7042	65.68	1.03	0.23	1.26	0.20	0.14	17.00	34.48	0.54	28.90
6	O-10	5.6-6.2'	4.60	7.52	6.20	116.14	115.8041	114.62	1.18	0.34	1.52	0.54	0.37	21.73	40.38	1.03	36.54
7	E-06	0-2.4'	6.10	7.81	8.48	741.19	716.9355	715.98	0.96	24.26	25.21	2.04	1.39	65.70	795.0	52.20	19.91
8	E-06	2.44-2.9'	6.10	7.87	3.22	145.49	144.4289	143.50	0.92	1.06	1.99	0.48	0.33	22.54	133.6	11.93	19.09
9	E-06	2.8-3.9'	5.10	NES[5]	1.31	54.49	54.1427	52.77	1.37	0.34	1.71	0.14	0.10	13.05	35.32	0.73	18.29
10	E-06	3.9-4'	6.10	7.93	2.33	56.94	56.5046	55.50	1.00	0.44	1.44	0.14	0.10	19.86	64.20	9.60	19.80
11	E-06	4-4.35'	5.80	7.97	1.65	60.71	58.6418	57.69	0.95	2.07	3.02	0.14	0.10	12.82	68.60	3.20	16.34
12	E-06	4.35-4.85'	4.60	NES[5]	1.52	54.22	52.7575	51.37	1.39	1.46	2.86	0.14	0.10	16.61	39.65	1.41	20.33
13	E-06	4.85-5.35'	4.40	NES[5]	1.73	204.35	201.9656	199.86	2.10	2.38	4.49	1.22	0.83	23.64	35.36	-1.41	22.07
14	E-06	6-8'	4.70	7.30	8.18	322.05	319.6979	318.72	0.98	2.35	3.33	2.38	1.62	19.44	42.37	0.63	42.80
15	G-10	0-1.2'	5.90	7.74	6.25	472.86	470.9396	465.80	5.14	1.92	7.06	1.70	1.16	46.82	352.9	20.01	23.97
16	G-10	1.2-2.8'	4.90	7.61	5.09	105.16	102.5401	98.95	3.59	2.62	6.21	0.41	0.28	20.74	57.40	3.35	25.84
17	G-10	2.8-6.1'	5.70	NES[5]	5.27	566.03	563.7461	557.91	5.84	2.28	8.12	1.50	1.02	65.50	380.3	28.36	33.38
18	G-10	6.1-9'	5.00	7.15	9.47	286.09	283.8583	280.52	3.34	2.23	5.57	2.24	1.52	38.03	91.50	3.93	27.73
19	G-10	9-10.1'	5.20	7.14	9.17	235.29	233.4414	231.18	2.26	1.85	4.10	1.50	1.02	26.30	89.80	3.17	26.30
20	G-10	10.1-13.9'	5.00	7.66	4.57	173.91	171.1635	169.04	2.13	2.74	4.87	1.22	0.83	19.31	65.10	0.78	23.52
21	G-10	13.9-16.6'	5.20	7.55	5.96	122.10	118.4095	115.41	3.00	3.69	6.69	0.75	0.51	28.65	74.30	2.94	28.17
22	G-10	16.6-19'	5.30	7.32	7.63	218.35	215.8369	213.42	2.42	2.52	4.93	1.50	1.02	30.33	77.50	2.77	23.10
23	G-10	19-23'	5.20	7.44	7.08	126.14	122.7524	120.20	2.56	3.39	5.95	0.68	0.46	33.10	109.4	5.16	26.63
24	G-10	23-27.5'	5.40	7.88	3.28	50.61	48.4507	46.62	1.83	2.16	3.99	0.14	0.10	19.62	170.6	9.63	20.22
25	G-10	27.5-27.9'	5.30	NES[5]	9.49	86.50	84.48341	81.07	3.41	2.02	5.43	0.27	0.18	33.57	1293	74.30	35.52
26	G-10	27.9-30'	5.70	7.71	34.05	237.70	235.0367	223.28	11.75	2.66	14.41	0.20	0.14	281.9	3035	850.0	51.70

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

[5]NES: for Not Enough Sample

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Appendix E: Groundwater Elevations

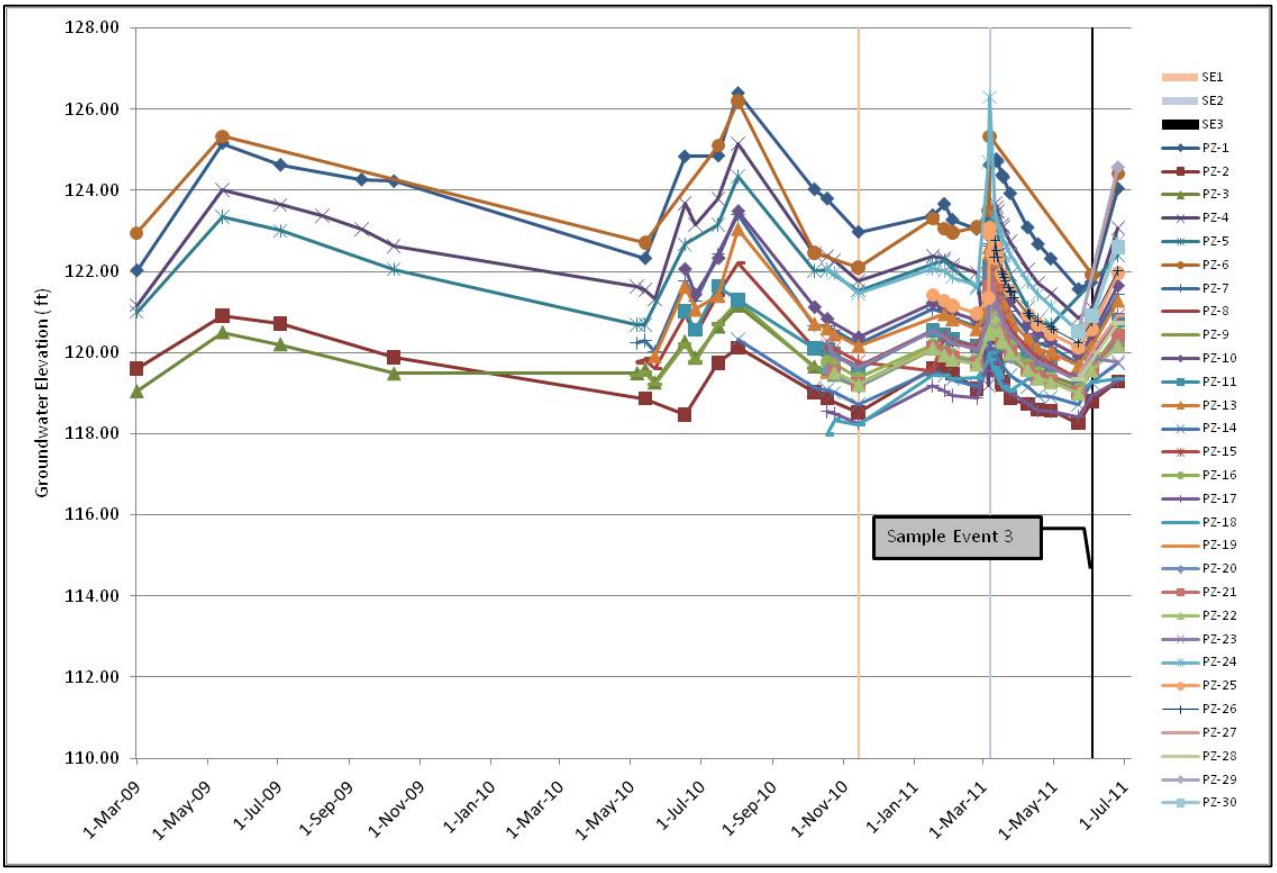

Figure E.1
Groundwater Elevations

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Table E.1
Groundwater Elevations

ID	PZ-1	PZ-2	PZ-3	PZ-4	PZ-5	PZ-6	PZ-7	PZ-8	PZ-9	PZ-10	PZ-11	PZ-13	PZ-14	PZ-15	PZ-16	PZ-17	PZ-18	PZ-19	PZ-20	PZ-21	PZ-22	PZ-23	PZ-24	PZ-25	PZ-26	PZ-27	PZ-28	PZ-29	PZ-30
Location	BKG, N	PG1.75	H11	BKG, N	BKG, E	BKG, NW	D5.5	FG7	I8.5	CD6.5	E9	F4	G13	A11	C12	I15	R12	G9.75	G9.75	E11	E11	D9	BKG, N	C-Mound	EF2	D08	D11	BKG	A0
3/26/2009	122.02	119.61	119.04	121.17	121.00	122.95																							
6/8/2009	125.16	120.92	120.50	124.01	123.34	125.33																							
7/28/2009	124.62	120.72	120.20	123.64	123.00																								
9/2/2009				123.37																									
10/6/2009	124.26			123.04																									
11/3/2009	124.22	119.88	119.48	122.63	122.06																								
6/1/2010			119.49	121.63	120.69		120.23	119.76	119.44																				
6/8/2010	122.32	118.87	119.58	121.55	120.68	122.70	120.29	119.84	119.52																				
6/16/2010			119.26	121.31			120.03	119.61	119.22			119.91																	
7/12/2010	124.83	118.47	120.27	123.68	122.67		121.77	120.94	120.22	122.06	121.01	121.63																	
7/21/2010			119.87	123.16			121.28	120.44	119.77	121.43	120.56	121.06																	
8/10/2010	124.85	119.74	120.64	123.79	123.15	125.10	122.42	121.42	120.70	122.33	121.64	121.40																	
8/27/2010	126.39	120.12	121.16	125.14	124.35	126.19	123.39	122.21	121.28	123.49	121.29	123.05	120.32																
11/1/2010	124.02	119.03	119.65	122.43	122.01	122.46	120.67	120.10	119.62	121.12	120.10	120.71	119.13																
11/12/2010	123.79	118.87	119.54	122.37	122.05		120.67	120.04	119.49	120.83	120.07	120.59	119.07	120.16	119.78	118.56	117.98	119.38	119.58			120.27	122.05						
11/18/2010			119.45	122.26			120.56	119.93	119.38		119.96	120.45	119.01	120.09	119.71	118.49	118.34	119.45	119.45	119.53	119.51	119.91	121.96						
12/9/2010	122.97	118.52	119.21	121.76	121.53	122.09	120.22	119.65	119.15	120.37	119.57	120.16	118.72	119.77	119.37	118.26	118.22	119.18	119.17	119.22	119.21	119.64	121.46						
2/11/2011	123.38	119.60	120.13	122.38	122.18	123.30	121.06	120.54	120.08	121.22	120.55		119.55	119.56	120.20	119.19	119.44	120.08	120.10	120.10	120.11	120.51	122.07	121.42					
2/21/2011	123.66	119.62	120.01	122.33	122.27	123.05	120.98	120.45	120.03	121.10	120.44	120.95	119.44	120.40	120.03	119.06	119.44	119.97	119.98	119.96	119.94	120.37	122.01	121.28					
2/28/2011	123.27	119.48	119.90	122.17	122.08	122.95	120.85	120.33	119.90	120.98	120.33	120.82	119.34	120.28	119.93	118.94	119.35	119.85	119.86	119.85	119.83	120.24	121.86	121.15					
3/21/2011	123.04	119.11	119.80	121.97	121.60	123.10	120.64	120.14	119.75	120.79	120.15	120.58	119.17	120.16	119.81	118.88	119.37	119.73	119.76	119.71	119.71	120.07	121.65	120.97					
3/31/2011	123.24	119.78	120.60	119.19	121.87	123.50	121.10	120.81	120.53	121.21	120.85	121.12	119.99	120.82	120.53	119.82	119.82	120.48	120.49	120.48	120.47	120.77	124.70	121.35					
4/1/2011							122.67	122.17	121.68	122.86	122.13	122.60		122.10	121.41			121.58	121.61	121.60	121.48	121.98		122.92					
4/1/2011	124.62	120.37	121.24	120.73	123.32	125.33	122.63	121.98	121.39	122.92	121.91	122.45	120.28	121.96	121.36	120.10	119.99	121.35	121.37	121.27	121.28	121.90	126.30	123.08					
4/4/2011		119.74	120.60				121.96	121.25	120.64	122.17	121.25	121.82	119.93	121.36	120.91	119.57	119.57	120.66	120.67	120.69	120.68	121.25		122.46					
4/4/2011		119.68	120.54				121.90	121.18	120.56	122.14	121.20	121.75	119.90	121.33	120.81	119.51	119.63	120.59	120.57	120.63	120.63	121.20		122.44					
4/5/2011			120.50				121.82	121.11	120.51	122.04	121.10	121.65	119.86	121.25	120.76			120.55	120.57	120.58	120.57	121.11		122.34	122.36				
4/6/2011	124.73	119.90	120.79	123.67	123.17		122.17	121.49	120.86	122.36	121.48	122.06	120.08	121.56	121.04	119.78	119.55	120.88	120.89	120.89	120.88	121.46	123.36	122.62	122.76				
4/7/2011	124.76	119.66	120.55	123.58	123.03		121.94	121.21	120.57	122.15	121.22	121.80	119.92	121.35	120.86	119.54	119.45	120.62	120.63	120.66	120.65	121.21	123.26	122.43	122.52				
4/8/2011	124.71	119.56	120.45	123.49	122.90		121.80	121.08	120.46	122.02	121.11	121.65	119.85	121.23	120.73	119.45	119.39	120.50	120.53	120.56	120.54	121.10	123.18	122.31	122.35				
4/12/2011	124.37	119.27	120.19	123.15	122.49		121.46	120.77	120.17	121.67	120.81	121.28	119.69	120.92	120.47	119.24	119.15	120.25	120.27	120.31	120.31	120.81	122.85	121.93	121.98				
4/13/2011	124.32	119.22	120.18	123.10	122.41		121.40	120.71	120.12	121.61	120.76	121.23	119.66	120.89	120.43	119.22	119.13	120.20	120.21	120.28	120.26	120.77	122.80	121.88	121.93				
4/14/2011							121.33					121.16													121.85				
4/15/2011												121.09													121.77				
4/18/2011												120.91													121.60				
4/19/2011	123.92	118.87	119.93	122.73	121.92		121.03	120.37	119.82	121.27	120.44	120.84	119.44	120.60	120.16	119.01	119.05	119.91	119.90	119.99	119.98	120.46	122.44	121.52	121.52				
4/20/2011												120.77													121.48				
4/22/2011												120.68													121.36				
5/4/2011	123.08	118.73	119.65	122.04	121.10		120.47	119.95	119.55	120.69	120.00	120.33	119.15	120.09	119.70	118.74	119.35	119.56	119.55	119.59	119.58	119.99	121.74	120.94	120.96				
5/5/2011												120.30													120.95				
5/6/2011												120.29													120.92				
5/13/2011	122.67	118.59	119.49	121.72	120.80		120.25	119.75	119.40	120.46	119.79	120.09	118.94	119.87	119.49	118.57	119.28	119.37	119.38	119.39	119.37	119.76	121.43	120.68	120.77				
5/24/2011	122.31	118.57	119.42	121.45	120.68		120.12	119.66	119.34	120.28	119.68	119.99	118.90	119.72	119.36	118.56	119.29	119.29	119.30	119.29	119.27	119.64	121.14	120.46	120.62				
5/26/2011												119.97													120.58				
6/17/2011	121.56	118.26	119.20	120.85			119.72	119.33	119.06	119.90	119.36	119.68	118.71	119.36	119.07	118.42	119.01	119.02	119.03	119.01	119.00	119.31	120.52	120.12	120.25	119.45	119.34	120.51	120.52
6/28/2011	121.73	118.80	119.74	121.11		121.92	120.26	119.93	119.63	120.40	119.96	120.15	119.26	119.88	119.63	118.93	119.28	119.60	119.62	119.58	119.57	119.85	120.80	120.58	120.78	120.01			120.91
7/21/2011	124.04	119.29	120.21	123.06	122.39	124.41	121.44	120.75	120.17	121.65	120.79	119.73	120.91	120.48	119.29	119.35	120.22	120.25	120.42	120.17	119.78	122.74	121.96	122.01	120.91	120.73	124.56	122.60	

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Appendix F: Water Quality Analytical Results

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Table F.1
Water Quality Analytical Results
(June 27 – June 29, 2011)

Sample ID	Sample Date/Time	Sample Type	Temp (°C)	pH	Total Alkalinity (mg/L)	DO (mg/L)	Specific Conductance (µS)	TSS (mg/L)	TS (% by wt.)	$CBOD_5$ (mg/L)	COD (mg/L)	TN (mg-N/L)	TKN (mg-N/L)	Organic N (mg-N/L)	NH3-N (mg-N/L)	NOx-N (mg-N/L)	TIN (mg-N/L)	TP (mg-P/L)	Fecal (1cfu/100 mL)	TOC (mg/L)	DOC (mg/L)	Anions						Cations						
																						F^-	Cl^-	NO_3-N^-	NO_2-N^-	PO_4-P^-	SO_4^-	B	Ca	Fe	Mg	Mn	K	Na
STE Sample																																			
STE-EX Pump Tank	6/28/2011 1:50:00 PM	G	31.0	6.6	200	0.1	875				270	26.1	26	4	22	0.1	22.1					6.7	72	0.1	0.01	9.9	22	0.065	56	0.81	19	0.04	23	49
Drivepoints																																			
DP-AA9-14	6/27/2011 8:28:00 AM	G	24.5	4.6		1.3	752																82												
DP-AA9-22	6/27/2011 9:04:00 AM	G	24.7	5.2		0.3	279																8.7												
DP-AA9-27	6/27/2011 9:16:00 AM	G	24.7	5.1		0.7	295																20												
DP-C11-8	6/27/2011 9:38:00 AM	G	27.8	5.8	21	3.0	385				12	13.9	1.9	1.81	0.09	12	12.09			5.5	5.2	0.017	31	12	0.01	0.01	53	0.11	30	6.6	7.2	0.31	7	31
DP-D07-9	6/28/2011 8:05:00 AM	G	24.4	4.0		1.9	539																35												
DP-D7.5-14	6/29/2011 12:25:00 PM	G	24.4	4.5		0.4	483																37												
DP-D08-9	6/27/2011 1:50:00 PM	G	27.4	5.3		1.8	411																35												
DP-D09-8	6/27/2011 12:38:00 PM	G	27.0	4.4	2	1.1	670				10	33.8	2.8	2.773	0.027	31	31.027			2.8	2.4	0.11	47	31	0.01	0.01	74	0.12	52	0.033	14	0.009	14	47
DP-D09-15	6/27/2011 1:10:00 PM	G	26.2	5.2	12	0.9	461				10	21.5	2.5	2.495	0.005	19	19.005			3.2	3.3	0.043	31	19	0.01	0.01	59	0.12	35	0.045	9.3	0.11	13	32
DP-D11-11	6/27/2011 10:54:00 AM	G	26.3	5.2		1.1	464																39												
DP-D12-11	6/27/2011 10:30:00 AM	G	26.2	4.9	5.2	0.3	487				10	21.6	2.6	2.14	0.46	19	19.46			2.6	1.8	0.01	37	19	0.01	0.01	52	0.13	38	0.044	9.1	0.066	11	31
DP-E04-8	6/28/2011 9:10:00 AM	G	26.0	4.7		1.6	185																5.6												
DP-E07-10	6/28/2011 9:05:00 AM	G	25.5	4.5		0.2	245																12												
DP-E08-8	6/28/2011 9:00:00 AM	G	25.8	4.5		0.3	348																26												
DP-E11-12	6/28/2011 8:50:00 AM	G	24.9	5.0		0.3	489																32												
DP-E12-10	6/28/2011 8:20:00 AM	G	25.1	4.9		0.3	502																36												
DP-E12-15	6/28/2011 8:25:00 AM	G	24.7	5.2		0.4	462																31												
DP-E12-22	6/28/2011 8:30:00 AM	G	24.2	4.8	12	0.4	328				10	12.8	1.8	1.714	0.086	11	11.086			2.6	2.1	0.01	14	11	0.01	0.01	67	0.1	30	0.067	8.5	0.19	11	8.4
DP-E12-22-D	6/28/2011 8:35:00 AM	G	24.2	4.8	6.2	0.4	328				14	12.7	1.7	1.6	0.1	11	11.1			2.4	2	0.01	13	11	0.01	0.01	66	0.096	30	0.067	8.5	0.2	11	8.3
DP-E12-28	6/28/2011 8:40:00 AM	G	24.2	4.8		0.4	320																15												
DP-F04-17	6/28/2011 9:25:00 AM	G	25.1	6.1		0.3	374																21												
DP-F04-32	6/28/2011 9:30:00 AM	G	24.6	6.1		0.3	335																5.6												
DP-F08-20	6/28/2011 9:40:00 AM	G	24.7	5.3		0.4	347																14												
DP-F08-28	6/28/2011 9:45:00 AM	G	24.3	5.4		0.3	324																18												
DP-F10-11	6/28/2011 9:50:00 AM	G	25.3	4.9		0.4	492																31												
DP-F11-11	6/28/2011 9:55:00 AM	G	26.0	4.8		0.3	447																32												
DP-F11-15	6/28/2011 10:00:00 AM	G	24.6	4.7		0.2	486																34												
DP-F11-18	6/28/2011 10:05:00 AM	G	24.5	5.0		0.3	359																19												
DP-F11-21	6/28/2011 10:10:00 AM	G	24.4	4.9		0.4	310																13												
DP-F11-24	6/28/2011 10:20:00 AM	G	24.4	4.8		0.2	310																15												
DP-F11-27	6/28/2011 10:25:00 AM	G	24.3	4.9		0.2	331																16												

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Table F.1 (con't)
Water Quality Analytical Results
(June 27 – June 29, 2011)

Sample ID	Sample Date/Time	Sample Type	Temp (°C)	pH	Total Alkalinity (mg/L)	DO (mg/L)	Specific Conductance (µS)	TSS (mg/L)	TS (% by wt.)	$CBOD_5$ (mg/L)	COD (mg/L)	TN (mg-N/L)	TKN (mg-N/L)	Organic N (mg-N/L)	NH3-N (mg-N/L)	NOx-N (mg-N/L)	TIN (mg-N/L)	TP (mg-P/L)	Fecal (1cfu/100 mL)	TOC (mg/L)	DOC (mg/L)	Anions					Cations						
																						F^-	Cl^-	NO_3-N^-	NO_2-N^-	PO_4-P^-	SO_4^-	B	Ca	Fe	Mg	Mn	K	Na
DP-F12-10	6/28/2011 10:30:00 AM	G	25.3	4.3		0.2	500																34											
DP-F15-14	6/29/2011 12:50:00 PM	G	24.2	4.5		0.3	487																34											
DP-F15-20	6/29/2011 12:55:00 PM	G	24.4	4.6		0.3	359																18											
DP-F15-26	6/29/2011 1:00:00 PM	G	24.2	4.3		0.2	320																14											
DP-G07-13	6/28/2011 12:10:00 PM	G	29.9	5.4		3.1	255																5.8											
DP-G07-15	6/28/2011 12:15:00 PM	G	25.6	5.0		0.8	296																6.3											
DP-G07-17	6/28/2011 12:20:00 PM	G	24.5	5.0		0.8	337																9.3											
DP-G07-21	6/28/2011 12:35:00 PM	G	24.8	5.1	5.2	1.3	333				10	9.8	1.3	1.295	0.005	8.5	8.505			2.3	1.8	0.016	12	8.5	0.01	0.01	77	0.068	29	0.045	8.8	0.17	15	7.4
DP-G07-24	6/28/2011 12:45:00 PM	G	24.6	4.9		0.6	286																16											
DP-G07-27	6/28/2011 12:50:00 PM	G	25.0	5.0		1.8	325																15											
DP-G09-11	6/28/2011 11:50:00 AM	G	27.9	5.4		2.9	279																10											
DP-G11-8	6/28/2011 11:45:00 AM	G	27.6	4.6		1.0	312																21											
DP-G12-9	6/28/2011 10:45:00 AM	G	26.5	4.2	2	0.2	359				12	10.8	1.4		0.037	9.4	9.437			4.6	2.2	0.17	26	9.4	0.01	0.01	60	0.06	22	0.81	5.9	0.15	5.6	23
DP-G12-15	6/28/2011 10:55:00 AM	G	25.2	4.7	5.2	0.2	478				10	23.4	3.4	3.04	0.36	20	20.36			3.6	2.1	0.014	33	20	0.01	0.01	53	0.062	35	0.17	9.1	0.21	12	29
DP-G12-18	6/28/2011 11:00:00 AM	G	24.6	4.8		0.2	443																29											
DP-G12-21	6/28/2011 11:10:00 AM	G	24.4	4.9	7.3	0.1	361				10	15.5	2.5	2.493	0.007	13	13.007			3.5	2	0.01	14	13	0.01	0.01	62	0.069	33	0.18	7.6	0.18	15	12
DP-G12-24	6/28/2011 11:30:00 AM	G	24.8	4.8	5.2	0.2	334				51	13.2	1.2	1.195	0.005	12	12.005			1.8	1.4	0.19	15	12	0.01	0.01	59	0.067	27	0.039	11	0.18	15	6.7
DP-G12-27	6/28/2011 11:15:00 AM	G	24.3	4.8		0.1	346																13											
DP-H06-7	6/28/2011 1:05:00 PM	G	30.2	5.9		4.7	164																4.5											
DP-H09-12	6/28/2011 1:15:00 PM	G	25.8	5.0		0.8	274																5.6											
DP-H10-11	6/28/2011 1:25:00 PM	G	28.5	5.6	17	5.1	228				10	2.02	0.62	0.48	0.14	1.4	1.54			4.3	3.6	0.034	7.2	1.2	0.11	0.01	51	0.062	20	4.1	4.7	0.42	9.3	6.3
DP-I06-14	6/29/2011 9:30:00 AM	G	24.4	4.7	6.2	0.3	218				10	2.65	0.55	0.545	0.005	2.1	2.105			3	2.4	0.19	6	2.1	0.01	0.023	62	0.058	23	0.024	5	0.19	11	3.1
DP-I06-20	6/29/2011 9:35:00 AM	G	24.1	4.9		0.3	362																13											
DP-I06-26	6/29/2011 9:40:00 AM	G	24.2	5.0		0.2	312																14											
DP-I12-6	6/29/2011 9:25:00 AM	G	26.6	4.7		0.4	138																4.6											
DP-J08-6	6/29/2011 9:50:00 AM	G	27.3	5.9		3.1	183																4.3											
DP-J09-12	6/29/2011 10:00:00 AM	G	25.7	4.8		0.4	189																5.2											
DP-J09-14	6/29/2011 10:05:00 AM	G	24.8	4.5		0.3	249																7.8											
DP-J09-20	6/29/2011 10:10:00 AM	G	24.1	4.7		0.2	368																13											
DP-J09-26	6/29/2011 10:15:00 AM	G	24.0	4.5		0.2	306																13											
DP-J12-13	6/29/2011 10:20:00 AM	G	24.9	4.6		0.3	249																5.8											
DP-J12-15	6/29/2011 10:25:00 AM	G	24.7	4.6		0.3	287																7.3											
DP-J12-20	6/29/2011 10:30:00 AM	G	24.5	4.9		0.4	356																12											
DP-J12-27	6/29/2011 10:35:00 AM	G	24.4	4.7		0.2	310																15											
DP-K10-7	6/29/2011 10:45:00 AM	G	27.4	5.1		1.3	176																5.2											
DP-K12-5	6/29/2011 10:40:00 AM	G	27.5	4.7		0.7	80																2.5											

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Table F.1 (con't)
Water Quality Analytical Results
(June 27 – June 29, 2011)

Sample ID	Sample Date/Time	Sample Type	Temp (°C)	pH	Total Alkalinity (mg/L)	DO (mg/L)	Specific Conductance (µS)	TSS (mg/L)	TS (% by wt.)	$CBOD_5$ (mg/L)	COD (mg/L)	TN (mg-N/L)	TKN (mg-N/L)	Organic N (mg-N/L)	NH3-N (mg-N/L)	NOx-N (mg-N/L)	TIN (mg-N/L)	TP (mg-P/L)	Fecal (1cfu/100 mL)	TOC (mg/L)	DOC (mg/L)	Anions					Cations						
																						F^-	Cl^-	NO_3-N^-	NO_2-N^-	PO_4-P^-	SO_4^-	B	Ca	Fe	Mg	Mn	K	Na
DP-M07-21	6/29/2011 10:50:00 AM	G	24.5	4.9		0.3	366																14											
DP-M07-27	6/29/2011 10:55:00 AM	G	24.3	5.0		0.2	303																13											
DP-M12-10	6/29/2011 11:00:00 AM	G	27.0	5.1		0.9	177																4.8											
DP-N12-14	6/29/2011 11:10:00 AM	G	25.4	4.4		0.2	177																4.8											
DP-N12-18	6/29/2011 11:15:00 AM	G	25.2	4.7		0.3	247																6.2											
DP-N12-21	6/29/2011 11:20:00 AM	G	24.9	4.8	5.2	0.2	309				10	5.79	0.69	0.685	0.005	5.1	5.105			2.6	1	0.2	9.4	5.1	0.01	0.025	84	0.05	32	0.042	8.2	0.093	15	4.3
DP-N12-24	6/29/2011 11:30:00 AM	G	24.7	4.6		0.1	354																16											
DP-N12-27	6/29/2011 11:35:00 AM	G	24.6	4.7	5.2	0.1	365				10	11	1.4	1.395	0.005	9.6	9.605			2.2	2.2	0.2	13	9.6	0.01	0.022	84	0.05	32	0.041	11	0.043	22	5.2
DP-N12-27-D	6/29/2011 11:40:00 AM	G	24.6	4.7	6.2	0.1	365				10	10.9	1.3	1.295	0.005	9.6	9.605			2.2	2.1	0.32	13	9.6	0.01	0.012	84	0.05	31	0.037	11	0.042	22	5
DP-O10-18	6/29/2011 12:10:00 PM	G	25.1	4.9		0.7	335																9.7											
DP-O10-24	6/29/2011 12:15:00 PM	G	24.7	4.7		0.3	366																15											
DP-Q15-21	6/29/2011 12:35:00 PM	G	25.2	4.8		0.3	358																13											
DP-Q15-26	6/29/2011 12:40:00 PM	G	25.3	4.8		0.4	385																15											
Standpipe Piezometers																																		
PZ03-H11-6	6/27/2011 12:03:00 PM	G	28.4	4.5	2	3.0	165				10	1.19	0.34		0.01	0.85	0.86			4.8	3.4	0.14	6.2	0.85	0.01	0.01	44	0.05	11	0.022	2.7	0.052	4.8	5.8
PZ04-BKG-9	6/27/2011 8:40:00 AM	G	25.9	5.6		4.2	100																3.3											
PZ07-D05-7	6/27/2011 11:40:00 AM	G	27.3	4.7		2.5	288																21											
PZ11-E09-10	6/27/2011 11:00:00 AM	G	27.6	5.3	9.4	1.8	454				10	20.3	2.3		0.1	18	18.1			2.2	1.5	0.038	36	18	0.01	0.01	59	0.093	34	0.29	8.9	0.23	10	30
PZ11-E09-10-D	6/27/2011 11:05:00 AM	G	27.6	5.3	9.4	1.8	454				10	20.2	2.2		0.13	18	18.13			2.7	1.6	0.02	35	18	0.01	0.01	62	0.095	35	0.26	9.3	0.22	11	32
PZ15-A11-6	6/27/2011 10:40:00 AM	G	29.4	5.3		3.1	195																17											
PZ16-C12-28	6/27/2011 10:32:00 AM	G	25.1	5.5		0.5	306																19											
PZ17-I15-26	6/27/2011 12:39:00 PM	G	25.4	4.9		1.6	307																14											
PZ18-R12-26	6/27/2011 1:02:00 PM	G	26.6	5.1		0.6	252																13											
PZ19-G10-26	6/27/2011 9:31:00 AM	G	23.9	5.0		0.6	294																15											
PZ20-G10-15	6/27/2011 9:05:00 AM	G	25.7	5.3		2.6	300																17											
PZ21-E11-26	6/27/2011 9:56:00 AM	G	24.8	4.9		0.9	288																17											
PZ24-BKG-26	6/27/2011 8:29:00 AM	G	24.4	4.9		0.7	296																19											
Blanks																																		
Equipment Rinsate	6/29/2011 1:15:00 PM		28.8	6.8		4.9	10																0.05											
Field Blank DI	6/29/2011 1:30:00 PM																						0.05											

Notes
DO - 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.
Dark Orange shaded data points indicate too many colonies were present for accurate counting.

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Appendix G: Summary of Water Quality Data

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Table G.1
Summary of Water Quality Data

Sample ID	Statistical Parameter	Temp (°C)	pH	Total Alkalinity (mg/L)	DO (mg/L)	Specific Conductance (µS)	TDS (mg/L)	TSS (mg/L)	$CBOD_5$ (mg/L)	COD (mg/L)	TN (mg/L N)[1]	TKN (mg/L N)	Organic N (mg/L N)[2]	NH3-N (mg/L N)	NOx (mg/L N)	TIN (mg/L N)[3]	TP (mg/L)	Fecal (CL/100 mL)	TOC (mg/L)	DOC (mg/L)	Anions						Cations							TS
																					F^-	Cl^-	NO_2-N[-]	NO_3-N[-]	PO_4-P[-]	SO_4^-	B	Ca	Fe	Mg	Mn	K	Na	
STE Sample																																		
STE-EX Pump Tank	n	6	6	7	4	5	3	5	4	5	6	6	6	7	7	6	4	5	0	0	2	2	2	2	2	2	2	2	2	2	2	2	2	1
	MEAN	26.9		230.4	0.16	806.2	410.3	33.2	138.7	271	38.3	38.2	7.95	26.8	0.07	30.3	4.1	256052.0			5.7	60	0.07	0.01	6.6	21.5	0.11	57.0	3.9	18.5	0.061	19.0	46.0	0.03
	STD. DEV.	4.0		87.8	0.10	308.9	166.9	27.1	107.6	237	13.6	13.6	7.99	11.3	0.09	7.1	2.4	425495.9																
	MIN	19.9	6.5	150.0	0.10	494.0	260.0	14.0	82.7	120	24.2	24.2	-1.00	5.8	0.01	21.5	1.3	60.0			4.6	47	0.03	0.01	3.2	21	0.07	56	0.8	18.0	0.040	15.0	43.0	0.03
	MAX	31.0	7.3	410.0	0.30	1273.0	590.0	80.0	300.0	680	56.0	56.0	21.00	39.0	0.26	39.3	6.4	1,000,000.0			6.7	72	0.10	0.01	9.9	22	0.15	58	7.0	19.0	0.081	23.0	49.0	0.03
Drivepoints																																		
DP-AA9-14	n	3	3	2	3	3	0	0	0	0	2	2	2	2	2	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.0	4.9	8.0	1.06	577.6					27.7	1.8	1.75	0.014	26.0	26.0						82												
	STD. DEV.	1.5	0.3	4.3	0.21	257.5					29.5	1.2	1.17	0.011	28.4	28.4																		
	MIN	21.5	4.6	4.9	0.89	281.9					6.8	0.9	0.92	0.006	5.9	5.9						82												
	MAX	24.5	5.1	11.0	1.30	752.0					48.6	2.6	2.58	0.021	46.0	46.0						82												
DP-AA9-22	n	3	3	2	3	3	0	0	0	0	2	2	2	2	2	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.9	5.1	4.5	0.71	294.6					10.0	1.0	0.98	0.027	9.0	9.0						8.7												
	STD. DEV.	0.4	0.3	3.5	0.21	23.1					1.2	0.3	0.25	0.020	1.5	1.5																		
	MIN	23.3	4.9	2.0	0.30	279.0					9.1	0.8	0.81	0.013	7.9	7.9						8.7												
	MAX	24.7	5.3	6.9	1.06	318.7					10.8	1.2	1.16	0.041	10.0	10.0						8.7												
DP-AA9-27	n	3	3	2	3	3	0	0	0	0	2	2	2	2	2	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.8	5.0	2.5	0.8	292.1					9.5	1.1	1.01	0.036	8.5	8.5						20												
	STD. DEV.	1.0	0.2	0.7	0.1	3.6					2.3	0.1	0.06	0.011	2.2	2.2																		
	MIN	22.7	4.8	2.0	0.70	288.0					7.9	1.0	0.97	0.028	6.9	6.9						20												
	MAX	24.7	5.2	3.0	0.84	295.0					11.1	1.1	1.06	0.044	10.0	10.0						20												
DP-C11-8	n	2	2	2	2	2	0	0	0	1	2	2	2	2	2	2	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
	MEAN	24.8	5.9	28.0	3.3	352				12	9.3	1.7	1.61	0.09	7.6	7.6			5.5	5.2	0.02	31	12	0.01	0.01	53	0.11	30	6.6	7.2	0.31	7	31	
	STD. DEV.	4.2	0.1	9.9	0.4	47					6.6	0.3	0.28	0	6.3	6.3																		
	MIN	21.8	5.8	21.0	3.0	319				12	4.6	1.5	1.41	0.09	3.1	3.2			5.5	5.2	0.02	31	12	0.01	0.01	53	0.11	30	6.6	7.2	0.31	7	31	
	MAX	27.8	5.9	35.0	3.5	385				12	13.9	1.9	1.81	0.09	12.0	12.1			5.5	5.2	0.02	31	12	0.01	0.01	53	0.11	30	6.6	7.2	0.31	7	31	
DP-D07-5	n	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	24.1	6	14	4.86	326					13	2	2.00	0.005	11.0	11.01																		
	STD. DEV.																																	
	MIN	24.1	6.0	14	4.86	326					13	2	2.00	0.005	11.0	11.01																		
	MAX	24.1	6.0	14	4.86	326					13.0	2.0	2.00	0.005	11.0	11.01																		
DP-D07-7	n	1	1	1	1	1	0	0	0	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
	MEAN	23.3	0.0	2.0	0.77	365.0				20	13.6	1.6	1.59	0.011	12.0	12.0	0.015		1.7	1.4	0.1	23	12.0	0.010	0.010	53	0.096	27	0.054	5.4	0.0084	8.0	20.0	
	STD. DEV.																																	
	MIN	23.3	4.7	2.0	0.77	365.0				20	13.6	1.6	1.59	0.011	12.0	12.0	0.015		1.7	1.4	0.1	23	12.0	0.010	0.010	53	0.096	27	0.054	5.4	0.0084	8.0	20.0	
	MAX	23.3	4.7	2.0	0.77	365.0				20	13.6	1.6	1.59	0.011	12.0	12.0	0.015		1.7	1.4	0.1	23	12.0	0.010	0.010	53	0.096	27	0.054	5.4	0.0084	8.0	20.0	
DP-D07-9	n	2	2	1	2	2	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	24.2	4.3	2.0	3.20	465.5					23.8	1.8	1.8	0.007	22.0	22.0						35												
	STD. DEV.	0.3	0.4		1.84	103.9																												
	MIN	24.0	4.0	2.0	1.90	392.0					23.8	1.8	1.8	0.007	22.0	22.0						35												
	MAX	24.4	4.5	2.0	4.50	539.0					23.8	1.8	1.8	0.007	22.0	22.0						35												
DP-D7.5-14	n	3	3	2	3	3	0	0	0	0	2	2	2	2	2	2	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.1	5.5	3.0	0.72	476.3					27.4	1.9	1.88	0.065	25.5	25.6			2.9	1.2		37												
	STD. DEV.	1.7	1.3	1.4	0.35	41.4					6.7	1.8	1.9	0.078	4.9	4.9																		
	MIN	21.2	4.5	2.0	0.40	432.0					22.7	0.7	0.56	0.009	22.0	22.1			2.9	1.2		37												
	MAX	24.4	7.0	4.0	1.1	514.0					32.2	3.2	3.19	0.120	29.0	29.0			2.9	1.2		37												
DP-D7.5-20	n	2	2	2	2	2	0	0	0	1	2	2	2	2	2	2	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
	MEAN	23.6	6.2	4.0	1.91	277.0				10	8.6	1.1	1.04	0.014	7.5	7.5	0.2		1.8	1.3	0.0	10	7.6	0.01	0.2	67	0.1	28	0.022	6.5	0.21	16.0	6.7	
	STD. DEV.	2.0	1.2	2.8	0.91	26.9					0.5	0.4	0.37	0.012	0.1	0.1																		
	MIN	22.2	5.3	2.0	1.26	258.0				10	8.2	0.8	0.78	0.005	7.4	7.4	0.2		1.8	1.3	0.0	10	7.6	0.01	0.16	67	0.050	28	0.022	6.5	0.21	16.0	6.7	
	MAX	25.0	7.0	5.9	2.55	296.0				10	8.9	1.3	1.30	0.022	7.6	7.6	0.2		1.8	1.3	0.0	10	7.6	0.01	0.16	67	0.050	28	0.022	6.5	0.21	16.0	6.7	
DP-D7.5-26	n	2	2	2	2	2	0	0	0	0	2	2	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.2	6.2	3.0	1.74	293.5					10.8	1.1	1.1	0.022	9.7	9.7																		
	STD. DEV.	2.6	1.2	1.4	0.38	2.1					3.0	0.2	0.2	0.023	3.3	3.3																		
	MIN	21.3	5.3	2.0	1.47	292.0					8.7	1.0	0.95	0.005	7.4	7.4																		
	MAX	25.0	7.0	4.0	2.01	295.0					13.0	1.3	1.30	0.038	12.0	12.0																		
DP-D08-9	n	2	2	1	2	2	0	0	0	1	1	1	1	1	1	1	1	0	0	1	1	2	1	1	1	1	1	1	1	1	1	1	1	0
	MEAN	26.0	5.5	20.0	1.58	456.5				16	21.0	2.0	1.9	0.1	19.0	19.1	0.2			3.5	0.1	39	19.0	0.0	0.2	52.0	0.094	33	11.0	10	0.33	8.0	35.0	
	STD. DEV.	2.0	0.2		0.31	64.3																5												
	MIN	24.6	5.3	20.0	1.36	411.0				16	21.0	2.0	1.9	0.1	19.0	19.1	0.2			3.5	0.1	35	19.0	0.01	0.15	52.0	0.094	33	11.0	10	0.33	8.0	35.0	
	MAX	27.4	5.6	20.0	1.80	502.0				16	21.0	2.0	1.9	0.1	19.0	19.1	0.2			3.5	0.1	42	19.0	0.01	0.15	52.0	0.094	33	11.0	10	0.33	8.0	35.0	
DP-D09-6	n	2	2	2	2	2	0	0	0	0	2	2	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	19.8	4.7	2.0	5.05	409.5					16.84	0.84	0.82	0.018	16.0	16.0																		
	STD. DEV.	4.0	0.2	0.0	0.77	65.8					7.07	0.00	0.01	0.014	7.1	7.1																		
	MIN	17.0	4.5	2.0	4.50	363.0					11.84	0.84	0.81	0.008	11.0	11.0																		
	MAX	22.6	4.8	2.0	5.59	456.0					21.84	0.84	0.83	0.028	21.0	21.0																		
DP-D09-8	n	3	3	3	3	3	0	0	0	1	3	3	3	3	3	3	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
	MEAN	22.7	4.6	2.0	1.88	512.3				10	25.5	2.2	2.15	0.018	23.3	23.4			2.8	2.4	0.11	47	31	0.01	0.01	74	0.12	52	0.03	14.0	0.01	14	47	
	STD. DEV.	4.3	0.1	0.0	1.42	146.7					11.1	1.1	1.1	0.012	10.0	10.0																		
	MIN	18.4	4.4	2.0	1.01	380.0				10	12.9	0.9	0.89	0.005	12.0	12.0			2.8	2.4	0.11	47	31	0.01	0.01	74	0.12	52	0.03	14.0	0.01	14	47	
	MAX	27.0	4.7	2.0	3.52	670.0				10	33.8	2.8	2.80	0.027	31.0	31.0			2.8	2.4	0.11	47	31	0.01	0.01	74	0.12	52	0.03	14.0	0.01	14	47	
DP-D09-15	n	3	3	3	3	3	0	0	0	1	3	3	3	3	3	3	0	0	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	0
	MEAN	22.9	5.3	9.7	1.75	454.7				10	18.3	1.6	1.61	0.032	16.7	16.70			4.3	2.9	0.043	31	19	0.01	0.01	59.0	0.12	35	0.05	9.3	0.11	13	32	
	STD. DEV.	3.6	0.1	6.8	1.26	19.3					4.3	1.1	1.13	0.047	3.2	3.17			1.5	0.6														
	MIN	19.1	5.2	2.0	0.90	433.0				10	13.4	0.4	0.34	0.005	13.0	13.09			3.2	2.5	0.043	31	19	0.01	0.01	59.0	0.12	35	0.05	9.3	0.11	13	32	
	MAX	26.2	5.4	15	3.20	470.0				10	21.5	2.5	2.50	0.086	19.0	19.01			5.3	3.3	0.043	31	19	0.01	0.01	59.0	0.12	35	0.05	9.3	0.11	13	32	
DP-D09-21	n	2	2	2	2	2	0	0	0	0	2	2	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.0	5.5	3.5	1.08	299.0					8.0	0.3	0.3	0.029	7.7	7.7																		
	STD. DEV.	1.8	0.3	2.1	0.39	1.4					0.4	0.1	0.1	0.034	0.4	0.3																		
	MIN	21.7	5.3	2.0	0.80	298.0					7.7	0.3	0.2	0.005	7.4	7.5																		
	MAX	24.2	5.8	4.9	1.35	300.0					8.3	0.4	0.4	0.053	7.9	7.9																		
DP-D09-27	n	2	2	2	2	2	0	0	0	0	2	2	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	22.4	6.0	7.0	1.51	289.5					1.8	0.7	0.65	0.029	1.1	1.1																		
	STD. DEV.	3.0	0.0	5.7	1.06	27.6					0.5	0.6	0.6	0.027	1.1	1.1																		
	MIN	20.2	6.0	3.0	0.76	270.0					1.4	0.3	0.20	0.010	0.3	0.3																		
	MAX	24.5	6.0	11.0	2.26	309.0					2.2	1.1	1.09	0.048	1.9	1.9																		

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

Sample ID	Statistical Parameter	Temp (°C)	pH	Total Alkalinity	DO (mg/L)	Specific Conductance	TDS (mg/L)	TSS (mg/L)	$CBOD_5$ (mg/L)	COD (mg/L)	TN (mg/L N)[1]	TKN (mg/L N)	Organic N (mg/L N)[2]	NH3-N (mg/L N)	NOx (mg/L N)	TIN (mg/L N)[3]	TP (mg/L)	Fecal (Ct/100 mL)	TOC (mg/L)	DOC (mg/L)	Anions						Cations							TS
																					F^-	Cl^-	NO_3-N	NO_2-N	PO_4-P	SO_4^-	B	Ca	Fe	Mg	Mn	K	Na	
	n	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DP-D10-8	MEAN	23.8	5.7	23	1.45	337.0					4.1	1.9	1.9	0.025	2.2	2.2																		
	STD. DEV.																																	
	MIN	23.8	5.7	23	1.45	337.0					4.1	1.9	1.9	0.025	2.2	2.2																		
	MAX	23.8	5.7	23	1.45	337.0					4.1	1.9	1.9	0.025	2.2	2.2																		
	n	2	2	1	2	2	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
DP-D11-11	MEAN	24.0	5.3	9.9	1.25	471.5					26.8	1.8	1.7	0.080	25.0	25.1						39												
	STD. DEV.	3.3	0.0		0.21	10.6																												
	MIN	21.7	5.2	9.9	1.10	464.0					26.8	1.8	1.7	0.080	25.0	25.1						39												
	MAX	26.3	5.3	9.9	1.39	479.0					26.8	1.8	1.7	0.080	25.0	25.1						39												
	n	2	2	2	2	2	0	0	0	1	2	2	2	2	2	2	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
DP-D12-11	MEAN	24.3	4.9	6.05	0.475	482				10	16.95	2.7	2.1	0.6	14.25	14.85			2.6	1.8	0.01	37	19	0.01	0.01	52	0.13	38	0.04	9.1	0.07	11	31	
	STD. DEV.	2.8	0.0	1.2	0.2	7.1					6.6	0.1	0.1	0.2	6.72	6.52																		
	MIN	22.3	4.8	5.2	0.3	477				10	12.3	2.6	2.06	0.46	9.5	10.24			2.6	1.8	0.01	37	19	0.01	0.01	52	0.13	38	0.04	9.1	0.07	11	31	
	MAX	26.2	4.9	6.9	0.65	487				10	21.6	2.8	2.14	0.74	19	19.46			2.6	1.8	0.01	37	19	0.01	0.01	52	0.13	38	0.04	9.1	0.07	11	31	
	n	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DP-E02-6	MEAN	21.3	5.5	4.9	2.41	98.5					2.02	0.42	0.398	0.022	1.6	1.622																		
	STD. DEV.																																	
	MIN	21.3	5.5	4.9	2.41	98.5					2.02	0.42	0.398	0.022	1.6	1.622																		
	MAX	21.3	5.5	4.9	2.41	98.5					2.02	0.42	0.398	0.022	1.6	1.622																		
	n	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DP-E02-8	MEAN	21.3	5.1	5.0	0.46	158.9					0.64	0.22	0.214	0.006	0.42	0.426																		
	STD. DEV.																																	
	MIN	21.3	5.1	5.0	0.46	158.9					0.64	0.22	0.214	0.006	0.42	0.426																		
	MAX	21.3	5.1	5.0	0.46	158.9					0.64	0.22	0.214	0.006	0.42	0.426																		
	n	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DP-E03-10	MEAN																																	
	STD. DEV.																																	
	MIN																																	
	MAX																																	
	n	1	1	1	1	1	0	0	0	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
DP-E04-6	MEAN	22.3	4.7	2.0	3.49	90.6				39	1.13	0.67	0.652	0.018	0.46	0.478	2.5			3.2	0.076	3	0.46	0.01	0.01	21	0.05	7.5	0.33	1.8	0.049	0.94	2.3	
	STD. DEV.																																	
	MIN	22.3	4.7	2.0	3.49	90.6				39	1.13	0.67	0.652	0.018	0.46	0.478	2.5			3.2	0.076	3	0.46	0.01	0.01	21	0.05	7.5	0.33	1.8	0.049	0.94	2.3	
	MAX	22.3	4.7	2.0	3.49	90.6				39	1.13	0.67	0.652	0.018	0.46	0.478	2.5			3.2	0.076	3	0.46	0.01	0.01	21	0.05	7.5	0.33	1.8	0.049	0.94	2.3	
	n	2	2	1	2	2	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
DP-E04-8	MEAN	24.0	4.8	4.9	1.515	178.05					3.8	1	0.976	0.024	2.8	2.824						5.6												
	STD. DEV.	2.8	0.1		0.1	9.8																												
	MIN	22.0	4.7	4.9	1.43	171.1					3.8	1.0	0.976	0.024	2.8	2.824						5.6												
	MAX	26.0	4.9	4.9	1.6	185					3.8	1.0	0.976	0.024	2.8	2.824						5.6												
	n	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DP-E05-6	MEAN	24.8	6	33	2.96	171.8					3.16	3.1	0.5	2.6	0.06	2.66																		
	STD. DEV.																																	
	MIN	24.8	6.0	33	2.96	171.8					3.16	3.1	0.5	2.6	0.06	2.66																		
	MAX	24.8	6.0	33	2.96	171.8					3.16	3.1	0.5	2.6	0.06	2.66																		
	n	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DP-E06-6	MEAN	22.8	4.4	2.0	1.89	162.8					3.2	1.3	1.287	0.013	1.9	1.913																		
	STD. DEV.																																	
	MIN	22.8	4.4	2.0	1.89	162.8					3.2	1.3	1.287	0.013	1.9	1.913																		
	MAX	22.8	4.4	2.0	1.89	162.8					3.2	1.3	1.287	0.013	1.9	1.913																		
	n	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DP-E06-8	MEAN	22.7	4.5	2.0	10.9	180.6					3.22	0.82	0.813	0.007	2.4	2.407																		
	STD. DEV.																																	
	MIN	22.7	4.5	2.0	10.9	180.6					3.22	0.82	0.813	0.007	2.4	2.407																		
	MAX	22.7	4.5	2.0	10.9	180.6					3.22	0.82	0.813	0.007	2.4	2.407																		
	n	2	2	1	2	2	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
DP-E07-10	MEAN	24.0	4.7	5.9	0.7	267.0					10.1	2.3	2.248	0.052	7.8	7.852						12												
	STD. DEV.	2.1	0.3		0.7	31.1																												
	MIN	22.5	4.5	5.9	0.2	245.0					10.1	2.3	2.248	0.052	7.8	7.852						12												
	MAX	25.5	4.9	5.9	1.2	289.0					10.1	2.3	2.248	0.052	7.8	7.852						12												
	n	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DP-E08-6	MEAN	22.4	5.0	3.0	1.83	326.0					12	2.1	2.086	0.014	9.9	9.914																		
	STD. DEV.																																	
	MIN	22.4	5.0	3.0	1.83	326.0					12	2.1	2.086	0.014	9.9	9.914																		
	MAX	22.4	5.0	3.0	1.83	326.0					12	2.1	2.086	0.014	9.9	9.914																		
	n	2	2	1	2	2	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
DP-E08-8	MEAN	24.2	4.75	3.0	0.91	348.0					12.6	1.6	1.595	0.005	11	11.005						26												
	STD. DEV.	2.26274	0.35355339		0.8626703	0																												
	MIN	22.6	4.5	3.0	0.3	348.0					12.6	1.6	1.595	0.005	11	11.005						26												
	MAX	25.8	5.0	3.0	1.52	348.0					12.6	1.6	1.595	0.005	11	11.005						26												

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

Sample ID	Statistical Parameter	Temp (°C)	pH	Total Alkalinity	DO (mg/L)	Specific Conductance	TDS (mg/L)	TSS (mg/L)	$CBOD_5$ (mg/L)	COD (mg/L)	TN (mg/L N)[3]	TKN (mg/L N)	Organic N (mg/L N)[2]	NH3-N (mg/L N)	NOx (mg/L N)	TIN (mg/L N)[3]	TP (mg/L)	Fecal (Ct/100 mL)	TOC (mg/L)	DOC (mg/L)	Anions						Cations							TS
																					F^-	Cl^-	NO_3-N^-	NO_2-N^-	PO_4-P^-	SO_4^-	B	Ca	Fe	Mg	Mn	K	Na	
DP-E10-6	n	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.0	4.6	3.0	0.60	407.0					9.7	1.2	1.195	0.005	8.5	8.505																			
	STD. DEV.																																		
	MIN	23.0	4.6	3.0	0.60	407.0					9.7	1.2	1.195	0.005	8.5	8.505																			
	MAX	23.0	4.6	3.0	0.60	407.0					9.7	1.2	1.195	0.005	8.5	8.505																			
DP-E11-12	n	2	2	1	2	2	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	24.0	5.1	8.9	0.6	465.0					14.6	1.6	1.582	0.018	13	13.018						32													
	STD. DEV.	1.3	0.1		0.5	33.9																													
	MIN	23.0	5.0	8.9	0.3	441.0					14.6	1.6	1.582	0.018	13	13.018						32													
	MAX	24.9	5.1	8.9	1.0	489.0					14.6	1.6	1.582	0.018	13	13.018						32													
DP-E12-10	n	3	3	2	3	3	0	0	0	1	2	2	2	2	2	2	1	0	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	0
	MEAN	22.7	5.2	5.5	1.8	504.3				24	25.3	1.8	1.6	0.2	23.5	23.7	0.026		1.2	0.88	0.01	39	22	0.01	0.01	47	0.075	39	0.089	9.9	0.21	11	33	
	STD. DEV.	3.1	0.3	4.9	2.5	14.6					2.9	0.8	0.7	0.0	2.1	2.2						4													
	MIN	19.2	4.9	2.0	0.3	491.0				24	23.2	1.2	1.0	0.2	22.0	22.2	0.026		1.2	0.88	0.01	36	22	0.01	0.01	47	0.075	39	0.089	9.9	0.21	11	33	
	MAX	25.1	5.48	8.9	4.68	520.0				24	27.3	2.3	2.1	0.2	25.0	25.2	0.026		1.2	0.88	0.01	41	22	0.01	0.01	47	0.075	39	0.089	9.9	0.21	11	33	
DP-E12-15	n	3	3	2	3	3	0	0	0	1	2	2	2	2	2	2	1	0	0	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	0
	MEAN	22.9	5.0	5.5	1.2	490.7				14	23.19	1.69	1.56	0.13	21.5	21.63	0.012			0.92	0.029	34	17	0.01	0.18	54	0.100	35	0.03	7.1	0.045	12	33	
	STD. DEV.	1.5	0.2	4.9	1.1	51.4					5.22	1.15	1.32	0.17	6.36	6.54						4													
	MIN	21.9	4.9	2.0	0.4	460.0				14	19.5	0.88	0.63	0.005	17	17.005	0.012			0.92	0.029	31	17	0.01	0.18	54	0.100	35	0.03	7.1	0.045	12	33	
	MAX	24.7	5.2	8.9	2.5	550.0				14	26.88	2.5	2.495	0.25	26	26.25	0.012			0.92	0.029	36	17	0.01	0.18	54	0.100	35	0.03	7.1	0.045	12	33	
DP-E12-22	n	3	3	3	3	3	0	0	0	2	3	1	3	1	3	1	1	0	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0
	MEAN	22.4	5.0	6.6	1.0	363.0				10	14.6	1.9	1.76	0.14	12.7	12.84	0.035		2.03	1.48	0.014	13	10.05	0.01	0.125	61.5	0.1	29.5	0.05	7.3	0.175	10.5	8.4	
	STD. DEV.	1.9	0.3	5.0	0.8	88.8				0	3.83	0.95	0.83	0.13	4.69	4.59			0.74	0.64	0.005	1	1.343503	0	0.162635	7.778175	0	0.707107	0.0212132	1.697056275	0.0212132	0.7071068	0	
	MIN	20.4	4.8	2.0	0.4	297.0				10	12	1	0.951	0.049	9.1	9.39	0.035		1.2	0.83	0.010	12	9.1	0.01	0.01	56	0.1	29	0.04	6.1	0.16	10	8.4	
	MAX	24.2	5.3	12.0	2.0	464.0				10	19	2.9	2.61	0.29	18	18.05	0.035		2.6	2.1	0.017	14	11	0.01	0.24	67	0.1	30	0.07	8.5	0.19	11	8.4	
DP-E12-28	n	3	3	2	3	3	0	0	0	1	2	2	2	2	2	2	1	0	0	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	0
	MEAN	23.0	5.1	3.0	0.99	309.0				10	11.0	2.1	2.06	0.041	8.9	8.9	0.069			0.5	0.019	15	9.8	0.01	0.065	59	0.05	27	0.023	9.5	0.11	15	5.3	
	STD. DEV.	1.2	0.3	1.4	0.88	11.5					1.1	0.3	0.2	0.040	1.3	1.3						0													
	MIN	21.9	4.8	2.0	0.40	297.0				10	10.2	1.9	1.89	0.013	7.9	8.0	0.069			0.5	0.019	15	9.8	0.01	0.065	59	0.05	27	0.023	9.5	0.11	15	5.3	
	MAX	24.2	5.3	4.0	2.01	320.0				10	11.7	2.3	2.23	0.069	9.8	9.8	0.069			0.5	0.019	15	9.8	0.01	0.065	59	0.05	27	0.023	9.5	0.11	15	5.3	
DP-F03-8	n	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	21.7	6.2	18	1.22	145.6					3.3	1.6	1.21	0.39	1.7	2.09																			
	STD. DEV.																																		
	MIN	21.7	6.2	18	1.22	145.6					3.3	1.6	1.21	0.39	1.7	2.09																			
	MAX	21.7	6.2	18	1.22	145.6					3.3	1.6	1.21	0.39	1.7	2.09																			
DP-F04-17	n	2	2	1	2	2	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.6	6.7	90	0.435	394.9					2.15	0.35	0.322	0.028	1.8	1.828						21													
	STD. DEV.	2.2	0.8		0.1909188	29.5																													
	MIN	22.0	6.1	90	0.3	374.0					2.15	0.35	0.322	0.028	1.8	1.828						21													
	MAX	25.1	7.3	90	0.57	415.7					2.15	0.35	0.322	0.028	1.8	1.828						21													
DP-F04-22	n	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	22.8	6.0	9.9	0.72	314.1					10.9	2.7	2.683	0.017	8.2	8.217																			
	STD. DEV.																																		
	MIN	22.8	6.0	9.9	0.72	314.1					10.9	2.7	2.683	0.017	8.2	8.217																			
	MAX	22.8	6.0	9.9	0.72	314.1					10.9	2.7	2.683	0.017	8.2	8.217																			
DP-F04-32	n	2	2	1	2	2	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.9	6.5	69	0.67	340					0.96	0.25	0.208	0.042	0.71	0.752						5.6													
	STD. DEV.	1.1	0.6		0.52	7																													
	MIN	23.1	6.1	69	0.30	335					0.96	0.25	0.208	0.042	0.71	0.752						5.6													
	MAX	24.6	6.9	69	1.04	346					0.96	0.25	0.208	0.042	0.71	0.752						5.6													
DP-F05-5	n	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	27.7	5.8	6.9	7.36	173.3					2.41	2.4	2.27	0.13	0.01	0.14																			
	STD. DEV.																																		
	MIN	27.7	5.8	6.9	7.36	173.3					2.41	2.4	2.27	0.13	0.01	0.14																			
	MAX	27.7	5.8	6.9	7.36	173.3					2.41	2.4	2.27	0.13	0.01	0.14																			
DP-F05-31	n	2	2	2	2	2	0	0	0	1	2	2	2	2	2	2	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
	MEAN	23.0	6.2	35.5	1.86	242.1				18	6.11	1.46	1.39	0.07	4.65	4.72	0.29			1.7	0.58	10	1.3	0.11	0.01	23	0.05	31	1.5	6.4	0.063	2.9	11	
	STD. DEV.	1.6	1.5	47.4	0.22	77.7					5.78	1.19	1.19	0.00	4.60	4.60																			
	MIN	21.9	5.2	2.0	1.70	187.1				18	2.02	0.62	0.55	0.069	1.40	1.47	0.29			1.7	0.58	10	1.3	0.11	0.01	23	0.05	31	1.5	6.4	0.063	2.9	11	
	MAX	24.1	7.3	69	2.01	297.0				18	10.2	2.3	2.231	0.07	7.90	7.97	0.29			1.7	0.58	10	1.3	0.11	0.01	23	0.05	31	1.5	6.4	0.063	2.9	11	
DP-F06-10	n	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	21.8	5.2	4.0	0.30	190.6					1.83	0.33	0.274	0.056	1.5	1.556																			
	STD. DEV.																																		
	MIN	21.8	5.2	4.0	0.30	190.6					1.83	0.33	0.274	0.056	1.5	1.556																			
	MAX	21.8	5.2	4.0	0.30	190.6					1.83	0.33	0.274	0.056	1.5	1.556																			
DP-F08-14	n	2	2	2	2	2	0	0	0	0	2	2	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	22.5	7.3	225.0	3.69	956.5					7.1	1.1	0.91	0.140	6.0	6.1																			
	STD. DEV.	0.1	0.4	120.2	3.40	644.2					3.3	0.2	0.3	0.071	3.5	3.6																			
	MIN	22.4	7.0	140	1.28	501.0					4.7	0.9	0.71	0.090	3.5	3.6																			
	MAX	22.5	7.6	310	6.1	1412.0					9.4	1.2	1.11	0.190	8.5	8.7																			
DP-F08-20	n	3	3	2	3	3	0	0	0	1	2	2	2	2	2	2	1	0	1	2	1	2	1	1	1	1	1	1	1	1	1	1	1	1	0
	MEAN	23.7	5.9	6.5	0.86	350.2				10	10.8	1.5	1.45	0.033	9.3	9.3	0.33		3.0	1.60	0.032	13	8.6	0.01	0.01	65	0.05	32	0.07	7.3	0.22	14	6.4	
	STD. DEV.	0.9	0.5	4.9	0.79	16.4					0.1	0.9	0.87	0.004	1.0	1.0				1.13		2													
	MIN	23.1	5.3	3.0	0.40	335.6				10	10.7	0.9	0.83	0.030	8.6	8.6	0.33		3.0	0.80	0.032	11	8.6	0.01	0.01	65	0.05	32	0.07	7.3	0.22	14	6.4	
	MAX	24.7	6.3	9.9	1.77	368.0				10	10.9	2.1	2.07	0.036	10.0	10.0	0.33		3.0	2.40	0.032	14	8.6	0.01	0.01	65	0.05	32	0.07	7.3	0.22	14	6.4	

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

Sample ID	Statistical Parameter	Temp (°C)	pH	Total Alkalinity	DO (mg/L)	Specific Conductance	TDS (mg/L)	TSS (mg/L)	$CBOD_5$ (mg/L)	COD (mg/L)	TN (mg/L N)[1]	TKN (mg/L N)	Organic N (mg/L N)[2]	NH3-N (mg/L N)	NOx (mg/L N)	TIN (mg/L N)[3]	TP (mg/L)	Fecal (Cf/100 mL)	TOC (mg/L)	DOC (mg/L)	Anions						Cations							TS
																					F^-	Cl^-	NO_2-N	NO_3-N	PO_4-P	SO_4^-	B	Ca	Fe	Mg	Mn	K	Na	
DP-F08-28	n	3	3	2	3	3	0	0	0	0	2	2	2	2	2	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.6	5.9	26.5	0.80	326.6					3.97	0.9	0.8	0.081	3.1	3.2						18												
	STD. DEV.	0.6	0.5	12.0	0.81	4.6					0.05	0.3	0.4	0.098	0.3	0.4																		
	MIN	23.1	5.4	18	0.30	323.9					3.93	0.6	0.5	0.012	2.9	2.9						18												
	MAX	24.3	6.3	35	1.73	332.0					4.00	1.1	1.1	0.150	3.3	3.5						18												
DP-F09-05	n	1	1	1	1	1	0	0	0	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
	MEAN	24.8	6.6	22	1.15	191.1				24	3.4	1.5	1.27	0.23	1.9	2.13	0.27			7.7	0.1	10	1.9	0.01	0.026	26	0.05	14	5.8	3.5	0.37	4.7	9.1	
	STD. DEV.																																		
	MIN	24.8	6.6	22	1.15	191.1				24	3.4	1.5	1.27	0.23	1.9	2.13	0.27			7.7	0.1	10	1.9	0.01	0.026	26	0.05	14	5.8	3.5	0.37	4.7	9.1	
	MAX	24.8	6.6	22	1.15	191.1				24	3.4	1.5	1.27	0.23	1.9	2.13	0.27			7.7	0.1	10	1.9	0.01	0.026	26	0.05	14	5.8	3.5	0.37	4.7	9.1	
DP-F10-11	n	2	2	1	2	2	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.3	4.8	2.0	0.60	484					32.3	2.3	1.2	1.1	30	31.1						31												
	STD. DEV.	2.8	0.1		0.28	11																												
	MIN	21.3	4.7	2.0	0.40	476					32.3	2.3	1.2	1.1	30	31.1						31												
	MAX	25.3	4.9	2.0	0.80	492					32.3	2.3	1.2	1.1	30	31.1						31												
DP-F11-11	n	3	3	2	3	3	0	0	0	0	2	2	2	2	2	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	22.3	5.2	5.5	2.15	409					18.6	1.6	0.6	0.97	17.0	18.0						32												
	STD. DEV.	3.3	0.3	4.9	2.71	40.7					5.5	0.1	0.6	0.75	5.7	4.9																		
	MIN	19.5	4.8	2.0	0.30	366.0					14.7	1.5	0.2	0.44	13.0	14.5						32												
	MAX	26.0	5.4	8.9	5.26	447.0					22.5	1.7	1.1	1.50	21.0	21.4						32												
DP-F11-15	n	3	3	2	3	3	0	0	0	0	2	2	2	2	2	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.1	4.9	5.0	1.37	495.4					29.8	1.3	1.0	0.26	28.5	28.8																		
	STD. DEV.	1.4	0.2	4.2	1.96	47.6					0.4	0.3	0.5	0.17	0.7	0.9																		
	MIN	21.8	4.7	2.0	0.20	453.3					29.5	1.1	0.7	0.14	28.0	28.1						34												
	MAX	24.6	5.1	7.9	3.64	547.0					30.1	1.5	1.4	0.38	29.0	29.4						34												
DP-F11-18	n	3	3	2	3	3	0	0	0	0	2	2	2	2	2	2	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.3	5.1	5.0	1.32	430.0					21.3	1.3	1.2	0.046	20.0	20.0			4.1	1.3		19												
	STD. DEV.	1.2	0.2	4.2	1.10	69.1					1.8	1.0	1.0	0.030	2.8	2.8																		
	MIN	22.2	5.0	2.0	0.30	359.0					20.0	0.6	0.5	0.024	18.0	18.1			4.1	1.3		19												
	MAX	24.5	5.4	7.9	2.48	497.0					22.6	2.0	1.9	0.067	22.0	22.0			4.1	1.3		19												
DP-F11-21	n	2	2	1	2	2	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.5	5.1	5.9	0.42	314.2					21.1	1.1	1.1	0.005	20.0	20.0						13												
	STD. DEV.	1.3	0.2		0.02	5.9																												
	MIN	22.5	4.9	5.9	0.40	310.0					21.1	1.1	1.1	0.005	20.0	20.0						13												
	MAX	24.4	5.2	5.9	0.43	318.4					21.1	1.1	1.1	0.005	20.0	20.0						13												
DP-F11-24	n	3	3	2	3	3	0	0	0	0	2	2	2	2	2	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.4	5.0	3.0	0.55	362.0					19.8	0.8	0.8	0.015	19.0	19.0						15												
	STD. DEV.	0.9	0.2	1.4	0.52	97.9					5.2	0.4	0.5	0.010	5.7	5.7																		
	MIN	22.8	4.8	2.0	0.20	301.1					16.1	0.5	0.4	0.008	15.0	15.0						15												
	MAX	24.4	5.1	4.0	1.15	475.0					23.5	1.1	1.1	0.022	23.0	23.0						15												
DP-F11-27	n	3	3	2	3	3	0	0	0	0	2	2	2	2	2	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.6	5.1	3.5	0.47	311.8					6.6	1.1	1.0	0.017	5.5	5.5						16												
	STD. DEV.	0.6	0.2	2.1	0.32	17.4					2.9	0.3	0.3	0.013	2.5	2.5																		
	MIN	23.2	4.9	2.0	0.20	297.0					4.5	0.8	0.8	0.008	3.7	3.7						16												
	MAX	24.3	5.3	4.9	0.82	331.0					8.6	1.3	1.3	0.026	7.3	7.3						16												
DP-F12-10	n	2	2	1	2	2	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.4	4.7	2.0	0.55	463.5					24.5	1.5	1.34	0.16	23	23.16						34												
	STD. DEV.	2.7	0.5		0.5	51.6																												
	MIN	21.5	4.3	2.0	0.20	427					24.5	1.5	1.34	0.16	23	23.16						34												
	MAX	25.3	5.0	2.0	0.90	500					24.5	1.5	1.34	0.16	23	23.16						34												
DP-F15-14	n	3	3	2	3	3	0	0	0	0	2	2	2	2	2	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	22.5	4.9	16.5	0.65	469.2					24.5	0.5	0.3	0.16	24.0	24.2						34												
	STD. DEV.	1.5	0.4	7.8	0.42	53.9					10.2	0.3	0.4	0.05	9.9	9.8																		
	MIN	21.5	4.5	11	0.30	408.6					17.3	0.3	0.1	0.12	17.0	17.2						34												
	MAX	24.2	5.2	22	1.11	512.0					31.7	0.7	0.6	0.19	31.0	31.1						34												
DP-F15-20	n	3	3	2	3	3	0	0	0	0	2	2	2	2	2	2	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	22.9	5.0	11.5	0.57	463.7					24.9	0.9	0.8	0.012	24.0	24.0			1.1	1.2		18												
	STD. DEV.	1.3	0.4	0.7	0.24	161.0					6.3	0.8	0.8	0.010	7.1	7.1																		
	MIN	22.1	4.6	11.0	0.30	359.0					20.4	0.3	0.3	0.005	19.0	19.0			1.1	1.2		18												
	MAX	24.4	5.4	12	0.78	649.0					29.3	1.4	1.4	0.019	29.0	29.0			1.1	1.2		18												
DP-F15-26	n	3	3	2	3	3	0	0	0	0	2	2	2	2	2	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	22.8	4.8	3.0	0.50	305.6					15.0	1.0	1.0	0.045	14.0	14.0						14												
	STD. DEV.	1.2	0.5	1.4	0.29	14.6					4.9	0.7	0.6	0.041	4.2	4.3																		
	MIN	21.8	4.3	2.0	0.20	290.8					11.5	0.5	0.5	0.016	11.0	11.0						14												
	MAX	24.2	5.2	4.0	0.78	320.0					18.5	1.5	1.4	0.074	17.0	17.1						14												
DP-G05-6	n	1	1	1	1	1	0	0	0	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
	MEAN	26.2	6.1	22	2.49	151.9				32	2.04	1.9	0.5	1.4	0.14	1.54	0.43			8.7	0.075	4.1	0.14	0.01	0.18	30	0.05	11	8.2	3.3	0.4	2.8	2.6	
	STD. DEV.																																	
	MIN	26.2	6.1	22	2.49	151.9				32	2.04	1.9	0.5	1.4	0.14	1.54	0.43			8.7	0.075	4.1	0.14	0.01	0.18	30	0.05	11	8.2	3.3	0.4	2.8	2.6	
	MAX	26.2	6.1	22	2.49	151.9				32	2.04	1.9	0.5	1.4	0.14	1.54	0.43			8.7	0.075	4.1	0.14	0.01	0.18	30	0.05	11	8.2	3.3	0.4	2.8	2.6	
DP-G06-7	n	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	28.9	6.2	34	2.36	184					0.68	0.55	0.28	0.27	0.13	0.4																		
	STD. DEV.																																	
	MIN	28.9	6.2	34	2.36	184					0.68	0.55	0.28	0.27	0.13	0.4																		
	MAX	28.9	6.2	34	2.36	184					0.68	0.55	0.28	0.27	0.13	0.4																		

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

Sample ID	Statistical Parameter	Temp (°C)	pH	Total Alkalinity	DO (mg/L)	Specific Conductance	TDS (mg/L)	TSS (mg/L)	$CBOD_5$ (mg/L)	COD (mg/L)	TN (mg/L N)[1]	TKN (mg/L N)	Organic N (mg/L N)[2]	NH3-N (mg/L N)	NOx (mg/L N)	TIN (mg/L N)[3]	TP (mg/L)	Fecal (Ct/100 ml)	TOC (mg/L)	DOC (mg/L)	Anions						Cations							TS
																					F^-	Cl^-	NO_3-N	NO_2-N	PO_4-P	$SO_4^=$	B	Ca	Fe	Mg	Mn	K	Na	
DP-G07-13	n	2	2	1	2	2	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	27.6	5.6	14	2.6	243.5					3.40	0.70	0.37	0.33	2.7	3.03						5.8												
	STD. DEV.	3.3	0.3		0.6	16.3																												
	MIN	25.2	5.4	14	2.19	232					3.40	0.70	0.37	0.33	2.7	3.03						5.8												
	MAX	29.9	5.8	14	3.1	255					3.40	0.70	0.37	0.33	2.7	3.03						5.8												
DP-G07-15	n	2	2	1	2	2	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	24.5	5.1	4.0	1.00	284.0					4.95	0.45	0.45	0.005	4.50	4.51						6.3												
	STD. DEV.	1.6	0.1		0.28	17.0																												
	MIN	23.4	5.0	4.0	0.80	272.0					4.95	0.45	0.45	0.005	4.50	4.51						6.3												
	MAX	25.6	5.2	4.0	1.20	296.0					4.95	0.45	0.45	0.005	4.50	4.51						6.3												
DP-G07-17	n	3	3	2	3	3	0	0	0	0	2	2	2	2	2	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.4	5.2	5.0	1.50	322.0					8.51	0.71	0.70	0.005	7.80	7.81						9.3												
	STD. DEV.	1.3	0.2	0.1	0.70	13.2					2.11	0.56	0.56	0.000	1.56	1.56																		
	MIN	21.9	5.0	4.9	0.80	312.0					7.01	0.31	0.31	0.005	6.70	6.71						9.3												
	MAX	24.5	5.4	5.1	2.19	337.0					10.00	1.10	1.10	0.005	8.90	8.91						9.3												
DP-G07-21	n	3	3	3	3	3	0	0	0	1	3	3	3	3	3	3	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
	MEAN	23.3	5.4	5.4	1.18	334.0				10.0	12.6	1.5	1.44	0.027	11.17	11.19			2.3	1.8	0.02	12	8.5	0.01	0.01	77	0.07	29	0.05	8.8	0.17	15	7.4	
	STD. DEV.	1.3	0.3	0.6	0.56	8.5					2.9	1.1	1.02	0.038	2.36	2.39																		
	MIN	22.2	5.1	4.9	0.57	326.0				10.0	9.8	0.5	0.51	0.005	8.50	8.51			2.3	1.8	0.02	12	8.5	0.01	0.01	77	0.07	29	0.05	8.8	0.17	15	7.4	
	MAX	24.8	5.6	6.1	1.66	343.0				10.0	15.6	2.6	2.53	0.071	13.0	13.1			2.3	1.8	0.02	12	8.5	0.01	0.01	77	0.07	29	0.05	8.8	0.17	15	7.4	
DP-G07-24	n	3	3	2	3	3	0	0	0	0	2	2	2	2	2	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.3	5.3	6.0	0.89	285.7					15.00	1.50	1.50	0.005	13.50	13.51						16												
	STD. DEV.	1.2	0.4	1.6	0.27	14.5					0.71	1.41	1.41	0.000	0.71	0.71																		
	MIN	22.3	4.9	4.9	0.60	271.0					14.50	0.50	0.50	0.005	13.00	13.01						16												
	MAX	24.6	5.7	7.1	1.13	300.0					15.50	2.50	2.50	0.005	14.00	14.01						16												
DP-G07-27	n	3	3	2	3	3	0	0	0	0	2	2	2	2	2	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.3	5.1	4.6	1.37	307					13.12	1.77	1.77	0.005	11.35	11.36						15												
	STD. DEV.	1.5	0.1	0.8	0.43	16.4					6.62	1.46	1.46	0.0	5.16	5.16																		
	MIN	22.3	5.0	4.0	0.95	293					8.44	0.74	0.74	0.005	7.70	7.71						15												
	MAX	25	5.2	5.1	1.80	325					17.80	2.80	2.80	0.005	15.00	15.01						15												
DP-G08-05	n	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	26.1	5.6	4.9	7.64	157.8					2.52	0.92	0.92	0.005	1.60	1.61																		
	STD. DEV.																																	
	MIN	26.1	5.6	4.9	7.64	157.8					2.52	0.92	0.92	0.005	1.60	1.61																		
	MAX	26.1	5.6	4.9	7.64	157.8					2.52	0.92	0.92	0.005	1.60	1.61																		
DP-G09-11	n	2	2	1	2	2	0	0	0	1	1	1	1	1	1	1	1	0	0	1	1	2	1	1	1	1	1	1	1	1	1	1	1	0
	MEAN	26.0	5.4	7.9	2.49	282.0				41	10.2	1.10	1.09	0.010	9.10	9.11	0.1			1.3	0.036	12	9.1	0.0	0.0	51	0.05	27	1.1	5.6	0.3	7.0	12	
	STD. DEV.	2.8	0.0		0.58	4.2																2												
	MIN	24.0	5.4	7.9	2.08	279.0				41	10.2	1.10	1.09	0.010	9.10	9.11	0.1			1.3	0.036	10	9.1	0.01	0.010	51	0.05	27	1.1	5.6	0.3	7.0	12	
	MAX	27.9	5.4	7.9	2.90	285.0				41	10.2	1.10	1.09	0.010	9.10	9.11	0.1			1.3	0.036	13	9.1	0.01	0.010	51	0.05	27	1.1	5.6	0.3	7.0	12	
DP-G11-8	n	2	2	1	2	2	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	24.4	4.9	3.0	1.19	303.5					14.20	2.20	2.19	0.015	12.00	12.02						21												
	STD. DEV.	-	0.4		0.27	12.0																												
	MIN	21.2	4.6	3.0	1.00	295.0					14.20	2.20	2.19	0.015	12.00	12.02						21												
	MAX	27.6	5.1	3.0	1.38	312.0					14.20	2.20	2.19	0.015	12.00	12.02						21												
DP-G12-9	n	2	2	2	2	2	0	0	0	1	2	2	1	2	2	2	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
	MEAN	24.0	4.5	2.5	1.41	350.0				12	11.3	1.6	1.66	0.037	9.7	9.74			4.6	2.2	0.17	26	9.4	0.01	0.01	60	0.06	22	0.81	5.9	0.15	5.6	23	
	STD. DEV.	3.6	0.4	0.7	1.71	12.7					0.6	0.2		0.001	0.4	0.42																		
	MIN	21.4	4.2	2.0	0.20	341.0				12	10.8	1.4	1.66	0.036	9.4	9.44			4.6	2.2	0.17	26	9.4	0.01	0.01	60	0.06	22	0.81	5.9	0.15	5.6	23	
	MAX	26.5	4.7	3.0	2.62	359.0				12	11.7	1.7	1.66	0.037	10.0	10.04			4.6	2.2	0.17	26	9.4	0.01	0.01	60	0.06	22	0.81	5.9	0.15	5.6	23	
DP-G12-15	n	3	3	3	3	3	0	0	0	1	3	3	3	3	3	3	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
	MEAN	23.1	5.0	5.7	0.68	491.0				10	25.7	2.4	2.08	0.29	23.3	23.62			3.6	2.1	0.01	33	20	0.01	0.01	53	0.06	35	0.17	9.1	0.21	12	29	
	STD. DEV.	1.8	0.5	1.0	0.42	15.4					2.7	1.2	1.17	0.07	3.1	3.01																		
	MIN	21.8	4.7	5.1	0.20	478.0				10	23.4	1.0	0.78	0.22	20.0	20.36			3.6	2.1	0.01	33	20	0.01	0.01	53	0.06	35	0.17	9.1	0.21	12	29	
	MAX	25.2	5.5	6.9	0.96	508.0				10	28.7	3.4	3.08	0.36	26.0	26.28			3.6	2.1	0.01	33	20	0.01	0.01	53	0.06	35	0.17	9.1	0.21	12	29	
DP-G12-18	n	2	2	1	2	2	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.4	5.0	6.9	0.80	468.5					30.7	1.7	1.7	0.005	29.00	29.01						29												
	STD. DEV.	1.7	0.3		0.85	36.1																												
	MIN	22.2	4.8	6.9	0.20	443.0					30.7	1.7	1.7	0.005	29.00	29.01						29												
	MAX	24.6	5.2	6.9	1.40	494.0					30.7	1.7	1.7	0.005	29.00	29.01						29												
DP-G12-21	n	3	3	3	3	3	0	0	0	1	3	3	3	3	3	3	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
	MEAN	23.3	5.1	6.8	0.53	460.7				10	21.2	2.2	2.15	0.037	19.0	19.04			3.5	2	0.01	14	13	0.01	0.01	62	0.07	33	0.18	7.6	0.18	15	12	
	STD. DEV.	1.0	0.3	2.4	0.45	152.3					8.6	2.0	1.95	0.054	10.4	10.36																		
	MIN	22.7	4.9	4.1	0.10	361.0				10	15.5	0.1	0.06	0.005	13.0	13.01			3.5	2	0.01	14	13	0.01	0.01	62	0.07	33	0.18	7.6	0.18	15	12	
	MAX	24.4	5.4	8.9	0.99	636.0				10	31.1	4.0	3.90	0.099	31.0	31.01			3.5	2	0.01	14	13	0.01	0.01	62	0.07	33	0.18	7.6	0.18	15	12	
DP-G12-24	n	2	2	2	2	2	0	0	0	1	2	2	2	2	2	2	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
	MEAN	23.8	5.1	4.6	0.51	329.0				51	13.1	1.09	1.09	0.005	12.00	12.01			1.8	1.4	0.19	15	12	0.01	0.01	59	0.07	27	0.04	11	0.18	15	6.7	
	STD. DEV.	1.5	0.4	0.9	0.44	7.1					0.2	0.16	0.16	0.000	0.00	0.00																		
	MIN	22.7	4.8	3.9	0.20	324.0				51	13.0	0.98	0.98	0.005	12.00	12.01			1.8	1.4	0.19	15	12	0.01	0.01	59	0.07	27	0.04	11	0.18	15	6.7	
	MAX	24.8	5.4	5.2	0.82	334.0				51	13.2	1.20	1.20	0.005	12.00	12.01			1.8	1.4	0.19	15	12	0.01	0.01	59	0.07	27	0.04	11	0.18	15	6.7	
DP-G12-27	n	3	3	2	3	3	0	0	0	0	2	2	2	2	2	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.4	5.0	5.5	0.33	388.7					16.44	0.94	0.77	0.17	15.50	15.67						13												
	STD. DEV.	0.8	0.4	0.8	0.20	105.7					4.58	0.37	0.44	0.07	4.95	5.02																		
	MIN	22.9	4.7	4.9	0.10	311.0					13.20	0.68	0.46	0.12	12.00	12.12						13												
	MAX	24.3	5.4	6.1	0.45	509.0					19.68	1.20	1.08	0.22	19.00	19.22						13												

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

Sample ID	Statistical Parameter	Temp (°C)	pH	Total Alkalinity	DO (mg/L)	Specific Conductance	TDS (mg/L)	TSS (mg/L)	$CBOD_5$ (mg/L)	COD (mg/L)	TN (mg/L N)[1]	TKN (mg/L N)	Organic N (mg/L N)[2]	NH3-N (mg/L N)	NOx (mg/L N)	TIN (mg/L N)[3]	TP (mg/L)	Fecal (Ct/100 ml)	TOC (mg/L)	DOC (mg/L)	Anions						Cations							TS
																					F^-	Cl^-	NO_3-N	NO_2-N	PO_4-P^-	SO_4^-	B	Ca	Fe	Mg	Mn	K	Na	
DP-H05-7	n	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	25.6	6.3	15	6.73	136.7					1.75	1.70	0.10	1.60	0.05	1.65																		
	STD. DEV.																																	
	MIN	25.6	6.3	15	6.73	136.7					1.75	1.70	0.10	1.60	0.05	1.65																		
	MAX	25.6	6.3	15	6.73	136.7					1.75	1.70	0.10	1.60	0.05	1.65																		
DP-H06-7	n	2	2	1	2	2	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	25.0	6.0	18	4.37	158.2					1.35	1.20	0.55	0.65	0.15	0.80						4.5												
	STD. DEV.	7.4	0.1		0.47	8.2																												
	MIN	19.8	5.9	18	4.04	152.4					1.35	1.20	0.55	0.65	0.15	0.80						4.5												
	MAX	30.2	6.0	18	4.70	164.0					1.35	1.20	0.55	0.65	0.15	0.80						4.5												
DP-H07-8	n	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	20.2	5.1	2.0	1.57	151.3					1.69	0.71	0.66	0.051	0.98	1.03																		
	STD. DEV.																																	
	MIN	20.2	5.1	2.0	1.57	151.3					1.69	0.71	0.66	0.051	0.98	1.03																		
	MAX	20.2	5.1	2.0	1.57	151.3					1.69	0.71	0.66	0.051	0.98	1.03																		
DP-H08-10	n	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	22.7	6.2	24	2.97	189.0					2.95	2.20	1.32	0.88	0.75	1.63																		
	STD. DEV.																																	
	MIN	22.7	6.2	24	2.97	189.0					2.95	2.20	1.32	0.88	0.75	1.63																		
	MAX	22.7	6.2	24	2.97	189.0					2.95	2.20	1.32	0.88	0.75	1.63																		
DP-H09-12	n	2	2	1	2	2	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.9	5.4	6.9	2.10	261.5					8.60	1.20	1.19	0.010	7.40	7.41						5.6												
	STD. DEV.	2.8	0.5		1.84	17.7																												
	MIN	21.9	5.0	6.9	0.80	249.0					8.60	1.20	1.19	0.010	7.40	7.41						5.6												
	MAX	25.8	5.7	6.9	3.40	274.0					8.60	1.20	1.19	0.010	7.40	7.41						5.6												
DP-H10-11	n	2	2	2	2	2	0	0	0	1	2	2	2	2	2	2	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
	MEAN	25.4	5.9	21	5.47	216.3				10	2.07	0.42	0.30	0.115	1.7	1.76			4.3	3.6	0.03	7.2	1.2	0.11	0.01	51	0.06	20	4.1	4.7	0.42	9.3	6.3	
	STD. DEV.	4.5	0.4	6	0.52	16.6					0.06	0.29	0.25	0.036	0.4	0.32																		
	MIN	22.2	5.6	17	5.10	204.5				10	2.02	0.21	0.12	0.089	1.4	1.54			4.3	3.6	0.03	7.2	1.2	0.11	0.01	51	0.06	20	4.1	4.7	0.42	9.3	6.3	
	MAX	28.5	6.2	25	5.83	228.0				10	2.11	0.62	0.48	0.140	1.9	1.99			4.3	3.6	0.03	7.2	1.2	0.11	0.01	51	0.06	20	4.1	4.7	0.42	9.3	6.3	
DP-H12-5	n	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	21.9	5.6	7.9	0.94	188.5					2.81	0.81	0.76	0.047	2.00	2.05																		
	STD. DEV.																																	
	MIN	21.9	5.6	7.9	0.94	188.5					2.81	0.81	0.76	0.047	2.00	2.05																		
	MAX	21.9	5.6	7.9	0.9	188.5					2.81	0.81	0.76	0.047	2.00	2.05																		
DP-I06-14	n	3	3	3	3	3	0	0	0	1	3	3	3	3	3	3	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
	MEAN	21.9	5.1	6.1	1.13	223.4				10	3.01	0.74	0.74	0.005	2.27	2.27			3.0	2.4	0.19	6.0	2.1	0.01	0.023	62	0.06	23	0.02	5	0.19	11	3.1	
	STD. DEV.	2.2	0.3	0.2	0.73	14.6					1.16	0.31	0.31	0.000	0.86	0.86																		
	MIN	20.4	4.7	5.9	0.30	212.3				10	2.07	0.55	0.55	0.005	1.50	1.51			3.0	2.4	0.19	6.0	2.1	0.01	0.023	62	0.06	23	0.02	5	0.19	11	3.1	
	MAX	24.4	5.3	6.2	1.66	240.0				10	4.30	1.10	1.10	0.005	3.20	3.21			3.0	2.4	0.19	6.0	2.1	0.01	0.023	62	0.06	23	0.02	5	0.19	11	3.1	
DP-I06-20	n	3	3	2	3	3	0	0	0	0	2	2	2	2	2	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	22.3	5.0	3.0	1.04	362.3					17.28	0.78	0.78	0.005	16.50	16.51						13												
	STD. DEV.	1.6	0.1	1.3	0.75	4.5					2.57	0.45	0.45	0.000	2.12	2.12																		
	MIN	21.4	4.9	2.0	0.30	358.0					15.46	0.46	0.46	0.005	15.00	15.01						13												
	MAX	24.1	5.0	3.9	1.80	367.0					19.10	1.10	1.10	0.005	18.00	18.01						13												
DP-I06-26	n	3	3	2	3	3	0	0	0	0	2	2	2	2	2	2	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	22.4	5.0	2.5	1.23	306.3					13.29	1.29	1.29	0.005	12.00	12.01			0.75	1.00		14												
	STD. DEV.	1.6	0.1	0.7	1.08	5.1					4.12	1.29	1.29	0.000	2.83	2.83																		
	MIN	21.3	4.9	2.0	0.20	302.0					10.38	0.38	0.38	0.005	10.00	10.01			0.75	1.00		14												
	MAX	24.2	5.0	3.0	2.36	312.0					16.20	2.20	2.20	0.005	14.00	14.01			0.75	1.00		14												
DP-I07-8	n	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	19.4	5.8	17	2.2	170.7					1.28	0.42	0.38	0.041	0.86	0.90																		
	STD. DEV.																																	
	MIN	19.4	5.8	17	2.2	170.7					1.28	0.42	0.38	0.041	0.86	0.90																		
	MAX	19.4	5.8	17	2.2	170.7					1.28	0.42	0.38	0.041	0.86	0.90																		
DP-I08-5	n	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.0	6.5	15	4.69	191.5					2.44	2.10	0.90	1.20	0.34	1.54																		
	STD. DEV.																																	
	MIN	23.0	6.5	15	4.69	191.5					2.44	2.10	0.90	1.20	0.34	1.54																		
	MAX	23.0	6.5	15	4.69	191.5					2.44	2.10	0.90	1.20	0.34	1.54																		
DPI09-11	n	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	21.5	5.1	3.0	0.77	180.6					2.22	0.72	0.72	0.005	1.50	1.51																		
	STD. DEV.																																	
	MIN	21.5	5.1	3.0	0.77	180.6					2.22	0.72	0.72	0.005	1.50	1.51																		
	MAX	21.5	5.1	3.0	0.77	180.6					2.22	0.72	0.72	0.005	1.50	1.51																		
DP-I10-6	n	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	20.2	6.2	27	5.10	173.4					1.75	1.40	0.74	0.66	0.35	1.01																		
	STD. DEV.																																	
	MIN	20.2	6.2	27	5.10	173.4					1.75	1.40	0.74	0.66	0.35	1.01																		
	MAX	20.2	6.2	27	5.10	173.4					1.75	1.40	0.74	0.66	0.35	1.01																		
DP-I11-10	n	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	21.4	5.7	17	0.90	166.8					1.03	0.64	0.38	0.26	0.39	0.65																		
	STD. DEV.																																	
	MIN	21.4	5.7	17	0.90	166.8					1.03	0.64	0.38	0.26	0.39	0.65																		
	MAX	21.4	5.7	17	0.90	166.8					1.03	0.64	0.38	0.26	0.39	0.65																		

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

Sample ID	Statistical Parameter	Temp (°C)	pH	Total Alkalinity	DO (mg/L)	Specific Conductance	TDS (mg/L)	TSS (mg/L)	$CBOD_5$ (mg/L)	COD (mg/L)	TN (mg/L N)[1]	TKN (mg/L N)	Organic N (mg/L N)[2]	NH3-N (mg/L N)	NOx (mg/L N)	TIN (mg/L N)[3]	TP (mg/L)	Fecal (Ct/100 ml)	TOC (mg/L)	DOC (mg/L)	Anions						Cations							TS
																					F^-	Cl^-	NO_3-N	NO_2-N	PO_4-P	SO_4	B	Ca	Fe	Mg	Mn	K	Na	
DP-I12-6	n	2	2	1	2	2	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	24.3	5.2	11	1.14	132.8					7.77	0.67	0.67	0.005	7.10	7.11						4.6												
	STD. DEV.	3.3	0.6		1.04	7.4																												
	MIN	21.9	4.7	11	0.40	127.6					7.77	0.67	0.67	0.005	7.10	7.11						4.6												
	MAX	26.6	5.6	11	1.87	138.0					7.77	0.67	0.67	0.005	7.10	7.11						4.6												
DP-J08-6	n	2	2	1	2	2	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.5	6.0	15	2.90	161.7					3.75	3.70	0.70	3.00	0.05	3.05						4.3												
	STD. DEV.	5.4	0.1		0.28	30.2																												
	MIN	19.7	5.9	15	2.70	140.3					3.75	3.70	0.70	3.00	0.05	3.05						4.3												
	MAX	27.3	6.0	15	3.10	183.0					3.75	3.70	0.70	3.00	0.05	3.05						4.3												
DP-J09-12	n	2	2	1	2	2	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.4	4.8	2.0	0.61	178.0					1.55	0.45	0.45	0.005	1.10	1.11						5.2												
	STD. DEV.	3.3	0.0		0.29	15.6																												
	MIN	21.1	4.8	2.0	0.40	167.0					1.55	0.45	0.45	0.005	1.10	1.11						5.2												
	MAX	25.7	4.8	2.0	0.81	189.0					1.55	0.45	0.45	0.005	1.10	1.11						5.2												
DP-J09-14	n	3	3	2	3	3	0	0	0	0	2	2	2	2	2	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	22.7	4.6	2.5	1.44	235.7					6.06	0.61	0.60	0.005	5.45	5.46						7.8												
	STD. DEV.	1.8	0.2	0.7	1.62	11.9					3.02	0.26	0.26	0.000	2.76	2.76																		
	MIN	21.4	4.5	2.0	0.30	226.0					3.92	0.42	0.42	0.005	3.50	3.51						7.8												
	MAX	24.8	4.8	3.0	3.29	249.0					8.19	0.79	0.79	0.005	7.40	7.41						7.8												
DP-J09-20	n	2	2	1	2	2	0	0	0	0	1	1	1	1	1	1	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.1	4.6	4.0	0.43	366.5					18.20	1.20	1.20	0.005	17.00	17.01				0.91		13												
	STD. DEV.	1.4	0.2		0.33	2.1																												
	MIN	22.1	4.4	4.0	0.20	365.0					18.20	1.20	1.20	0.005	17.00	17.01				0.91		13												
	MAX	24.1	4.7	4.0	0.66	368.0					18.20	1.20	1.20	0.005	17.00	17.01				0.91		13												
DP-J09-26	n	3	3	2	3	3	0	0	0	0	2	2	2	2	2	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.2	4.8	3.0	1.15	300.4					14.05	1.40	1.40	0.005	12.65	12.66						13												
	STD. DEV.	0.8	0.3	1.4	1.21	4.9					5.16	0.42	0.42	0.000	4.74	4.74																		
	MIN	22.5	4.5	2.0	0.20	297.0					10.40	1.10	1.10	0.005	9.30	9.31						13												
	MAX	24.0	5.0	4.0	2.51	306.0					17.70	1.70	1.70	0.005	16.00	16.01						13												
DP-J10-6	n	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	24.0	5.9	14	3.48	186.6					3.4	2.4	0.0	2.4	1.0	3.4																		
	STD. DEV.																																	
	MIN	24.0	5.9	14	3.48	186.6					3.4	2.4	0.0	2.4	1.0	3.4																		
	MAX	24.0	5.9	14	3.48	186.6					3.4	2.4	0.0	2.4	1.0	3.4																		
DP-J11-12	n	1	1	1	1	1	0	0	0	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
	MEAN	23.7	4.4	2.0	1.02	196.7				14	2.65	0.55	0.55	0.005	2.10	2.11	0.010			1.1	0.16	6.3	2.1	0.01	0.01	65	0.05	16	0.039	4.2	0.15	3.8	2.9	
	STD. DEV.																																	
	MIN	23.7	4.4	2.0	1.02	196.7				14	2.65	0.55	0.55	0.005	2.10	2.11	0.010			1.1	0.16	6.3	2.1	0.01	0.010	65	0.05	16	0.039	4.2	0.15	3.8	2.9	
	MAX	23.7	4.4	2.0	1.02	196.7				14	2.65	0.55	0.55	0.005	2.10	2.11	0.010			1.1	0.16	6.3	2.1	0.01	0.010	65	0.05	16	0.039	4.2	0.15	3.8	2.9	
DP-J12-13	n	2	2	1	2	2	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.9	4.8	4.0	0.92	243.5					6.21	0.61	0.61	0.005	5.60	5.61						5.8												
	STD. DEV.	1.4	0.2		0.88	7.8																												
	MIN	22.9	4.6	4.0	0.30	238.0					6.21	0.61	0.61	0.005	5.60	5.61						5.8												
	MAX	24.9	4.9	4.0	1.54	249.0					6.21	0.61	0.61	0.005	5.60	5.61						5.8												
DP-J12-15	n	3	3	2	3	3	0	0	0	0	2	2	2	2	2	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.4	4.8	4.0	0.98	285.2					7.01	0.26	0.25	0.005	6.75	6.76						7.3												
	STD. DEV.	1.3	0.3	2.8	0.61	3.6					2.76	0.29	0.29	0.000	2.47	2.47																		
	MIN	22.1	4.6	2.0	0.30	281.0					5.05	0.05	0.05	0.005	5.00	5.01						7.3												
	MAX	24.7	5.1	5.9	1.50	287.5					8.96	0.46	0.46	0.005	8.50	8.51						7.3												
DP-J12-20	n	3	3	2	3	3	0	0	0	1	2	2	2	2	2	2	1	0	1	2	1	2	1	1	1	1	1	1	1	1	1	1	1	1	0
	MEAN	23.6	5.2	4.0	0.91	351.0				18	10.1	1.2	1.16	0.005	8.9	8.9	0.11		2.6	1.4	0.011	13	10	0.01	0.010	88	0.050	33	0.020	9.6	0.059	21	4.3	
	STD. DEV.	0.8	0.4	2.8	0.44	7.1					2.0	0.5	0.47	0.000	1.6	1.6				0.14		1												
	MIN	22.9	4.9	2.0	0.40	342.9				18	8.6	0.8	0.83	0.005	7.8	7.8	0.11		2.60	1.30	0.011	12	10	0.01	0.010	88	0.050	33	0.020	9.6	0.059	21	4.3	
	MAX	24.5	5.6	5.9	1.20	356.0				18	11.5	1.5	1.50	0.005	10.0	10.0	0.11		2.60	1.50	0.011	14	10	0.01	0.010	88	0.050	33	0.020	9.6	0.059	21	4.3	
DP-J12-27	n	3	3	2	3	3	0	0	0	0	2	2	2	2	2	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.5	4.9	3.0	0.75	306.7					15.05	1.05	1.05	0.005	14.00	14.01						15												
	STD. DEV.	0.9	0.2	1.4	0.49	3.5					2.76	0.07	0.07	0.000	2.83	2.83																		
	MIN	22.6	4.7	2.0	0.20	303.0					13.10	1.00	1.00	0.005	12.00	12.01						15												
	MAX	24.4	5.1	4.0	1.14	310.0					17.00	1.10	1.10	0.005	16.00	16.01						15												
DP-K10-7	n	2	2	1	2	2	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	25.8	5.6	6.9	2.55	169.9					2.33	2	0.4	1.6	0.33	1.93						5.2												
	STD. DEV.	2.3	0.6		1.76	8.6																												
	MIN	24.2	5.1	6.9	1.30	163.8					2.33	2	0.4	1.6	0.33	1.93						5.2												
	MAX	27.4	6.0	6.9	3.79	176.0					2.33	2	0.4	1.6	0.33	1.93						5.2												
DP-K11-13	n	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	22.1	4.9	4.0	1.8	168.3					1.89	0.59	0.59	0.005	1.3	1.31																		
	STD. DEV.																																	
	MIN	22.1	4.9	4.0	1.8	168.3					1.89	0.59	0.59	0.005	1.3	1.31																		
	MAX	22.1	4.9	4.0	1.8	168.3					1.89	0.59	0.59	0.005	1.3	1.31																		
DP-K12-5	n	2	2	1	2	2	0	0	0	1	1	1	1	1	1	1	1	0	0	1	1	2	1	1	1	1	1	1	1	1	1	1	1	0
	MEAN	24.9	5.2	6.9	1.05	69.7				55	0.81	0.77	0.68	0.092	0.04	0.13	0.34			7.30	0.083	2.2	0.04	0.01	0.010	11	0.050	5.5	2.2	0.86	0.210	0.40	1.9	
	STD. DEV.	3.7	0.6		0.49	14.6																0.4												
	MIN	22.3	4.7	6.9	0.70	59				55	0.81	0.77	0.68	0.092	0.04	0.13	0.34			7.30	0.083	1.9	0.04	0.01	0.010	11	0.050	5.5	2.2	0.86	0.210	0.40	1.9	
	MAX	27.5	5.6	6.9	1.40	80				55	0.81	0.77	0.68	0.092	0.04	0.13	0.34			7.30	0.083	2.5	0.04	0.01	0.010	11	0.050	5.5	2.2	0.86	0.210	0.40	1.9	

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

Sample ID	Statistical Parameter	Temp (°C)	pH	Total Alkalinity	DO (mg/L)	Specific Conductance	TDS (mg/L)	TSS (mg/L)	$CBOD_5$ (mg/L)	COD (mg/L)	TN (mg/L N)[1]	TKN (mg/L N)	Organic N (mg/L N)[2]	NH3-N (mg/L N)	NOx (mg/L N)	TIN (mg/L N)[3]	TP (mg/L)	Fecal (Ct/100 mL)	TOC (mg/L)	DOC (mg/L)	Anions						Cations							TS
																					F^-	Cl^-	NO_3-N	NO_2-N	PO_4-P	SO_4	B	Ca	Fe	Mg	Mn	K	Na	
DP-M07-15	n	2	2	2	2	2	0	0	0	0	2	2	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	22.6	5.0	4.0	0.8	285.5					6.62	0.52	0.51	0.005	6.1	6.11																			
	STD. DEV.	0.6	0.3	2.8	0.1	26.2					0.01	0.13	0.13	0.000	0.1	0.14																			
	MIN	22.2	4.8	2.0	0.7	267.0					6.61	0.42	0.42	0.005	6.0	6.01																			
	MAX	23.0	5.2	5.9	0.8	304.0					6.62	0.61	0.61	0.005	6.2	6.21																			
DP-M07-21	n	3	3	2	3	3	0	0	0	0	2	2	2	2	2	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.7	4.9	2.0	0.6	367.6					13.7	1.2	1.18	0.0	12.5	12.5						14													
	STD. DEV.	1.0	0.0	0.0	0.3	6.6					0.3	0.5	0.45	0.0	0.7	0.7																			
	MIN	22.5	4.9	2.0	0.3	362.0					13.5	0.9	0.86	0.005	12.0	12.0						14													
	MAX	24.5	4.9	2.0	0.9	374.9					13.9	1.5	1.50	0.005	13.0	13.0						14													
DP-M07-27	n	3	3	2	3	3	0	0	0	0	2	2	2	2	2	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.5	5.0	4.0	0.59	299.2					9.7	1.5	1.5	0.0	8.3	8.3						13													
	STD. DEV.	0.9	0.2	2.8	0.45	5.4					0.5	1.0	1.0	0.0	0.5	0.5																			
	MIN	22.5	4.8	2.0	0.20	293					9.34	0.74	0.74	0.005	7.9	7.91						13													
	MAX	24.3	5.2	5.9	1.08	303					10.10	2.2	2.20	0.005	8.6	8.61						13													
DP-M12-10	n	2	2	1	2	2	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	25.5	5.4	8.9	1.37	189.3					1.49	0.60	0.52	0.083	0.89	0.97						4.8													
	STD. DEV.	2.1	0.4		0.66	10.9																													
	MIN	24.0	5.1	8.9	0.90	161.6					1.49	0.60	0.52	0.083	0.89	0.97						4.8													
	MAX	27.0	5.7	8.9	1.83	177.0					1.49	0.60	0.52	0.083	0.89	0.97						4.8													
DP-N12-14	n	3	3	2	3	3	0	0	0	0	2	2	2	2	2	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.5	4.7	2.5	0.80	173.0					3.06	0.62	0.62	0.005	2.44	2.44						4.8													
	STD. DEV.	1.7	0.3	0.7	0.55	8.4					2.86	0.51	0.51	0.000	2.35	2.35																			
	MIN	22.1	4.4	2.0	0.20	163.4					1.03	0.26	0.26	0.005	0.77	0.78						4.8													
	MAX	25.4	5.0	3.0	1.28	178.6					5.08	0.98	0.98	0.005	4.10	4.11						4.8													
DP-N12-18	n	2	2	1	2	2	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	24.2	4.9	4.0	0.705	248.5					7.2	1.1	1.1	0.005	6.1	6.11						6.2													
	STD. DEV.	1.41421	0.28284271		0.5727565	2.121320344																													
	MIN	23.2	4.7	4.0	0.3	247					7.2	1.1	1.1	0.005	6.1	6.11						6.2													
	MAX	25.2	5.1	4.0	1.11	250					7.2	1.1	1.1	0.005	6.1	6.11						6.2													
DP-N12-21	n	3	3	3	3	3	0	0	0	1	3	3	3	3	3	3	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
	MEAN	23.5	5.0	4.4	1.05	297.4				10	5.7	0.61	0.61	0.005	5.13	5.14			2.6	1.0	0.2	9.4	5.1	0.01	0.025	84	0.05	32	0.04	8.2	0.09	15	4.3		
	STD. DEV.	1.3	0.2	2.1	0.86	16.1					1.0	0.08	0.08	0.000	1.05	1.05																			
	MIN	22.3	4.8	2.0	0.20	279.0				10	4.7	0.54	0.54	0.005	4.10	4.11			2.6	1.0	0.2	9.4	5.1	0.01	0.025	84	0.05	32	0.04	8.2	0.09	15	4.3		
	MAX	24.9	5.2	5.9	1.91	309.0				10	6.7	0.69	0.69	0.005	6.20	6.21			2.6	1.0	0.2	9.4	5.1	0.01	0.025	84	0.05	32	0.04	8.2	0.09	15	4.3		
DP-N12-24	n	2	2	1	2	2	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	1	0	0	0.00	0	0	0	0	0	0	0	0	0	0
	MEAN	24.4	4.9	4.9	0.44	351.0					13.3	1.3	1.30	0.005	12.00	12.01						16													
	STD. DEV.	0.4	0.4		0.48	4.2																													
	MIN	24.1	4.6	4.9	0.10	348.0					13.3	1.3	1.30	0.005	12.00	12.01						16													
	MAX	24.7	5.2	4.9	0.78	354.0					13.3	1.3	1.30	0.005	12.00	12.01						16													
DP-N12-27	n	3	3	3	3	3	0	0	0	1	3	3	3	3	3	3	0	0	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
	MEAN	23.4	4.9	4.0	1.08	346.2				10	14.9	1.4	1.39	0.005	13.5	13.54			1.9	2.1	0.2	13	9.6	0.01	0.022	84.0	0.05	32.0	0.04	11.0	0.043	22	5.2		
	STD. DEV.	1.6	0.2	1.8	1.22	17.1					6.0	0.4	0.41	0.000	5.6	5.64			0.5	0.1															
	MIN	21.6	4.7	2.0	0.10	331.6				10	11.0	1.0	0.99	0.005	9.6	9.61			1.5	2.0	0.2	13	9.6	0.01	0.022	84.0	0.05	32.0	0.04	11.0	0.043	22	5.2		
	MAX	24.6	5.1	5.2	2.45	365.0				10	21.8	1.8	1.80	0.005	20.0	20.01			2.2	2.2	0.2	13	9.6	0.01	0.022	84.0	0.05	32.0	0.04	11.0	0.043	22	5.2		
DP-O10-12	n	2	2	2	2	2	0	0	0	0	2	2	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	22.0	4.3	2.0	1.22	186.2					0.19	0.14	0.14	0.005	0.05	0.06																			
	STD. DEV.	1.3	0.0	0.0	0.13	0.4					0.04	0.06	0.06	0.000	0.01	0.01																			
	MIN	21.1	4.3	2.0	1.13	185.9					0.16	0.10	0.10	0.005	0.04	0.05																			
	MAX	22.9	4.3	2.0	1.31	186.4					0.22	0.18	0.18	0.005	0.06	0.07																			
DP-O10-18	n	3	3	2	3	3	0	0	0	0	2	2	2	2	2	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.6	5.0	4.0	0.84	309.2					7.07	1.32	1.32	0.005	5.75	5.76						10													
	STD. DEV.	1.5	0.3	2.8	0.18	22.5					3.58	1.10	1.10	0.000	2.47	2.47																			
	MIN	22.2	4.8	2.0	0.70	294.0					4.54	0.54	0.54	0.005	4.00	4.01						10													
	MAX	25.1	5.3	5.9	1.04	335.0					9.60	2.10	2.10	0.005	7.50	7.51						10													
DP-O10-24	n	3	3	2	3	3	0	0	0	0	2	2	2	2	2	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.6	4.7	2.5	0.65	303.1					10.3	2.25	2.24	0.0050	8.04	8.04						15													
	STD. DEV.	1.6	0.5	0.7	0.33	104.7					14.3	3.05	3.05	0.0000	11.26	11.26																			
	MIN	21.8	4.2	2.0	0.30	182.2					0.2	0.09	0.09	0.0050	0.07	0.08						15													
	MAX	24.7	5.1	3.0	0.95	366.0					20.4	4.40	4.40	0.0050	16.00	16.01						15													
DP-Q15-15	n	2	2	2	2	2	0	0	0	0	2	2	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	21.7	4.8	2.5	1.46	294.2					3.54	0.34	0.34	0.005	3.20	3.21																			
	STD. DEV.	1.4	0.1	0.7	1.20	13.0					2.47	0.07	0.07	0.000	2.40	2.40																			
	MIN	20.7	4.7	2.0	0.61	285.0					1.79	0.29	0.29	0.005	1.50	1.51																			
	MAX	22.7	4.8	3.0	2.31	303.4					5.29	0.39	0.39	0.005	4.90	4.91																			
DP-Q15-21	n	3	3	2	3	3	0	0	0	0	2	2	2	2	2	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.8	5.0	4.0	0.82	333.5					7.41	0.66	0.65	0.005	6.75	6.76						13													
	STD. DEV.	1.3	0.2	2.8	0.58	21.3					2.13	0.35	0.35	0.000	2.47	2.47																			
	MIN	22.6	4.8	2.0	0.30	319.0					5.90	0.41	0.41	0.005	5.00	5.01						13													
	MAX	25.2	5.2	5.9	1.44	358.0					8.91	0.90	0.90	0.005	8.50	8.51						13													

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

Sample ID	Statistical Parameter	Temp (°C)	pH	Total Alkalinity	DO (mg/L)	Specific Conductance	TDS (mg/L)	TSS (mg/L)	$CBOD_5$ (mg/L)	COD (mg/L)	TN (mg/L N)[1]	TKN (mg/L N)	Organic N (mg/L N)[2]	NH3-N (mg/L N)	NOx (mg/L N)	TIN (mg/L N)[3]	TP (mg/L)	Fecal (Ct/100 mL)	TOC (mg/L)	DOC (mg/L)	Anions						Cations							TS
																					F^-	Cl^-	NO_3-N	NO_2-N	PO_4-P	SO_4	B	Ca	Fe	Mg	Mn	K	Na	
DP-Q15-26	n	3	3	2	3	3	0	0	0	0	2	2	2	2	2	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.3	5.0	4.0	0.90	347.3					8.30	0.80	0.77	0.021	7.50	7.52						15												
	STD. DEV.	1.9	0.2	2.8	0.47	32.9					1.00	0.13	0.11	0.023	1.13	1.11																		
	MIN	21.5	4.8	2.0	0.40	324.0					7.59	0.70	0.70	0.005	6.70	6.74						15												
	MAX	25.3	5.2	5.9	1.33	385.0					9.00	0.89	0.85	0.037	8.30	8.31						15												
Standpipe Piezometers																																		
PZ01-BKG-9	n	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	22.8	4.6	2.0	6.78	146.8					0.37	0.36	0.25	0.11	0.01	0.12																		
	STD. DEV.																																	
	MIN	22.8	4.6	2.0	6.78	146.8					0.37	0.36	0.25	0.11	0.01	0.12																		
	MAX	22.8	4.6	2.0	6.78	146.8					0.37	0.36	0.25	0.11	0.01	0.12																		
PZ02-P02-9	n	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	24.4	4.7	2.0	4.63	73.6					1.73	0.96	0.96	0.005	0.77	0.78																		
	STD. DEV.																																	
	MIN	24.4	4.7	2.0	4.63	73.6					1.73	0.96	0.96	0.005	0.77	0.78																		
	MAX	24.4	4.7	2.0	4.63	73.6					1.73	0.96	0.96	0.005	0.77	0.78																		
PZ03-H11-6	n	2	2	2	2	2	0	0	0	1	2	2	1	2	2	2	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
	MEAN	27.2	4.7	2.0	3.34	151.7				10	2.50	1.32	2.29	0.008	1.18	1.18			4.8	3.4	0.14	6.2	0.85	0.01	0.01	44	0.05	11	0.02	2.7	0.05	4.8	5.8	
	STD. DEV.	1.8	0.2	0.0	0.48	18.8																												
	MIN	25.9	4.5	2.0	3.00	138.4				10	1.19	0.34	2.29	0.006	0.85	0.86			4.8	3.4	0.14	6.2	0.85	0.01	0.01	44	0.05	11	0.02	2.7	0.05	4.8	5.8	
	MAX	28.4	4.8	2.0	3.68	165.0				10	3.80	2.30	2.29	0.010	1.50	1.51			4.8	3.4	0.14	6.2	0.85	0.01	0.01	44	0.05	11	0.02	2.7	0.05	4.8	5.8	
PZ04-BKG-9	n	3	3	2	3	3	0	0	0	1	2	2	2	2	2	2	1	0	1	2	1	2	1	1	1	1	1	1	1	1	1	1	1	0
	MEAN	23.1	5.4	7.5	3.05	83.7				28	0.39	0.23	0.21	0.022	0.16	0.18	0.021		2.9	2.7	0.091	2.5	0.3	0.01	0.010	12.0	0.050	5.6	0.066	1.6	0.1	0.9	1.8	
	STD. DEV.	2.5	0.2	0.8	1.70	14.4					0.37	0.17	0.15	0.023	0.21	0.23				0.1		1.1												
	MIN	21.6	5.3	6.9	1.10	72.9				28	0.12	0.11	0.11	0.005	0.01	0.02	0.021		2.9	2.6	0.091	1.7	0.3	0.01	0.010	12	0.050	5.6	0.066	1.6	0.069	0.94	1.8	
	MAX	25.9	5.6	8.1	4.20	100				28	0.65	0.35	0.31	0.038	0.30	0.34	0.021		2.9	2.8	0.091	3.3	0.3	0.01	0.010	12	0.050	5.6	0.066	1.6	0.069	0.94	1.8	
PZ05-BKG-9	n	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	21.8	5.1	6.9	4.38	98.8					4.80	1.20	1.17	0.034	3.60	3.63																		
	STD. DEV.																																	
	MIN	21.8	5.1	6.9	4.38	98.8					4.80	1.20	1.17	0.034	3.60	3.63																		
	MAX	21.8	5.1	6.9	4.38	98.8					4.80	1.20	1.17	0.034	3.60	3.63																		
PZ06-BKG-12	n	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.1	4.7	3.0	5.41	59.4					0.26	0.25	0.21	0.04	0.01	0.05																		
	STD. DEV.																																	
	MIN	23.1	4.7	3.0	5.41	59.4					0.26	0.25	0.21	0.04	0.01	0.05																		
	MAX	23.1	4.7	3.0	5.41	59.4					0.26	0.25	0.21	0.04	0.01	0.05																		
PZ07-D05-7	n	2	2	1	2	2	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	26.3	4.7	3.0	1.45	254.8					5.20	1.60	1.60	0.005	3.6	3.61						21												
	STD. DEV.	1.4	0.0		1.49	47.0																												
	MIN	25.3	4.7	3.0	0.39	221.6					5.20	1.60	1.60	0.005	3.6	3.61						21												
	MAX	27.3	4.7	3.0	2.50	288.0					5.20	1.60	1.60	0.005	3.6	3.61						21												
PZ08-FG7-12	n	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.6	4.8	2.0	3.33	126.9					2.13	1.30	1.30	0.005	0.83	0.84																		
	STD. DEV.																																	
	MIN	23.6	4.8	2.0	3.33	126.9					2.13	1.30	1.30	0.005	0.83	0.84																		
	MAX	23.6	4.8	2.0	3.33	126.9					2.13	1.30	1.30	0.005	0.83	0.84																		
PZ09-I08-5	n	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	21.9	5.2	2.0	6.03	94.2					1.99	1.40	1.40	0.005	0.59	0.60																		
	STD. DEV.																																	
	MIN	21.9	5.2	2.0	6.03	94.2					1.99	1.40	1.40	0.005	0.59	0.60																		
	MAX	21.9	5.2	2.0	6.03	94.2					1.99	1.40	1.40	0.005	0.59	0.60																		
PZ10-CD6-13	n	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	25.6	6.0	26	2.85	524.0					7.70	2.50	2.45	0.050	5.20	5.25																		
	STD. DEV.																																	
	MIN	25.6	6.0	26	2.85	524.0					7.70	2.50	2.45	0.050	5.20	5.25																		
	MAX	25.6	6.0	26	2.85	524.0					7.70	2.50	2.45	0.050	5.20	5.25																		
PZ11-E09-10	n	2	2	2	2	2	0	0	0	1	2	2	1	2	2	2	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
	MEAN	26.7	5.5	11	2.07	453.9				10	21.7	2.2	1.61	0.30	20	19.8			2.2	1.5	0.04	36	18	0.01	0.01	59	0.09	34	0.29	8.9	0.23	10	30	
	STD. DEV.	1.3	0.2	1.8	0.4	0.1																												
	MIN	25.8	5.3	9	1.80	453.8				10	20.3	2.1	1.61	0.10	18	18.1			2.2	1.5	0.04	36	18	0.01	0.01	59	0.09	34	0.29	8.9	0.23	10	30	
	MAX	27.6	5.6	12	2.33	454.0				10	23.1	2.3	1.61	0.49	21	21.5			2.2	1.5	0.04	36	18	0.01	0.01	59	0.09	34	0.29	8.9	0.23	10	30	
PZ13-F04-8	n	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	21.4	5.6	7.9	2.48	125.5					2.15	0.75	0.71	0.037	1.40	1.44																		
	STD. DEV.																																	
	MIN	21.4	5.6	7.9	2.48	125.5					2.15	0.75	0.71	0.037	1.40	1.44																		
	MAX	21.4	5.6	7.9	2.48	125.5					2.15	0.75	0.71	0.037	1.40	1.44																		
PZ14-G13-7	n	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	24.5	5.8	15	1.04	246.1					7.59	0.19	0.19	0.005	7.40	7.41																		
	STD. DEV.																																	
	MIN	24.5	5.8	15	1.04	246.1					7.59	0.19	0.19	0.005	7.40	7.41																		
	MAX	24.5	5.8	15	1.04	246.1					7.59	0.19	0.19	0.005	7.40	7.41																		
PZ15-A11-6	n	2	2	1	2	2	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	27.1	5.3	4.9	2.8	147.5					0.88	0.61	0.57	0.041	0.27	0.31						17												
	STD. DEV.	3.3	0.1		0.4	67.2																												
	MIN	24.8	5.2	4.9	2.5	100.0					0.88	0.61	0.57	0.041	0.27	0.31						17												
	MAX	29.4	5.3	4.9	3.1	195.0					0.88	0.61	0.57	0.041	0.27	0.31						17												

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

Sample ID	Statistical Parameter	Temp (°C)	pH	Total Alkalinity	DO (mg/L)	Specific Conductance	TDS (mg/L)	TSS (mg/L)	$CBOD_5$ (mg/L)	COD (mg/L)	TN (mg/L N)[1]	TKN (mg/L N)	Organic N (mg/L N)[2]	NH3-N (mg/L N)	NOx (mg/L N)	TIN (mg/L N)[3]	TP (mg/L)	Fecal (Ct/100 mL)	TOC (mg/L)	DOC (mg/L)	Anions					Cations							TS
																					F^-	Cl^-	NO_3-N	NO_2-N	PO_4-P	SO_4	B	Ca	Fe	Mg	Mn	K	Na	
PZ16-C12-28	n	3	3	2	3	3	0	0	0	0	2	2	2	2	2	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	26.0	5.6	10.5	0.62	297.6					1.25	1.01	0.99	0.017	0.24	0.26						19												
	STD. DEV.	1.4	0.1	0.8	0.11	7.4					1.36	1.26	1.26	0.001	0.10	0.10																		
	MIN	25.1	5.5	9.9	0.50	291.8					0.29	0.12	0.10	0.016	0.17	0.19						19												
	MAX	27.6	5.7	11	0.70	306.0					2.21	1.90	1.88	0.017	0.31	0.33						19												
PZ17-I15-26	n	3	3	2	3	3	0	0	0	0	2	2	2	2	2	2	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.5	5.1	3.6	1.53	302.7					13.74	0.39	0.38	0.006	13.35	13.36			4.0	1.0		14												
	STD. DEV.	1.7	0.5	0.8	0.97	7.5					4.86	0.30	0.30	0.001	5.16	5.16																		
	MIN	22.1	4.8	3.0	0.52	294.1					10.30	0.18	0.17	0.005	9.70	9.71			4.0	1.0		14												
	MAX	25.4	5.7	4.1	2.46	307.1					17.18	0.60	0.60	0.006	17.00	17.01			4.0	1.0		14												
PZ18-R12-26	n	2	2	1	2	2	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	25.0	5.1	8.9	0.75	290.1					15.40	3.40	3.38	0.022	12.00	12.02						13												
	STD. DEV.	2.3	0.1		0.21	53.8																												
	MIN	23.4	5.0	8.9	0.60	252.0					15.40	3.40	3.38	0.022	12.00	12.02						13												
	MAX	26.6	5.1	8.9	0.89	328.1					15.40	3.40	3.38	0.022	12.00	12.02						13												
PZ19-G10-26	n	2	2	1	2	2	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	23.5	5.1	4.0	0.84	298.1					17.90	0.90	0.89	0.014	17.00	17.01						15												
	STD. DEV.	0.6	0.1		0.33	5.7																												
	MIN	23.1	5.0	4.0	0.60	294.0					17.90	0.90	0.89	0.014	17.00	17.01						15												
	MAX	23.9	5.1	4.0	1.07	302.1					17.90	0.90	0.89	0.014	17.00	17.01						15												
PZ20-G10-15	n	2	2	1	2	2	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	24.0	5.5	15	2.29	328.1					22.70	3.70	3.70	0.005	19.00	19.01						17												
	STD. DEV.	2.5	0.2		0.45	39.7																												
	MIN	22.2	5.3	15	1.97	300.0					22.70	3.70	3.70	0.005	19.00	19.01						17												
	MAX	25.7	5.6	15	2.60	356.1					22.70	3.70	3.70	0.005	19.00	19.01						17												
PZ21-E11-26	n	2	2	1	2	2	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	24.2	5.1	4.0	0.63	291.8					9.85	0.55	0.54	0.012	9.30	9.31						17												
	STD. DEV.	0.8	0.2		0.38	5.4																												
	MIN	23.6	4.9	4.0	0.36	288.0					9.85	0.55	0.54	0.012	9.30	9.31						17												
	MAX	24.8	5.2	4.0	0.90	295.6					9.85	0.55	0.54	0.012	9.30	9.31						17												
PZ22-E11-15	n	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	24.4	5.3	8.9	1.36	416.0					5.60	1.40	1.39	0.007	4.20	4.21																		
	STD. DEV.																																	
	MIN	24.4	5.3	8.9	1.36	416.0					5.60	1.40	1.39	0.007	4.20	4.21																		
	MAX	24.4	5.3	8.9	1.36	416.0					5.60	1.40	1.39	0.007	4.20	4.21																		
PZ23-D09-27	n	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	24.4	5.4	5.9	0.18	306.2					8.50	1.20	1.20	0.005	7.30	7.31																		
	STD. DEV.																																	
	MIN	24.4	5.4	5.9	0.18	306.2					8.50	1.20	1.20	0.005	7.30	7.31																		
	MAX	24.4	5.4	5.9	0.18	306.2					8.50	1.20	1.20	0.005	7.30	7.31																		
PZ24-BKG-26	n	3	3	2	3	3	0	0	0	1	2	2	2	2	2	2	1	0	2	2	1	2	1	1	1	1	1	1	1	1	1	1	1	0
	MEAN	23.9	5.0	4.1	0.63	287.7				12	11.8	1.3	1.2	0.0	10.6	10.6	1.2		2.5	0.9	0.01	17	9.10	0.01	0.01	43.00	0.050	21.0	0.11	9.7	0.2	8.9	7.7	
	STD. DEV.	0.7	0.1	0.1	0.12	14.5					1.1	0.9	0.9	0.0	2.1	2.0			1.6	0.2		3												
	MIN	23.1	4.9	4.0	0.50	270.9				12	11.00	0.6	0.60	0.005	9.1	9.16	1.2		1.3	0.79	0.013	15	9.1	0.01	0.010	43	0.050	21	0.11	9.7	0.17	8.9	7.7	
	MAX	24.4	5.1	4.1	0.70	296.2				12	12.60	1.9	1.84	0.057	12	12.01	1.2		3.6	1.1	0.013	19	9.1	0.01	0.010	43	0.050	21	0.11	9.7	0.17	8.9	7.7	
PZ25-A6.5-10	n	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	22.0	6.0	48	5.7	770.0					22.3	2.3	2.3	0.022	20.0	20.0																		
	STD. DEV.																																	
	MIN	22.0	6.0	48	5.7	770.0					22.3	2.3	2.3	0.022	20.0	20.0																		
	MAX	22.0	6.0	48	5.7	770.0					22.3	2.3	2.3	0.022	20.0	20.0																		
Blanks																																		
FB-DI	n	2	2	2	2	2	0	0	0	0	2	2	2	2	2	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	16.8	5.9	2.0	9.00	1.3					0.06	0.05	0.05	0.005	0.01	0.02						0.05												
	STD. DEV.	6.6	0.3	0.0	0.63	0.2					0.00	0.00	0.00	0.000	0.00	0.00																		
	MIN	12.1	5.7	2.0	8.55	1.2					0.06	0.05	0.05	0.005	0.01	0.02						0.05												
	MAX	21.5	6.1	2.0	9.44	1.5					0.06	0.05	0.05	0.005	0.01	0.02						0.05												
FB-TAP	n	2	2	2	2	2	0	0	0	0	2	2	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	16.6	7.3	140	9.60	438.5					0.08	0.05	0.05	0.005	0.03	0.04																		
	STD. DEV.	9.9	0.5	0	2.08	9.2					0.03	0.00	0.00	0.000	0.03	0.03																		
	MIN	9.6	7.0	140	8.13	432.0					0.06	0.05	0.05	0.005	0.01	0.02																		
	MAX	23.6	7.7	140	11.07	445.0					0.10	0.05	0.05	0.005	0.05	0.06																		
Equipment Rinsate	n	3	3	2	3	3	0	0	0	0	2	2	2	2	2	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	22.7	6.7	2.0	5.04	8.2					0.07	0.05	0.03	0.02	0.02	0.04						0.05												
	STD. DEV.	9.4	0.6	0.0	2.80	6.1					0.01	0.00	0.01	0.015	0.01	0.03																		
	MIN	11.9	6.0	2.0	2.31	1.4					0.06	0.05	0.02	0.005	0.01	0.02						0.05												
	MAX	28.8	7.2	2.0	7.90	13.2					0.08	0.05	0.05	0.026	0.03	0.06						0.05												

Notes:
[1] Total Nitrogen (TN) is a calculated value equal to the sum of TKN and NO_x.
[2] Organic Nitrogen (ON) is a calculated value equal to the difference of TKN and NH_3.
[3] Total Inorganic Nitrogen (TIN) is a calculated value equal to the sum of NH_3 and NO_x.
DO - 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 analyses.
Blue-shaded data points indicate the number is greater than reported value.
Orange - shaded data points indicate too many colonies were present. The numberic value represents the dilution factor times the maximum reportable number of colonies.

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Appendix H: Laboratory Report

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

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

September 9, 2011
Work Order: 1105413
Revised Report

Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-AA9-14**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-01**						
Date/Time Collected		**06/27/11 08:28**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/27/11 15:00**						
Field Parameters								
pH	SU	4.6	DEP FT1100	0.1	0.1		06/27/11 08:28	SDH
Water Temperature	°C	24.5	DEP FT1400	0.1	0.1		06/27/11 08:28	SDH
Specific conductance	umhos/cm	752	DEP FT1200	0.1	0.1		06/27/11 08:28	SDH
Dissolved Oxygen	mg/L	1.3	DEP FT1500	0.1	0.1		06/27/11 08:28	SDH
Inorganics								
Chloride	mg/L	82	EPA 300.0	0.20	0.050		06/30/11 13:06	MEJ
Sample Description		**DP-AA9-22**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-02**						
Date/Time Collected		**06/27/11 09:04**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/27/11 15:00**						
Field Parameters								
pH	SU	5.2	DEP FT1100	0.1	0.1		06/27/11 09:04	SDH
Water Temperature	°C	24.7	DEP FT1400	0.1	0.1		06/27/11 09:04	SDH
Specific conductance	umhos/cm	279	DEP FT1200	0.1	0.1		06/27/11 09:04	SDH
Dissolved Oxygen	mg/L	0.3	DEP FT1500	0.1	0.1		06/27/11 09:04	SDH
Inorganics								
Chloride	mg/L	8.7	EPA 300.0	0.20	0.050		06/29/11 17:04	MEJ
Sample Description		**DP-AA9-27**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-03**						
Date/Time Collected		**06/27/11 09:16**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/27/11 15:00**						
Field Parameters								
pH	SU	5.1	DEP FT1100	0.1	0.1		06/27/11 09:16	SDH
Water Temperature	°C	24.7	DEP FT1400	0.1	0.1		06/27/11 09:16	SDH
Specific conductance	umhos/cm	295	DEP FT1200	0.1	0.1		06/27/11 09:16	SDH
Dissolved Oxygen	mg/L	0.7	DEP FT1500	0.1	0.1		06/27/11 09:16	SDH
Inorganics								
Chloride	mg/L	20	EPA 300.0	0.20	0.050		06/29/11 17:04	MEJ

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

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

September 9, 2011
Work Order: 1105413
Revised Report

Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-C11-8**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-04**						
Date/Time Collected		**06/27/11 09:38**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/27/11 15:00**						
Field Parameters								
pH	SU	5.8	DEP FT1100	0.1	0.1		06/27/11 09:38	SDH
Water Temperature	°C	27.8	DEP FT1400	0.1	0.1		06/27/11 09:38	SDH
Specific conductance	umhos/cm	385	DEP FT1200	0.1	0.1		06/27/11 09:38	SDH
Dissolved Oxygen	mg/L	3.0	DEP FT1500	0.1	0.1		06/27/11 09:38	SDH
Inorganics								
Ammonia as N	mg/L	0.090	EPA 350.1	0.010	0.005		07/11/11 11:13	SMD
Chemical Oxygen Demand	mg/L	12 I	EPA 410.4	25	10	07/01/11 10:00	07/01/11 15:00	MMF
Chloride	mg/L	31	EPA 300.0	0.20	0.050		06/29/11 15:38	MEJ
Fluoride	mg/L	0.017 I	EPA 300.0	0.040	0.010		06/29/11 15:38	MEJ
Nitrate (as N)	mg/L	12	EPA 300.0	0.04	0.01		06/29/11 09:00	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		06/29/11 09:00	MEJ
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		06/29/11 09:00	MEJ
Sulfate	mg/L	53	EPA 300.0	0.60	0.20		06/29/11 09:00	MEJ
Total Alkalinity	mg/L	21	SM 2320B	8.0	2.0		07/02/11 12:30	KTC
Total Kjeldahl Nitrogen	mg/L	1.9	EPA 351.2	0.20	0.05	07/07/11 13:56	07/07/11 14:48	SMD
Total Organic Carbon	mg/L	5.5	SM 5310B	1.0	0.50		07/07/11 12:49	ARM
Nitrate+Nitrite (N)	mg/L	12	EPA 300.0	0.08	0.02		06/29/11 09:00	MEJ
Metals								
Boron	mg/L	0.11	EPA 200.7	0.10	0.050	07/05/11 16:14	07/11/11 12:27	VWC
Calcium	mg/L	30	EPA 200.7	0.050	0.010	07/05/11 16:14	07/06/11 17:33	VWC
Iron	mg/L	6.6	EPA 200.7	0.10	0.020	07/05/11 16:14	07/06/11 17:33	VWC
Magnesium	mg/L	7.2	EPA 200.7	0.050	0.010	07/05/11 16:14	07/06/11 17:33	VWC
Manganese	mg/L	0.31	EPA 200.7	0.010	0.0010	07/05/11 16:14	07/06/11 17:33	VWC
Potassium	mg/L	7.0	EPA 200.7	0.050	0.010	07/05/11 16:14	07/06/11 17:33	VWC
Sodium	mg/L	31	EPA 200.7	0.050	0.010	07/05/11 16:14	07/06/11 17:33	VWC

Short Environmental Laboratories

Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	5.2	SM 5310C	4	1		07/19/11 14:30	CC

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September 9, 2011
Work Order: 1105413
Revised Report

Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**STE Lift Station**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-05**						
Date/Time Collected		**06/28/11 13:50**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/28/11 15:50**						
Inorganics								
Ammonia as N	mg/L	22	EPA 350.1	0.010	0.005		07/11/11 11:13	SMD
Chemical Oxygen Demand	mg/L	270	EPA 410.4	25	10	07/01/11 10:00	07/01/11 15:00	MMF
Chloride	mg/L	72	EPA 300.0	0.20	0.050		06/30/11 13:06	MEJ
Fluoride	mg/L	6.7	EPA 300.0	0.040	0.010		06/29/11 15:38	MEJ
Nitrate (as N)	mg/L	0.10	EPA 300.0	0.04	0.01		06/29/11 15:38	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		06/29/11 13:28	MEJ
Orthophosphate as P	mg/L	9.9	EPA 300.0	0.040	0.010		06/29/11 15:38	MEJ
Sulfate	mg/L	22	EPA 300.0	0.60	0.20		06/29/11 15:38	MEJ
Total Alkalinity	mg/L	200	SM 2320B	8.0	2.0		07/02/11 12:30	KTC
Total Kjeldahl Nitrogen	mg/L	26	EPA 351.2	0.20	0.05	07/07/11 13:56	07/07/11 14:48	SMD
Nitrate+Nitrite (N)	mg/L	0.10	EPA 300.0	0.08	0.02		06/29/11 15:38	MEJ
Metals								
Boron	mg/L	0.065 I	EPA 200.7	0.10	0.050	07/05/11 16:14	07/11/11 12:31	VWC
Calcium	mg/L	56	EPA 200.7	0.050	0.010	07/05/11 16:14	07/06/11 17:44	VWC
Iron	mg/L	0.81	EPA 200.7	0.10	0.020	07/05/11 16:14	07/06/11 17:44	VWC
Magnesium	mg/L	19	EPA 200.7	0.050	0.010	07/05/11 16:14	07/06/11 17:44	VWC
Manganese	mg/L	0.040	EPA 200.7	0.010	0.0010	07/05/11 16:14	07/06/11 17:44	VWC
Potassium	mg/L	23	EPA 200.7	0.050	0.010	07/05/11 16:14	07/06/11 17:44	VWC
Sodium	mg/L	49	EPA 200.7	0.050	0.010	07/05/11 16:14	07/06/11 17:44	VWC
Sample Description		**DP-D07-9**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-06**						
Date/Time Collected		**06/28/11 08:05**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/28/11 15:50**						
Field Parameters								
pH	SU	4.0	DEP FT1100	0.1	0.1		06/28/11 08:05	SDH
Water Temperature	°C	24.4	DEP FT1400	0.1	0.1		06/28/11 08:05	SDH
Specific conductance	umhos/cm	539	DEP FT1200	0.1	0.1		06/28/11 08:05	SDH
Dissolved Oxygen	mg/L	1.9	DEP FT1500	0.1	0.1		06/28/11 08:05	SDH
Inorganics								
Chloride	mg/L	35	EPA 300.0	0.20	0.050		06/30/11 13:06	MEJ

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Revised Report

Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-D08-9**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-07**						
Date/Time Collected		**06/27/11 13:50**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/27/11 15:00**						
Field Parameters								
pH	SU	5.3	DEP FT1100	0.1	0.1		06/27/11 13:50	SDH
Water Temperature	°C	27.4	DEP FT1400	0.1	0.1		06/27/11 13:50	SDH
Specific conductance	umhos/cm	411	DEP FT1200	0.1	0.1		06/27/11 13:50	SDH
Dissolved Oxygen	mg/L	1.8	DEP FT1500	0.1	0.1		06/27/11 13:50	SDH
Inorganics								
Chloride	mg/L	35	EPA 300.0	0.20	0.050		06/30/11 13:06	MEJ
Sample Description		**DP-D09-8**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-08**						
Date/Time Collected		**06/27/11 12:38**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/27/11 15:00**						
Field Parameters								
pH	SU	4.4	DEP FT1100	0.1	0.1		06/27/11 12:38	SDH
Water Temperature	°C	27.0	DEP FT1400	0.1	0.1		06/27/11 12:38	SDH
Specific conductance	umhos/cm	670	DEP FT1200	0.1	0.1		06/27/11 12:38	SDH
Dissolved Oxygen	mg/L	1.1	DEP FT1500	0.1	0.1		06/27/11 12:38	SDH
Inorganics								
Ammonia as N	mg/L	0.027	EPA 350.1	0.010	0.005		07/11/11 11:13	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	07/01/11 10:00	07/01/11 15:00	MMF
Chloride	mg/L	47	EPA 300.0	0.20	0.050		06/28/11 16:50	MEJ
Fluoride	mg/L	0.11	EPA 300.0	0.040	0.010		06/29/11 10:15	MEJ
Nitrate (as N)	mg/L	31	EPA 300.0	0.04	0.01		06/28/11 16:50	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		06/28/11 16:50	MEJ
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		06/29/11 10:15	MEJ
Sulfate	mg/L	74	EPA 300.0	0.60	0.20		06/29/11 10:15	MEJ
Total Alkalinity	mg/L	2.0 U	SM 2320B	8.0	2.0		07/02/11 12:30	KTC
Total Kjeldahl Nitrogen	mg/L	2.8	EPA 351.2	0.20	0.05	07/07/11 13:56	07/07/11 14:48	SMD
Total Organic Carbon	mg/L	2.8	SM 5310B	1.0	0.50		07/07/11 12:49	ARM
Nitrate+Nitrite (N)	mg/L	31	EPA 300.0	0.08	0.02		06/28/11 16:50	MEJ
Metals								
Boron	mg/L	0.12	EPA 200.7	0.10	0.050	07/05/11 16:14	07/11/11 12:34	VWC
Calcium	mg/L	52	EPA 200.7	0.050	0.010	07/05/11 16:14	07/06/11 17:47	VWC
Iron	mg/L	0.033 I	EPA 200.7	0.10	0.020	07/05/11 16:14	07/06/11 17:47	VWC

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Work Order: 1105413
Revised Report

Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-D09-8**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-08**						
Date/Time Collected		**06/27/11 12:38**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/27/11 15:00**						
Magnesium	mg/L	14	EPA 200.7	0.050	0.010	07/05/11 16:14	07/06/11 17:47	VWC
Manganese	mg/L	0.0088 I	EPA 200.7	0.010	0.0010	07/05/11 16:14	07/06/11 17:47	VWC
Potassium	mg/L	14	EPA 200.7	0.050	0.010	07/05/11 16:14	07/06/11 17:47	VWC
Sodium	mg/L	47	EPA 200.7	0.050	0.010	07/05/11 16:14	07/06/11 17:47	VWC
		Short Environmental Laboratories						
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	2.4 I	SM 5310C	4	1		07/16/11 10:00	CC
Sample Description		**DP-D09-15**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-09**						
Date/Time Collected		**06/27/11 13:10**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/27/11 15:00**						
Field Parameters								
pH	SU	5.2	DEP FT1100	0.1	0.1		06/27/11 13:10	SDH
Water Temperature	°C	26.2	DEP FT1400	0.1	0.1		06/27/11 13:10	SDH
Specific conductance	umhos/cm	461	DEP FT1200	0.1	0.1		06/27/11 13:10	SDH
Dissolved Oxygen	mg/L	0.9	DEP FT1500	0.1	0.1		06/27/11 13:10	SDH
Inorganics								
Ammonia as N	mg/L	0.005 U	EPA 350.1	0.010	0.005		07/11/11 11:13	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	07/01/11 10:00	07/01/11 15:00	MMF
Chloride	mg/L	31	EPA 300.0	0.20	0.050		06/28/11 16:50	MEJ
Fluoride	mg/L	0.043	EPA 300.0	0.040	0.010		06/29/11 10:15	MEJ
Nitrate (as N)	mg/L	19	EPA 300.0	0.04	0.01		06/28/11 16:50	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		06/28/11 16:50	MEJ
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		06/29/11 10:15	MEJ
Sulfate	mg/L	59	EPA 300.0	0.60	0.20		06/29/11 10:15	MEJ
Total Alkalinity	mg/L	12	SM 2320B	8.0	2.0		07/02/11 12:30	KTC
Total Kjeldahl Nitrogen	mg/L	2.5	EPA 351.2	0.20	0.05	07/07/11 13:56	07/07/11 14:48	SMD
Total Organic Carbon	mg/L	3.2	SM 5310B	1.0	0.50		07/07/11 12:49	ARM
Nitrate+Nitrite (N)	mg/L	19	EPA 300.0	0.08	0.02		06/28/11 16:50	MEJ
Metals								
Boron	mg/L	0.12	EPA 200.7	0.10	0.050	07/05/11 16:14	07/11/11 12:38	VWC
Calcium	mg/L	35	EPA 200.7	0.050	0.010	07/05/11 16:14	07/06/11 17:51	VWC

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September 9, 2011
Work Order: 1105413
Revised Report

Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-D09-15**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-09**						
Date/Time Collected		**06/27/11 13:10**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/27/11 15:00**						
Iron	mg/L	0.045 I	EPA 200.7	0.10	0.020	07/05/11 16:14	07/06/11 17:51	VWC
Magnesium	mg/L	9.3	EPA 200.7	0.050	0.010	07/05/11 16:14	07/06/11 17:51	VWC
Manganese	mg/L	0.11	EPA 200.7	0.010	0.0010	07/05/11 16:14	07/06/11 17:51	VWC
Potassium	mg/L	13	EPA 200.7	0.050	0.010	07/05/11 16:14	07/06/11 17:51	VWC
Sodium	mg/L	32	EPA 200.7	0.050	0.010	07/05/11 16:14	07/06/11 17:51	VWC
		Short Environmental Laboratories						
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	3.3 I	SM 5310C	4	1		07/19/11 14:30	CC
Sample Description		**DP-D11-11**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-10**						
Date/Time Collected		**06/27/11 10:54**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/27/11 15:00**						
Field Parameters								
pH	SU	5.2	DEP FT1100	0.1	0.1		06/27/11 10:54	SDH
Water Temperature	°C	26.3	DEP FT1400	0.1	0.1		06/27/11 10:54	SDH
Specific conductance	umhos/cm	464	DEP FT1200	0.1	0.1		06/27/11 10:54	SDH
Dissolved Oxygen	mg/L	1.1	DEP FT1500	0.1	0.1		06/27/11 10:54	SDH
Inorganics								
Chloride	mg/L	39	EPA 300.0	0.20	0.050		06/30/11 13:06	MEJ
Sample Description		**DP-D12-11**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-11**						
Date/Time Collected		**06/27/11 10:30**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/27/11 15:00**						
Field Parameters								
pH	SU	4.9	DEP FT1100	0.1	0.1		06/27/11 10:30	SDH
Water Temperature	°C	26.2	DEP FT1400	0.1	0.1		06/27/11 10:30	SDH
Specific conductance	umhos/cm	487	DEP FT1200	0.1	0.1		06/27/11 10:30	SDH
Dissolved Oxygen	mg/L	0.3	DEP FT1500	0.1	0.1		06/27/11 10:30	SDH
Inorganics								

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September 9, 2011
Work Order: 1105413
Revised Report

Laboratory Report

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Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-D12-11**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-11**						
Date/Time Collected		**06/27/11 10:30**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/27/11 15:00**						
Ammonia as N	mg/L	0.46	EPA 350.1	0.010	0.005		07/11/11 11:13	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	07/01/11 10:00	07/01/11 15:00	MMF
Chloride	mg/L	37	EPA 300.0	0.20	0.050		06/28/11 16:50	MEJ
Fluoride	mg/L	0.010 U	EPA 300.0	0.040	0.010		06/29/11 10:15	MEJ
Nitrate (as N)	mg/L	19	EPA 300.0	0.04	0.01		06/28/11 16:50	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		06/28/11 16:50	MEJ
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		06/29/11 10:15	MEJ
Sulfate	mg/L	52	EPA 300.0	0.60	0.20		06/29/11 10:15	MEJ
Total Alkalinity	mg/L	5.2 I	SM 2320B	8.0	2.0		07/02/11 12:30	KTC
Total Kjeldahl Nitrogen	mg/L	2.6	EPA 351.2	0.20	0.05	07/07/11 13:56	07/07/11 14:48	SMD
Total Organic Carbon	mg/L	2.6	SM 5310B	1.0	0.50		07/07/11 12:49	ARM
Nitrate+Nitrite (N)	mg/L	19	EPA 300.0	0.08	0.02		06/28/11 16:50	MEJ
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	1.8	SM 5310B	1.0	0.50	06/28/11 08:30	07/28/11 09:29	MEJ
Metals								
Boron	mg/L	0.13	EPA 200.7	0.10	0.050	07/05/11 16:14	07/11/11 12:41	VWC
Calcium	mg/L	38	EPA 200.7	0.050	0.010	07/05/11 16:14	07/06/11 17:54	VWC
Iron	mg/L	0.044 I	EPA 200.7	0.10	0.020	07/05/11 16:14	07/06/11 17:54	VWC
Magnesium	mg/L	9.1	EPA 200.7	0.050	0.010	07/05/11 16:14	07/06/11 17:54	VWC
Manganese	mg/L	0.066	EPA 200.7	0.010	0.0010	07/05/11 16:14	07/06/11 17:54	VWC
Potassium	mg/L	11	EPA 200.7	0.050	0.010	07/05/11 16:14	07/06/11 17:54	VWC
Sodium	mg/L	31	EPA 200.7	0.050	0.010	07/05/11 16:14	07/06/11 17:54	VWC
Sample Description		**DP-D7.5-14**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-12**						
Date/Time Collected		**06/29/11 12:25**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/30/11 07:30**						
Field Parameters								
pH	SU	4.5	DEP FT1100	0.1	0.1		06/29/11 12:25	SDH
Water Temperature	°C	24.4	DEP FT1400	0.1	0.1		06/29/11 12:25	SDH
Specific conductance	umhos/cm	483	DEP FT1200	0.1	0.1		06/29/11 12:25	SDH
Dissolved Oxygen	mg/L	0.4	DEP FT1500	0.1	0.1		06/29/11 12:25	SDH
Inorganics								
Chloride	mg/L	37	EPA 300.0	0.20	0.050		06/30/11 13:06	MEJ

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Work Order: 1105413
Revised Report

Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-E04-8**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-13**						
Date/Time Collected		**06/28/11 09:10**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/28/11 15:50**						
Field Parameters								
pH	SU	4.7	DEP FT1100	0.1	0.1		06/28/11 09:10	SDH
Water Temperature	°C	26.0	DEP FT1400	0.1	0.1		06/28/11 09:10	SDH
Specific conductance	umhos/cm	185	DEP FT1200	0.1	0.1		06/28/11 09:10	SDH
Dissolved Oxygen	mg/L	1.6	DEP FT1500	0.1	0.1		06/28/11 09:10	SDH
Inorganics								
Chloride	mg/L	5.6	EPA 300.0	0.20	0.050		06/30/11 13:06	MEJ
Sample Description		**DP-E07-10**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-14**						
Date/Time Collected		**06/28/11 09:05**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/28/11 15:50**						
Field Parameters								
pH	SU	4.5	DEP FT1100	0.1	0.1		06/28/11 09:05	SDH
Water Temperature	°C	25.5	DEP FT1400	0.1	0.1		06/28/11 09:05	SDH
Specific conductance	umhos/cm	245	DEP FT1200	0.1	0.1		06/28/11 09:05	SDH
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		06/28/11 09:05	SDH
Inorganics								
Chloride	mg/L	12	EPA 300.0	0.20	0.050		06/30/11 13:06	MEJ
Sample Description		**DP-E08-8**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-15**						
Date/Time Collected		**06/28/11 09:00**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/28/11 15:50**						
Field Parameters								
pH	SU	4.5	DEP FT1100	0.1	0.1		06/28/11 09:00	SDH
Water Temperature	°C	25.8	DEP FT1400	0.1	0.1		06/28/11 09:00	SDH
Specific conductance	umhos/cm	348	DEP FT1200	0.1	0.1		06/28/11 09:00	SDH
Dissolved Oxygen	mg/L	0.3	DEP FT1500	0.1	0.1		06/28/11 09:00	SDH
Inorganics								
Chloride	mg/L	26	EPA 300.0	0.20	0.050		06/30/11 13:06	MEJ

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10002 Princess Palm Ave, Suite 200
Tampa, FL 33619

September 9, 2011
Work Order: 1105413
Revised Report

Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-E11-12**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-16**						
Date/Time Collected		**06/28/11 08:50**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/28/11 15:50**						
Field Parameters								
pH	SU	5.0	DEP FT1100	0.1	0.1		06/28/11 08:50	SDH
Water Temperature	°C	24.9	DEP FT1400	0.1	0.1		06/28/11 08:50	SDH
Specific conductance	umhos/cm	489	DEP FT1200	0.1	0.1		06/28/11 08:50	SDH
Dissolved Oxygen	mg/L	0.3	DEP FT1500	0.1	0.1		06/28/11 08:50	SDH
Inorganics								
Chloride	mg/L	32	EPA 300.0	0.20	0.050		06/30/11 13:06	MEJ
Sample Description		**DP-E12-10**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-17**						
Date/Time Collected		**06/28/11 08:20**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/28/11 15:50**						
Field Parameters								
pH	SU	4.9	DEP FT1100	0.1	0.1		06/28/11 08:20	SDH
Water Temperature	°C	25.1	DEP FT1400	0.1	0.1		06/28/11 08:20	SDH
Specific conductance	umhos/cm	502	DEP FT1200	0.1	0.1		06/28/11 08:20	SDH
Dissolved Oxygen	mg/L	0.3	DEP FT1500	0.1	0.1		06/28/11 08:20	SDH
Inorganics								
Chloride	mg/L	36	EPA 300.0	0.20	0.050		06/30/11 13:06	MEJ
Sample Description		**DP-E12-15**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-18**						
Date/Time Collected		**06/28/11 08:25**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/28/11 15:50**						
Field Parameters								
pH	SU	5.2	DEP FT1100	0.1	0.1		06/28/11 08:25	SDH
Water Temperature	°C	24.7	DEP FT1400	0.1	0.1		06/28/11 08:25	SDH
Specific conductance	umhos/cm	462	DEP FT1200	0.1	0.1		06/28/11 08:25	SDH
Dissolved Oxygen	mg/L	0.4	DEP FT1500	0.1	0.1		06/28/11 08:25	SDH
Inorganics								
Chloride	mg/L	31	EPA 300.0	0.20	0.050		06/30/11 13:06	MEJ

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September 9, 2011
Work Order: 1105413
Revised Report

Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *		Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-E12-22**							
Matrix		**Groundwater**							
SAL Sample Number		**1105413-19**							
Date/Time Collected		**06/28/11 08:30**							
Collected by		**Sean Harmon**							
Date/Time Received		**06/28/11 15:50**							
Field Parameters									
pH	SU	4.8		DEP FT1100	0.1	0.1		06/28/11 08:30	SDH
Water Temperature	°C	24.2		DEP FT1400	0.1	0.1		06/28/11 08:30	SDH
Specific conductance	umhos/cm	328		DEP FT1200	0.1	0.1		06/28/11 08:30	SDH
Dissolved Oxygen	mg/L	0.4		DEP FT1500	0.1	0.1		06/28/11 08:30	SDH
Inorganics									
Ammonia as N	mg/L	0.086		EPA 350.1	0.010	0.005		07/11/11 11:13	SMD
Chemical Oxygen Demand	mg/L	10	U	EPA 410.4	25	10	07/01/11 10:00	07/01/11 15:00	MMF
Chloride	mg/L	14		EPA 300.0	0.20	0.050		06/29/11 15:38	MEJ
Fluoride	mg/L	0.010	U	EPA 300.0	0.040	0.010		06/29/11 15:38	MEJ
Nitrate (as N)	mg/L	11		EPA 300.0	0.04	0.01		06/29/11 15:38	MEJ
Nitrite (as N)	mg/L	0.01	U	EPA 300.0	0.04	0.01		06/29/11 15:38	MEJ
Orthophosphate as P	mg/L	0.010	U	EPA 300.0	0.040	0.010		06/29/11 15:38	MEJ
Sulfate	mg/L	67		EPA 300.0	0.60	0.20		06/29/11 15:38	MEJ
Total Alkalinity	mg/L	12		SM 2320B	8.0	2.0		07/02/11 12:30	KTC
Total Kjeldahl Nitrogen	mg/L	1.8		EPA 351.2	0.20	0.05	07/07/11 13:56	07/07/11 14:48	SMD
Total Organic Carbon	mg/L	2.6		SM 5310B	1.0	0.50		07/07/11 12:49	ARM
Nitrate+Nitrite (N)	mg/L	11		EPA 300.0	0.08	0.02		06/29/11 15:38	MEJ
Metals									
Boron	mg/L	0.10		EPA 200.7	0.10	0.050	07/05/11 16:14	07/11/11 12:45	VWC
Calcium	mg/L	30		EPA 200.7	0.050	0.010	07/05/11 16:14	07/06/11 17:57	VWC
Iron	mg/L	0.067	I	EPA 200.7	0.10	0.020	07/05/11 16:14	07/06/11 17:57	VWC
Magnesium	mg/L	8.5		EPA 200.7	0.050	0.010	07/05/11 16:14	07/06/11 17:57	VWC
Manganese	mg/L	0.19		EPA 200.7	0.010	0.0010	07/05/11 16:14	07/06/11 17:57	VWC
Potassium	mg/L	11		EPA 200.7	0.050	0.010	07/05/11 16:14	07/06/11 17:57	VWC
Sodium	mg/L	8.4		EPA 200.7	0.050	0.010	07/05/11 16:14	07/06/11 17:57	VWC
		Short Environmental Laboratories							
Inorganic, Dissolved									
Dissolved Organic Carbon	mg/L	2.1	I	SM 5310C	4	1		07/16/11 10:00	CC

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September 9, 2011
Work Order: 1105413
Revised Report

Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *		Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-E12-22-D**							
Matrix		**Groundwater**							
SAL Sample Number		**1105413-20**							
Date/Time Collected		**06/28/11 08:35**							
Collected by		**Sean Harmon**							
Date/Time Received		**06/28/11 15:50**							
Field Parameters									
pH	SU	4.8		DEP FT1100	0.1	0.1		06/28/11 08:35	SDH
Water Temperature	°C	24.2		DEP FT1400	0.1	0.1		06/28/11 08:35	SDH
Specific conductance	umhos/cm	328		DEP FT1200	0.1	0.1		06/28/11 08:35	SDH
Dissolved Oxygen	mg/L	0.4		DEP FT1500	0.1	0.1		06/28/11 08:35	SDH
Inorganics									
Ammonia as N	mg/L	0.10		EPA 350.1	0.010	0.005		07/11/11 11:13	SMD
Chemical Oxygen Demand	mg/L	14	I	EPA 410.4	25	10	07/01/11 10:00	07/01/11 15:00	MMF
Chloride	mg/L	13		EPA 300.0	0.20	0.050		06/29/11 15:38	MEJ
Fluoride	mg/L	0.010	U	EPA 300.0	0.040	0.010		06/29/11 15:38	MEJ
Nitrate (as N)	mg/L	11		EPA 300.0	0.04	0.01		06/29/11 15:38	MEJ
Nitrite (as N)	mg/L	0.01	U	EPA 300.0	0.04	0.01		06/29/11 15:38	MEJ
Orthophosphate as P	mg/L	0.010	U	EPA 300.0	0.040	0.010		06/29/11 15:38	MEJ
Sulfate	mg/L	66		EPA 300.0	0.60	0.20		06/29/11 15:38	MEJ
Total Alkalinity	mg/L	6.2	I	SM 2320B	8.0	2.0		07/02/11 12:30	KTC
Total Kjeldahl Nitrogen	mg/L	1.7		EPA 351.2	0.20	0.05	07/07/11 13:56	07/07/11 14:48	SMD
Total Organic Carbon	mg/L	2.4		SM 5310B	1.0	0.50		07/07/11 12:49	ARM
Nitrate+Nitrite (N)	mg/L	11		EPA 300.0	0.08	0.02		06/29/11 15:38	MEJ
Metals									
Boron	mg/L	0.096	I	EPA 200.7	0.10	0.050	07/05/11 16:14	07/11/11 12:48	VWC
Calcium	mg/L	30		EPA 200.7	0.050	0.010	07/05/11 16:14	07/06/11 18:08	VWC
Iron	mg/L	0.067	I	EPA 200.7	0.10	0.020	07/05/11 16:14	07/06/11 18:08	VWC
Magnesium	mg/L	8.5		EPA 200.7	0.050	0.010	07/05/11 16:14	07/06/11 18:08	VWC
Manganese	mg/L	0.20		EPA 200.7	0.010	0.0010	07/05/11 16:14	07/06/11 18:08	VWC
Potassium	mg/L	11		EPA 200.7	0.050	0.010	07/05/11 16:14	07/06/11 18:08	VWC
Sodium	mg/L	8.3		EPA 200.7	0.050	0.010	07/05/11 16:14	07/06/11 18:08	VWC
		Short Environmental Laboratories							
Inorganic, Dissolved									
Dissolved Organic Carbon	mg/L	2	I	SM 5310C	4	1		07/16/11 10:00	CC

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

September 9, 2011
Work Order: 1105413
Revised Report

Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-E12-28**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-21**						
Date/Time Collected		**06/28/11 08:40**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/28/11 15:50**						
Field Parameters								
pH	SU	4.8	DEP FT1100	0.1	0.1		06/28/11 08:40	SDH
Water Temperature	°C	24.2	DEP FT1400	0.1	0.1		06/28/11 08:40	SDH
Specific conductance	umhos/cm	320	DEP FT1200	0.1	0.1		06/28/11 08:40	SDH
Dissolved Oxygen	mg/L	0.4	DEP FT1500	0.1	0.1		06/28/11 08:40	SDH
Inorganics								
Chloride	mg/L	15	EPA 300.0	0.20	0.050		06/30/11 13:06	MEJ
Sample Description		**DP-F04-17**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-22**						
Date/Time Collected		**06/28/11 09:25**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/28/11 15:50**						
Field Parameters								
pH	SU	6.1	DEP FT1100	0.1	0.1		06/28/11 09:25	SDH
Water Temperature	°C	25.1	DEP FT1400	0.1	0.1		06/28/11 09:25	SDH
Specific conductance	umhos/cm	374	DEP FT1200	0.1	0.1		06/28/11 09:25	SDH
Dissolved Oxygen	mg/L	0.3	DEP FT1500	0.1	0.1		06/28/11 09:25	SDH
Inorganics								
Chloride	mg/L	21	EPA 300.0	0.20	0.050		06/30/11 13:06	MEJ
Sample Description		**DP-F04-32**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-23**						
Date/Time Collected		**06/28/11 09:30**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/28/11 15:50**						
Field Parameters								
pH	SU	6.1	DEP FT1100	0.1	0.1		06/28/11 09:30	SDH
Water Temperature	°C	24.6	DEP FT1400	0.1	0.1		06/28/11 09:30	SDH
Specific conductance	umhos/cm	335	DEP FT1200	0.1	0.1		06/28/11 09:30	SDH
Dissolved Oxygen	mg/L	0.3	DEP FT1500	0.1	0.1		06/28/11 09:30	SDH
Inorganics								
Chloride	mg/L	5.6	EPA 300.0	0.20	0.050		06/30/11 18:37	MEJ

Hazen and Sawyer
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September 9, 2011
Work Order: 1105413
Revised Report

Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-F08-20**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-25**						
Date/Time Collected		**06/28/11 09:40**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/28/11 15:50**						
Field Parameters								
pH	SU	5.3	DEP FT1100	0.1	0.1		06/28/11 09:40	SDH
Water Temperature	°C	24.7	DEP FT1400	0.1	0.1		06/28/11 09:40	SDH
Specific conductance	umhos/cm	347	DEP FT1200	0.1	0.1		06/28/11 09:40	SDH
Dissolved Oxygen	mg/L	0.4	DEP FT1500	0.1	0.1		06/28/11 09:40	SDH
Inorganics								
Chloride	mg/L	14	EPA 300.0	0.20	0.050		06/30/11 18:37	MEJ
Sample Description		**DP-F08-28**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-26**						
Date/Time Collected		**06/28/11 09:45**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/28/11 15:50**						
Field Parameters								
pH	SU	5.4	DEP FT1100	0.1	0.1		06/28/11 09:45	SDH
Water Temperature	°C	24.3	DEP FT1400	0.1	0.1		06/28/11 09:45	SDH
Specific conductance	umhos/cm	324	DEP FT1200	0.1	0.1		06/28/11 09:45	SDH
Dissolved Oxygen	mg/L	0.3	DEP FT1500	0.1	0.1		06/28/11 09:45	SDH
Inorganics								
Chloride	mg/L	18	EPA 300.0	0.20	0.050		06/30/11 18:37	MEJ
Sample Description		**DP-F10-11**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-27**						
Date/Time Collected		**06/28/11 09:50**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/28/11 15:50**						
Field Parameters								
pH	SU	4.9	DEP FT1100	0.1	0.1		06/28/11 09:50	SDH
Water Temperature	°C	25.3	DEP FT1400	0.1	0.1		06/28/11 09:50	SDH
Specific conductance	umhos/cm	492	DEP FT1200	0.1	0.1		06/28/11 09:50	SDH
Dissolved Oxygen	mg/L	0.4	DEP FT1500	0.1	0.1		06/28/11 09:50	SDH
Inorganics								
Chloride	mg/L	31	EPA 300.0	0.20	0.050		07/01/11 09:33	MEJ

Hazen and Sawyer
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September 9, 2011
Work Order: 1105413
Revised Report

Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-F11-11**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-28**						
Date/Time Collected		**06/28/11 09:55**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/28/11 15:50**						
Field Parameters								
pH	SU	4.8	DEP FT1100	0.1	0.1		06/28/11 09:55	SDH
Water Temperature	°C	26.0	DEP FT1400	0.1	0.1		06/28/11 09:55	SDH
Specific conductance	umhos/cm	447	DEP FT1200	0.1	0.1		06/28/11 09:55	SDH
Dissolved Oxygen	mg/L	0.3	DEP FT1500	0.1	0.1		06/28/11 09:55	SDH
Inorganics								
Chloride	mg/L	32	EPA 300.0	0.20	0.050		07/01/11 09:33	MEJ
Sample Description		**DP-F11-15**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-29**						
Date/Time Collected		**06/28/11 10:00**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/28/11 15:50**						
Field Parameters								
pH	SU	4.7	DEP FT1100	0.1	0.1		06/28/11 10:00	SDH
Water Temperature	°C	24.6	DEP FT1400	0.1	0.1		06/28/11 10:00	SDH
Specific conductance	umhos/cm	486	DEP FT1200	0.1	0.1		06/28/11 10:00	SDH
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		06/28/11 10:00	SDH
Inorganics								
Chloride	mg/L	34	EPA 300.0	0.20	0.050		07/01/11 09:33	MEJ
Sample Description		**DP-F11-18**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-30**						
Date/Time Collected		**06/28/11 10:05**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/28/11 15:50**						
Field Parameters								
pH	SU	5.0	DEP FT1100	0.1	0.1		06/28/11 10:05	SDH
Water Temperature	°C	24.5	DEP FT1400	0.1	0.1		06/28/11 10:05	SDH
Specific conductance	umhos/cm	359	DEP FT1200	0.1	0.1		06/28/11 10:05	SDH
Dissolved Oxygen	mg/L	0.3	DEP FT1500	0.1	0.1		06/28/11 10:05	SDH
Inorganics								
Chloride	mg/L	19	EPA 300.0	0.20	0.050		06/30/11 18:37	MEJ

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September 9, 2011
Work Order: 1105413
Revised Report

Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-F11-21**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-31**						
Date/Time Collected		**06/28/11 10:10**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/28/11 15:50**						
Field Parameters								
pH	SU	4.9	DEP FT1100	0.1	0.1		06/28/11 10:10	SDH
Water Temperature	°C	24.4	DEP FT1400	0.1	0.1		06/28/11 10:10	SDH
Specific conductance	umhos/cm	310	DEP FT1200	0.1	0.1		06/28/11 10:10	SDH
Dissolved Oxygen	mg/L	0.4	DEP FT1500	0.1	0.1		06/28/11 10:10	SDH
Inorganics								
Chloride	mg/L	13	EPA 300.0	0.20	0.050		06/30/11 18:37	MEJ
Sample Description		**DP-F11-24**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-32**						
Date/Time Collected		**06/28/11 10:20**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/28/11 15:50**						
Field Parameters								
pH	SU	4.8	DEP FT1100	0.1	0.1		06/28/11 10:20	SDH
Water Temperature	°C	24.4	DEP FT1400	0.1	0.1		06/28/11 10:20	SDH
Specific conductance	umhos/cm	310	DEP FT1200	0.1	0.1		06/28/11 10:20	SDH
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		06/28/11 10:20	SDH
Inorganics								
Chloride	mg/L	15	EPA 300.0	0.20	0.050		06/30/11 18:37	MEJ
Sample Description		**DP-F11-27**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-33**						
Date/Time Collected		**06/28/11 10:25**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/28/11 15:50**						
Field Parameters								
pH	SU	4.9	DEP FT1100	0.1	0.1		06/28/11 10:25	SDH
Water Temperature	°C	24.3	DEP FT1400	0.1	0.1		06/28/11 10:25	SDH
Specific conductance	umhos/cm	331	DEP FT1200	0.1	0.1		06/28/11 10:25	SDH
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		06/28/11 10:25	SDH
Inorganics								
Chloride	mg/L	16	EPA 300.0	0.20	0.050		06/30/11 18:37	MEJ

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September 9, 2011
Work Order: 1105413
Revised Report

Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-F12-10**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-34**						
Date/Time Collected		**06/28/11 10:30**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/28/11 15:50**						
Field Parameters								
pH	SU	4.3	DEP FT1100	0.1	0.1		06/28/11 10:30	SDH
Water Temperature	°C	25.3	DEP FT1400	0.1	0.1		06/28/11 10:30	SDH
Specific conductance	umhos/cm	500	DEP FT1200	0.1	0.1		06/28/11 10:30	SDH
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		06/28/11 10:30	SDH
Inorganics								
Chloride	mg/L	34	EPA 300.0	0.20	0.050		07/01/11 09:33	MEJ
Sample Description		**DP-F15-14**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-35**						
Date/Time Collected		**06/29/11 12:50**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/30/11 07:30**						
Field Parameters								
pH	SU	4.5	DEP FT1100	0.1	0.1		06/29/11 12:50	SDH
Water Temperature	°C	24.2	DEP FT1400	0.1	0.1		06/29/11 12:50	SDH
Specific conductance	umhos/cm	487	DEP FT1200	0.1	0.1		06/29/11 12:50	SDH
Dissolved Oxygen	mg/L	0.3	DEP FT1500	0.1	0.1		06/29/11 12:50	SDH
Inorganics								
Chloride	mg/L	34	EPA 300.0	0.20	0.050		07/01/11 09:33	MEJ
Sample Description		**DP-F15-20**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-36**						
Date/Time Collected		**06/29/11 12:55**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/30/11 07:30**						
Field Parameters								
pH	SU	4.6	DEP FT1100	0.1	0.1		06/29/11 12:55	SDH
Water Temperature	°C	24.4	DEP FT1400	0.1	0.1		06/29/11 12:55	SDH
Specific conductance	umhos/cm	359	DEP FT1200	0.1	0.1		06/29/11 12:55	SDH
Dissolved Oxygen	mg/L	0.3	DEP FT1500	0.1	0.1		06/29/11 12:55	SDH
Inorganics								
Chloride	mg/L	18	EPA 300.0	0.20	0.050		06/30/11 18:37	MEJ

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

September 9, 2011
Work Order: 1105413
Revised Report

Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-F15-26**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-37**						
Date/Time Collected		**06/29/11 13:00**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/30/11 07:30**						
Field Parameters								
pH	SU	4.3	DEP FT1100	0.1	0.1		06/29/11 13:00	SDH
Water Temperature	°C	24.2	DEP FT1400	0.1	0.1		06/29/11 13:00	SDH
Specific conductance	umhos/cm	320	DEP FT1200	0.1	0.1		06/29/11 13:00	SDH
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		06/29/11 13:00	SDH
Inorganics								
Chloride	mg/L	14	EPA 300.0	0.20	0.050		06/30/11 18:37	MEJ
Sample Description		**DP-G07-13**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-38**						
Date/Time Collected		**06/28/11 12:10**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/28/11 15:50**						
Field Parameters								
pH	SU	5.4	DEP FT1100	0.1	0.1		06/28/11 12:10	SDH
Water Temperature	°C	29.9	DEP FT1400	0.1	0.1		06/28/11 12:10	SDH
Specific conductance	umhos/cm	255	DEP FT1200	0.1	0.1		06/28/11 12:10	SDH
Dissolved Oxygen	mg/L	3.1	DEP FT1500	0.1	0.1		06/28/11 12:10	SDH
Inorganics								
Chloride	mg/L	5.8	EPA 300.0	0.20	0.050		06/30/11 18:37	MEJ
Sample Description		**DP-G07-15**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-39**						
Date/Time Collected		**06/28/11 12:15**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/28/11 15:50**						
Field Parameters								
pH	SU	5.0	DEP FT1100	0.1	0.1		06/28/11 12:15	SDH
Water Temperature	°C	25.6	DEP FT1400	0.1	0.1		06/28/11 12:15	SDH
Specific conductance	umhos/cm	296	DEP FT1200	0.1	0.1		06/28/11 12:15	SDH
Dissolved Oxygen	mg/L	0.8	DEP FT1500	0.1	0.1		06/28/11 12:15	SDH
Inorganics								
Chloride	mg/L	6.3	EPA 300.0	0.20	0.050		06/30/11 18:37	MEJ

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

September 9, 2011
Work Order: 1105413
Revised Report

Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-G07-17**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-40**						
Date/Time Collected		**06/28/11 12:20**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/28/11 15:50**						
Field Parameters								
pH	SU	5.0	DEP FT1100	0.1	0.1		06/28/11 12:20	SDH
Water Temperature	°C	24.5	DEP FT1400	0.1	0.1		06/28/11 12:20	SDH
Specific conductance	umhos/cm	337	DEP FT1200	0.1	0.1		06/28/11 12:20	SDH
Dissolved Oxygen	mg/L	0.8	DEP FT1500	0.1	0.1		06/28/11 12:20	SDH
Inorganics								
Chloride	mg/L	9.3	EPA 300.0	0.20	0.050		06/30/11 18:37	MEJ
Sample Description		**DP-G07-21**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-41**						
Date/Time Collected		**06/28/11 12:35**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/28/11 15:50**						
Field Parameters								
pH	SU	5.1	DEP FT1100	0.1	0.1		06/28/11 12:35	SDH
Water Temperature	°C	24.8	DEP FT1400	0.1	0.1		06/28/11 12:35	SDH
Specific conductance	umhos/cm	333	DEP FT1200	0.1	0.1		06/28/11 12:35	SDH
Dissolved Oxygen	mg/L	1.3	DEP FT1500	0.1	0.1		06/28/11 12:35	SDH
Inorganics								
Ammonia as N	mg/L	0.005 U	EPA 350.1	0.010	0.005		07/11/11 11:13	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	07/01/11 10:00	07/01/11 15:00	MMF
Chloride	mg/L	12	EPA 300.0	0.20	0.050		06/29/11 15:38	MEJ
Fluoride	mg/L	0.016 I	EPA 300.0	0.040	0.010		06/29/11 15:38	MEJ
Nitrate (as N)	mg/L	8.5	EPA 300.0	0.04	0.01		06/29/11 15:38	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		06/29/11 15:38	MEJ
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		06/29/11 15:38	MEJ
Sulfate	mg/L	77	EPA 300.0	0.60	0.20		06/29/11 15:38	MEJ
Total Alkalinity	mg/L	5.2 I	SM 2320B	8.0	2.0		07/02/11 12:30	KTC
Total Kjeldahl Nitrogen	mg/L	1.3	EPA 351.2	0.20	0.05	07/07/11 13:56	07/07/11 14:48	SMD
Total Organic Carbon	mg/L	2.3	SM 5310B	1.0	0.50		07/07/11 12:49	ARM
Nitrate+Nitrite (N)	mg/L	8.5	EPA 300.0	0.08	0.02		06/29/11 15:38	MEJ
Metals								
Boron	mg/L	0.068 I	EPA 200.7	0.10	0.050	07/05/11 16:14	07/11/11 12:52	VWC
Calcium	mg/L	29	EPA 200.7	0.050	0.010	07/05/11 16:14	07/06/11 18:11	VWC
Iron	mg/L	0.045 I	EPA 200.7	0.10	0.020	07/05/11 16:14	07/06/11 18:11	VWC

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

September 9, 2011
Work Order: 1105413
Revised Report

Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-G07-21**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-41**						
Date/Time Collected		**06/28/11 12:35**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/28/11 15:50**						
Magnesium	mg/L	8.8	EPA 200.7	0.050	0.010	07/05/11 16:14	07/06/11 18:11	VWC
Manganese	mg/L	0.17	EPA 200.7	0.010	0.0010	07/05/11 16:14	07/06/11 18:11	VWC
Potassium	mg/L	15	EPA 200.7	0.050	0.010	07/05/11 16:14	07/06/11 18:11	VWC
Sodium	mg/L	7.4	EPA 200.7	0.050	0.010	07/05/11 16:14	07/06/11 18:11	VWC
		Short Environmental Laboratories						
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	1.8 I	SM 5310C	4	1		07/16/11 10:00	CC
Sample Description		**DP-G07-24**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-42**						
Date/Time Collected		**06/28/11 12:45**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/28/11 15:50**						
Field Parameters								
pH	SU	4.9	DEP FT1100	0.1	0.1		06/28/11 12:45	SDH
Water Temperature	°C	24.6	DEP FT1400	0.1	0.1		06/28/11 12:45	SDH
Specific conductance	umhos/cm	286	DEP FT1200	0.1	0.1		06/28/11 12:45	SDH
Dissolved Oxygen	mg/L	0.6	DEP FT1500	0.1	0.1		06/28/11 12:45	SDH
Inorganics								
Chloride	mg/L	16	EPA 300.0	0.20	0.050		06/30/11 18:37	MEJ
Sample Description		**DP-G07-27**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-43**						
Date/Time Collected		**06/28/11 12:50**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/28/11 15:50**						
Field Parameters								
pH	SU	5.0	DEP FT1100	0.1	0.1		06/28/11 12:50	SDH
Water Temperature	°C	25.0	DEP FT1400	0.1	0.1		06/28/11 12:50	SDH
Specific conductance	umhos/cm	325	DEP FT1200	0.1	0.1		06/28/11 12:50	SDH
Dissolved Oxygen	mg/L	1.8	DEP FT1500	0.1	0.1		06/28/11 12:50	SDH
Inorganics								
Chloride	mg/L	15	EPA 300.0	0.20	0.050		06/30/11 18:37	MEJ

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

September 9, 2011
Work Order: 1105413
Revised Report

Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**Trip Blank**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-44**						
Date/Time Collected		**06/29/11 13:30**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/30/11 07:30**						
Inorganics								
Chloride	mg/L	0.050 U	EPA 300.0	0.20	0.050		06/30/11 18:37	MEJ
Sample Description		**DP-G09-11**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-45**						
Date/Time Collected		**06/28/11 11:50**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/28/11 15:50**						
Field Parameters								
pH	SU	5.4	DEP FT1100	0.1	0.1		06/28/11 11:50	SDH
Water Temperature	°C	27.9	DEP FT1400	0.1	0.1		06/28/11 11:50	SDH
Specific conductance	umhos/cm	279	DEP FT1200	0.1	0.1		06/28/11 11:50	SDH
Dissolved Oxygen	mg/L	2.9	DEP FT1500	0.1	0.1		06/28/11 11:50	SDH
Inorganics								
Chloride	mg/L	10	EPA 300.0	0.20	0.050		07/01/11 09:33	MEJ
Sample Description		**DP-G11-8**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-46**						
Date/Time Collected		**06/28/11 11:45**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/28/11 15:50**						
Field Parameters								
pH	SU	4.6	DEP FT1100	0.1	0.1		06/28/11 11:45	SDH
Water Temperature	°C	27.6	DEP FT1400	0.1	0.1		06/28/11 11:45	SDH
Specific conductance	umhos/cm	312	DEP FT1200	0.1	0.1		06/28/11 11:45	SDH
Dissolved Oxygen	mg/L	1.0	DEP FT1500	0.1	0.1		06/28/11 11:45	SDH
Inorganics								
Chloride	mg/L	21	EPA 300.0	0.20	0.050		07/01/11 09:33	MEJ

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

September 9, 2011
Work Order: 1105413
Revised Report

Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-G12-9**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-47**						
Date/Time Collected		**06/28/11 10:45**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/28/11 15:50**						
Field Parameters								
pH	SU	4.2	DEP FT1100	0.1	0.1		06/28/11 10:45	SDH
Water Temperature	°C	26.5	DEP FT1400	0.1	0.1		06/28/11 10:45	SDH
Specific conductance	umhos/cm	359	DEP FT1200	0.1	0.1		06/28/11 10:45	SDH
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		06/28/11 10:45	SDH
Inorganics								
Ammonia as N	mg/L	0.037	EPA 350.1	0.010	0.005		07/11/11 11:13	SMD
Chemical Oxygen Demand	mg/L	12 I	EPA 410.4	25	10	07/01/11 10:00	07/01/11 15:00	MMF
Chloride	mg/L	26	EPA 300.0	0.20	0.050		06/29/11 15:38	MEJ
Fluoride	mg/L	0.17	EPA 300.0	0.040	0.010		06/29/11 15:38	MEJ
Nitrate (as N)	mg/L	9.4	EPA 300.0	0.04	0.01		06/29/11 15:38	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		06/29/11 15:38	MEJ
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		06/29/11 15:38	MEJ
Sulfate	mg/L	60	EPA 300.0	0.60	0.20		06/29/11 15:38	MEJ
Total Alkalinity	mg/L	2.0 U	SM 2320B	8.0	2.0		07/02/11 12:30	KTC
Total Kjeldahl Nitrogen	mg/L	1.4	EPA 351.2	0.20	0.05	07/07/11 13:56	07/07/11 14:48	SMD
Total Organic Carbon	mg/L	4.6	SM 5310B	1.0	0.50		07/07/11 12:49	ARM
Nitrate+Nitrite (N)	mg/L	9.4	EPA 300.0	0.08	0.02		06/29/11 15:38	MEJ
Metals								
Boron	mg/L	0.060 I	EPA 200.7	0.10	0.050	07/05/11 16:14	07/11/11 13:03	VWC
Calcium	mg/L	22	EPA 200.7	0.050	0.010	07/05/11 16:14	07/06/11 18:15	VWC
Iron	mg/L	0.81	EPA 200.7	0.10	0.020	07/05/11 16:14	07/06/11 18:15	VWC
Magnesium	mg/L	5.9	EPA 200.7	0.050	0.010	07/05/11 16:14	07/06/11 18:15	VWC
Manganese	mg/L	0.15	EPA 200.7	0.010	0.0010	07/05/11 16:14	07/06/11 18:15	VWC
Potassium	mg/L	5.6	EPA 200.7	0.050	0.010	07/05/11 16:14	07/06/11 18:15	VWC
Sodium	mg/L	23	EPA 200.7	0.050	0.010	07/05/11 16:14	07/06/11 18:15	VWC

Short Environmental Laboratories

Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	2.2 I	SM 5310C	4	1		07/16/11 10:00	CC

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Tampa, FL 33619

September 9, 2011
Work Order: 1105413
Revised Report

Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *		Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-G12-15**							
Matrix		**Groundwater**							
SAL Sample Number		**1105413-48**							
Date/Time Collected		**06/28/11 10:55**							
Collected by		**Sean Harmon**							
Date/Time Received		**06/28/11 15:50**							
Field Parameters									
pH	SU	4.7		DEP FT1100	0.1	0.1		06/28/11 10:55	SDH
Water Temperature	°C	25.2		DEP FT1400	0.1	0.1		06/28/11 10:55	SDH
Specific conductance	umhos/cm	478		DEP FT1200	0.1	0.1		06/28/11 10:55	SDH
Dissolved Oxygen	mg/L	0.2		DEP FT1500	0.1	0.1		06/28/11 10:55	SDH
Inorganics									
Ammonia as N	mg/L	0.36		EPA 350.1	0.010	0.005		07/11/11 11:13	SMD
Chemical Oxygen Demand	mg/L	10	U	EPA 410.4	25	10	07/01/11 10:00	07/01/11 15:00	MMF
Chloride	mg/L	33		EPA 300.0	0.20	0.050		06/28/11 16:50	MEJ
Fluoride	mg/L	0.014	I	EPA 300.0	0.040	0.010		06/29/11 15:38	MEJ
Nitrate (as N)	mg/L	20		EPA 300.0	0.04	0.01		06/28/11 16:50	MEJ
Nitrite (as N)	mg/L	0.01	U	EPA 300.0	0.04	0.01		06/29/11 15:38	MEJ
Orthophosphate as P	mg/L	0.010	U	EPA 300.0	0.040	0.010		06/29/11 15:38	MEJ
Sulfate	mg/L	53		EPA 300.0	0.60	0.20		06/29/11 15:38	MEJ
Total Alkalinity	mg/L	5.2	I	SM 2320B	8.0	2.0		07/02/11 12:30	KTC
Total Kjeldahl Nitrogen	mg/L	3.4		EPA 351.2	0.20	0.05	07/07/11 13:56	07/07/11 14:48	SMD
Total Organic Carbon	mg/L	3.6		SM 5310B	1.0	0.50		07/07/11 12:49	ARM
Nitrate+Nitrite (N)	mg/L	20		EPA 300.0	0.08	0.02		06/29/11 15:38	MEJ
Metals									
Boron	mg/L	0.062	I	EPA 200.7	0.10	0.050	07/05/11 16:14	07/11/11 13:06	VWC
Calcium	mg/L	35		EPA 200.7	0.050	0.010	07/05/11 16:14	07/06/11 18:25	VWC
Iron	mg/L	0.17		EPA 200.7	0.10	0.020	07/05/11 16:14	07/06/11 18:25	VWC
Magnesium	mg/L	9.1		EPA 200.7	0.050	0.010	07/05/11 16:14	07/06/11 18:25	VWC
Manganese	mg/L	0.21		EPA 200.7	0.010	0.0010	07/05/11 16:14	07/06/11 18:25	VWC
Potassium	mg/L	12		EPA 200.7	0.050	0.010	07/05/11 16:14	07/06/11 18:25	VWC
Sodium	mg/L	29		EPA 200.7	0.050	0.010	07/05/11 16:14	07/06/11 18:25	VWC

Short Environmental Laboratories

Inorganic, Dissolved									
Dissolved Organic Carbon	mg/L	2.1	I	SM 5310C	4	1		07/16/11 10:00	CC

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

September 9, 2011
Work Order: 1105413
Revised Report

Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-G12-15**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-48RE1**						
Date/Time Collected		**06/28/11 10:55**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/28/11 15:50**						
Inorganics								
Nitrate+Nitrite (N)	mg/L	20	EPA 300.0	0.04	0.01		06/29/11 15:38	MEJ
Sample Description		**DP-G12-18**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-49**						
Date/Time Collected		**06/28/11 11:00**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/28/11 15:50**						
Field Parameters								
pH	SU	4.8	DEP FT1100	0.1	0.1		06/28/11 11:00	SDH
Water Temperature	°C	24.6	DEP FT1400	0.1	0.1		06/28/11 11:00	SDH
Specific conductance	umhos/cm	443	DEP FT1200	0.1	0.1		06/28/11 11:00	SDH
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		06/28/11 11:00	SDH
Inorganics								
Chloride	mg/L	29	EPA 300.0	0.20	0.050		07/01/11 09:33	MEJ
Sample Description		**DP-G12-21**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-50**						
Date/Time Collected		**06/28/11 11:10**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/28/11 15:50**						
Field Parameters								
pH	SU	4.9	DEP FT1100	0.1	0.1		06/28/11 11:10	SDH
Water Temperature	°C	24.4	DEP FT1400	0.1	0.1		06/28/11 11:10	SDH
Specific conductance	umhos/cm	361	DEP FT1200	0.1	0.1		06/28/11 11:10	SDH
Dissolved Oxygen	mg/L	0.1 U	DEP FT1500	0.1	0.1		06/28/11 11:10	SDH
Inorganics								
Ammonia as N	mg/L	0.007 I	EPA 350.1	0.010	0.005		07/11/11 11:13	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	07/01/11 10:00	07/01/11 15:00	MMF
Chloride	mg/L	14	EPA 300.0	0.20	0.050		06/29/11 15:38	MEJ
Fluoride	mg/L	0.010 I	EPA 300.0	0.040	0.010		06/29/11 15:38	MEJ
Nitrate (as N)	mg/L	13	EPA 300.0	0.04	0.01		06/29/11 15:38	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		06/29/11 15:38	MEJ

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

September 9, 2011
Work Order: 1105413
Revised Report

Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-G12-21**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-50**						
Date/Time Collected		**06/28/11 11:10**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/28/11 15:50**						
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		06/29/11 15:38	MEJ
Sulfate	mg/L	62	EPA 300.0	0.60	0.20		06/29/11 15:38	MEJ
Total Alkalinity	mg/L	7.3 I	SM 2320B	8.0	2.0		07/02/11 12:30	KTC
Total Kjeldahl Nitrogen	mg/L	2.5	EPA 351.2	0.20	0.05	07/07/11 13:56	07/07/11 14:48	SMD
Total Organic Carbon	mg/L	3.5	SM 5310B	1.0	0.50		07/07/11 12:49	ARM
Nitrate+Nitrite (N)	mg/L	13	EPA 300.0	0.08	0.02		06/29/11 15:38	MEJ
Metals								
Boron	mg/L	0.069 I	EPA 200.7	0.10	0.050	07/05/11 16:14	07/11/11 13:13	VWC
Calcium	mg/L	33	EPA 200.7	0.050	0.010	07/05/11 16:14	07/06/11 18:28	VWC
Iron	mg/L	0.18	EPA 200.7	0.10	0.020	07/05/11 16:14	07/06/11 18:28	VWC
Magnesium	mg/L	7.6	EPA 200.7	0.050	0.010	07/05/11 16:14	07/06/11 18:28	VWC
Manganese	mg/L	0.18	EPA 200.7	0.010	0.0010	07/05/11 16:14	07/06/11 18:28	VWC
Potassium	mg/L	15	EPA 200.7	0.050	0.010	07/05/11 16:14	07/06/11 18:28	VWC
Sodium	mg/L	12	EPA 200.7	0.050	0.010	07/05/11 16:14	07/06/11 18:28	VWC
		Short Environmental Laboratories						
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	2 I	SM 5310C	4	1		07/16/11 10:00	CC
Sample Description		**DP-G12-24**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-51**						
Date/Time Collected		**06/28/11 11:30**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/28/11 15:50**						
Field Parameters								
pH	SU	4.8	DEP FT1100	0.1	0.1		06/28/11 11:30	SDH
Water Temperature	°C	24.8	DEP FT1400	0.1	0.1		06/28/11 11:30	SDH
Specific conductance	umhos/cm	334	DEP FT1200	0.1	0.1		06/28/11 11:30	SDH
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		06/28/11 11:30	SDH
Inorganics								
Ammonia as N	mg/L	0.005 U	EPA 350.1	0.010	0.005		07/11/11 11:13	SMD
Chemical Oxygen Demand	mg/L	51	EPA 410.4	25	10	07/01/11 10:00	07/01/11 15:00	MMF
Chloride	mg/L	15	EPA 300.0	0.20	0.050		06/29/11 15:38	MEJ
Fluoride	mg/L	0.19	EPA 300.0	0.040	0.010		06/29/11 15:38	MEJ
Nitrate (as N)	mg/L	12	EPA 300.0	0.04	0.01		06/29/11 15:38	MEJ

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September 9, 2011
Work Order: 1105413
Revised Report

Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-G12-24**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-51**						
Date/Time Collected		**06/28/11 11:30**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/28/11 15:50**						
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		06/29/11 15:38	MEJ
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		06/29/11 15:38	MEJ
Sulfate	mg/L	59	EPA 300.0	0.60	0.20		06/29/11 15:38	MEJ
Total Alkalinity	mg/L	5.2 I	SM 2320B	8.0	2.0		07/02/11 12:30	KTC
Total Kjeldahl Nitrogen	mg/L	1.2	EPA 351.2	0.20	0.05	07/07/11 13:56	07/07/11 14:48	SMD
Total Organic Carbon	mg/L	1.8	SM 5310B	1.0	0.50		07/07/11 12:49	ARM
Nitrate+Nitrite (N)	mg/L	12	EPA 300.0	0.08	0.02		06/29/11 15:38	MEJ
Metals								
Boron	mg/L	0.067 I	EPA 200.7	0.10	0.050	07/05/11 16:14	07/11/11 13:16	VWC
Calcium	mg/L	27	EPA 200.7	0.050	0.010	07/05/11 16:14	07/06/11 18:32	VWC
Iron	mg/L	0.039 I	EPA 200.7	0.10	0.020	07/05/11 16:14	07/06/11 18:32	VWC
Magnesium	mg/L	11	EPA 200.7	0.050	0.010	07/05/11 16:14	07/06/11 18:32	VWC
Manganese	mg/L	0.18	EPA 200.7	0.010	0.0010	07/05/11 16:14	07/06/11 18:32	VWC
Potassium	mg/L	15	EPA 200.7	0.050	0.010	07/05/11 16:14	07/06/11 18:32	VWC
Sodium	mg/L	6.7	EPA 200.7	0.050	0.010	07/05/11 16:14	07/06/11 18:32	VWC
		Short Environmental Laboratories						
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	1.4 I	SM 5310C	4	1		07/19/11 14:30	CC
Sample Description		**DP-G12-27**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-52**						
Date/Time Collected		**06/28/11 11:15**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/28/11 15:50**						
Field Parameters								
pH	SU	4.8	DEP FT1100	0.1	0.1		06/28/11 11:15	SDH
Water Temperature	°C	24.3	DEP FT1400	0.1	0.1		06/28/11 11:15	SDH
Specific conductance	umhos/cm	346	DEP FT1200	0.1	0.1		06/28/11 11:15	SDH
Dissolved Oxygen	mg/L	0.1	DEP FT1500	0.1	0.1		06/28/11 11:15	SDH
Inorganics								
Chloride	mg/L	13	EPA 300.0	0.20	0.050		07/01/11 09:33	MEJ

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September 9, 2011
Work Order: 1105413
Revised Report

Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-H06-7**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-53**						
Date/Time Collected		**06/28/11 13:05**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/28/11 15:50**						
Field Parameters								
pH	SU	5.9	DEP FT1100	0.1	0.1		06/28/11 13:05	SDH
Water Temperature	°C	30.2	DEP FT1400	0.1	0.1		06/28/11 13:05	SDH
Specific conductance	umhos/cm	164	DEP FT1200	0.1	0.1		06/28/11 13:05	SDH
Dissolved Oxygen	mg/L	4.7	DEP FT1500	0.1	0.1		06/28/11 13:05	SDH
Inorganics								
Chloride	mg/L	4.5	EPA 300.0	0.20	0.050		07/01/11 09:33	MEJ
Sample Description		**DP-H09-12**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-54**						
Date/Time Collected		**06/28/11 13:15**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/28/11 15:50**						
Field Parameters								
pH	SU	5.0	DEP FT1100	0.1	0.1		06/28/11 13:15	SDH
Water Temperature	°C	25.8	DEP FT1400	0.1	0.1		06/28/11 13:15	SDH
Specific conductance	umhos/cm	274	DEP FT1200	0.1	0.1		06/28/11 13:15	SDH
Dissolved Oxygen	mg/L	0.8	DEP FT1500	0.1	0.1		06/28/11 13:15	SDH
Inorganics								
Chloride	mg/L	5.6	EPA 300.0	0.20	0.050		07/01/11 09:33	MEJ
Sample Description		**DP-H10-11**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-55**						
Date/Time Collected		**06/28/11 13:25**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/28/11 15:50**						
Field Parameters								
pH	SU	5.6	DEP FT1100	0.1	0.1		06/28/11 13:25	SDH
Water Temperature	°C	28.5	DEP FT1400	0.1	0.1		06/28/11 13:25	SDH
Specific conductance	umhos/cm	228	DEP FT1200	0.1	0.1		06/28/11 13:25	SDH
Dissolved Oxygen	mg/L	5.1	DEP FT1500	0.1	0.1		06/28/11 13:25	SDH
Inorganics								
Ammonia as N	mg/L	0.14	EPA 350.1	0.010	0.005		07/11/11 11:13	SMD

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September 9, 2011
Work Order: 1105413
Revised Report

Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-H10-11**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-55**						
Date/Time Collected		**06/28/11 13:25**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/28/11 15:50**						
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	07/05/11 09:30	07/05/11 16:35	MMF
Chloride	mg/L	7.2	EPA 300.0	0.20	0.050		06/29/11 15:38	MEJ
Fluoride	mg/L	0.034 I	EPA 300.0	0.040	0.010		06/29/11 15:38	MEJ
Nitrate (as N)	mg/L	1.2	EPA 300.0	0.04	0.01		06/29/11 15:38	MEJ
Nitrite (as N)	mg/L	0.11	EPA 300.0	0.04	0.01		06/29/11 15:38	MEJ
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		06/29/11 15:38	MEJ
Sulfate	mg/L	51	EPA 300.0	0.60	0.20		06/29/11 15:38	MEJ
Total Alkalinity	mg/L	17	SM 2320B	8.0	2.0		07/02/11 12:30	KTC
Total Kjeldahl Nitrogen	mg/L	0.62	EPA 351.2	0.20	0.05	07/07/11 13:56	07/07/11 14:48	SMD
Total Organic Carbon	mg/L	4.3	SM 5310B	1.0	0.50		07/07/11 12:49	ARM
Nitrate+Nitrite (N)	mg/L	1.4	EPA 300.0	0.08	0.02		06/29/11 15:38	MEJ
Metals								
Boron	mg/L	0.062 I	EPA 200.7	0.10	0.050	07/05/11 16:14	07/11/11 13:20	VWC
Calcium	mg/L	20	EPA 200.7	0.050	0.010	07/05/11 16:14	07/06/11 18:36	VWC
Iron	mg/L	4.1	EPA 200.7	0.10	0.020	07/05/11 16:14	07/06/11 18:36	VWC
Magnesium	mg/L	4.7	EPA 200.7	0.050	0.010	07/05/11 16:14	07/06/11 18:36	VWC
Manganese	mg/L	0.42	EPA 200.7	0.010	0.0010	07/05/11 16:14	07/06/11 18:36	VWC
Potassium	mg/L	9.3	EPA 200.7	0.050	0.010	07/05/11 16:14	07/06/11 18:36	VWC
Sodium	mg/L	6.3	EPA 200.7	0.050	0.010	07/05/11 16:14	07/06/11 18:36	VWC
		Short Environmental Laboratories						
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	3.6 I	SM 5310C	4	1		07/19/11 14:30	CC
Sample Description		**DP-I06-14**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-56**						
Date/Time Collected		**06/29/11 09:30**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/30/11 07:30**						
Field Parameters								
pH	SU	4.7	DEP FT1100	0.1	0.1		06/29/11 09:30	SDH
Water Temperature	°C	24.4	DEP FT1400	0.1	0.1		06/29/11 09:30	SDH
Specific conductance	umhos/cm	218	DEP FT1200	0.1	0.1		06/29/11 09:30	SDH
Dissolved Oxygen	mg/L	0.3	DEP FT1500	0.1	0.1		06/29/11 09:30	SDH
Inorganics								

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September 9, 2011
Work Order: 1105413
Revised Report

Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *		Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-I06-14**							
Matrix		**Groundwater**							
SAL Sample Number		**1105413-56**							
Date/Time Collected		**06/29/11 09:30**							
Collected by		**Sean Harmon**							
Date/Time Received		**06/30/11 07:30**							
Ammonia as N	mg/L	0.005	U	EPA 350.1	0.010	0.005		07/11/11 11:13	SMD
Chemical Oxygen Demand	mg/L	10	U	EPA 410.4	25	10	07/05/11 09:30	07/05/11 16:35	MMF
Chloride	mg/L	6.0		EPA 300.0	0.20	0.050		06/30/11 13:06	MEJ
Fluoride	mg/L	0.19		EPA 300.0	0.040	0.010		06/30/11 13:06	MEJ
Nitrate (as N)	mg/L	2.1		EPA 300.0	0.04	0.01		06/30/11 13:06	MEJ
Nitrite (as N)	mg/L	0.01	U	EPA 300.0	0.04	0.01		06/30/11 13:06	MEJ
Orthophosphate as P	mg/L	0.023	I	EPA 300.0	0.040	0.010		06/30/11 13:06	MEJ
Sulfate	mg/L	62		EPA 300.0	0.60	0.20		06/30/11 13:06	MEJ
Total Alkalinity	mg/L	6.2	I	SM 2320B	8.0	2.0		07/02/11 12:30	KTC
Total Kjeldahl Nitrogen	mg/L	0.55		EPA 351.2	0.20	0.05	07/07/11 13:56	07/07/11 14:48	SMD
Total Organic Carbon	mg/L	3.0		SM 5310B	1.0	0.50		07/07/11 12:49	ARM
Nitrate+Nitrite (N)	mg/L	2.1		EPA 300.0	0.08	0.02		06/30/11 13:06	MEJ
Metals									
Boron	mg/L	0.058	I	EPA 200.7	0.10	0.050	07/05/11 16:14	07/11/11 13:23	VWC
Calcium	mg/L	23		EPA 200.7	0.050	0.010	07/05/11 16:14	07/06/11 18:39	VWC
Iron	mg/L	0.024	I	EPA 200.7	0.10	0.020	07/05/11 16:14	07/06/11 18:39	VWC
Magnesium	mg/L	5.0		EPA 200.7	0.050	0.010	07/05/11 16:14	07/06/11 18:39	VWC
Manganese	mg/L	0.19		EPA 200.7	0.010	0.0010	07/05/11 16:14	07/06/11 18:39	VWC
Potassium	mg/L	11		EPA 200.7	0.050	0.010	07/05/11 16:14	07/06/11 18:39	VWC
Sodium	mg/L	3.1		EPA 200.7	0.050	0.010	07/05/11 16:14	07/06/11 18:39	VWC
		Short Environmental Laboratories							
Inorganic, Dissolved									
Dissolved Organic Carbon	mg/L	2.4	I	SM 5310C	4	1		07/19/11 14:30	CC
Sample Description		**DP-I06-20**							
Matrix		**Groundwater**							
SAL Sample Number		**1105413-57**							
Date/Time Collected		**06/29/11 09:35**							
Collected by		**Sean Harmon**							
Date/Time Received		**06/30/11 07:30**							
Field Parameters									
pH	SU	4.9		DEP FT1100	0.1	0.1		06/29/11 09:35	SDH
Water Temperature	°C	24.1		DEP FT1400	0.1	0.1		06/29/11 09:35	SDH
Specific conductance	umhos/cm	362		DEP FT1200	0.1	0.1		06/29/11 09:35	SDH
Dissolved Oxygen	mg/L	0.3		DEP FT1500	0.1	0.1		06/29/11 09:35	SDH

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September 9, 2011
Work Order: 1105413
Revised Report

Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-I06-20**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-57**						
Date/Time Collected		**06/29/11 09:35**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/30/11 07:30**						
Inorganics								
Chloride	mg/L	13	EPA 300.0	0.20	0.050		07/01/11 09:33	MEJ
Sample Description		**DP-I06-26**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-58**						
Date/Time Collected		**06/29/11 09:40**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/30/11 07:30**						
Field Parameters								
pH	SU	5.0	DEP FT1100	0.1	0.1		06/29/11 09:40	SDH
Water Temperature	°C	24.2	DEP FT1400	0.1	0.1		06/29/11 09:40	SDH
Specific conductance	umhos/cm	312	DEP FT1200	0.1	0.1		06/29/11 09:40	SDH
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		06/29/11 09:40	SDH
Inorganics								
Chloride	mg/L	14	EPA 300.0	0.20	0.050		07/01/11 09:33	MEJ
Sample Description		**DP-I12-6**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-59**						
Date/Time Collected		**06/29/11 09:25**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/30/11 07:30**						
Field Parameters								
pH	SU	4.7	DEP FT1100	0.1	0.1		06/29/11 09:25	SDH
Water Temperature	°C	26.6	DEP FT1400	0.1	0.1		06/29/11 09:25	SDH
Specific conductance	umhos/cm	138	DEP FT1200	0.1	0.1		06/29/11 09:25	SDH
Dissolved Oxygen	mg/L	0.4	DEP FT1500	0.1	0.1		06/29/11 09:25	SDH
Inorganics								
Chloride	mg/L	4.6	EPA 300.0	0.20	0.050		07/01/11 09:33	MEJ

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September 9, 2011
Work Order: 1105413
Revised Report

Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-J08-6**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-60**						
Date/Time Collected		**06/29/11 09:50**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/30/11 07:30**						
Field Parameters								
pH	SU	5.9	DEP FT1100	0.1	0.1		06/29/11 09:50	SDH
Water Temperature	°C	27.3	DEP FT1400	0.1	0.1		06/29/11 09:50	SDH
Specific conductance	umhos/cm	183	DEP FT1200	0.1	0.1		06/29/11 09:50	SDH
Dissolved Oxygen	mg/L	3.1	DEP FT1500	0.1	0.1		06/29/11 09:50	SDH
Inorganics								
Chloride	mg/L	4.3	EPA 300.0	0.20	0.050		07/01/11 09:33	MEJ
Sample Description		**DP-J09-12**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-61**						
Date/Time Collected		**06/29/11 10:00**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/30/11 07:30**						
Field Parameters								
pH	SU	4.8	DEP FT1100	0.1	0.1		06/29/11 10:00	SDH
Water Temperature	°C	25.7	DEP FT1400	0.1	0.1		06/29/11 10:00	SDH
Specific conductance	umhos/cm	189	DEP FT1200	0.1	0.1		06/29/11 10:00	SDH
Dissolved Oxygen	mg/L	0.4	DEP FT1500	0.1	0.1		06/29/11 10:00	SDH
Inorganics								
Chloride	mg/L	5.2	EPA 300.0	0.20	0.050		07/01/11 09:33	MEJ
Sample Description		**DP-J09-14**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-62**						
Date/Time Collected		**06/29/11 10:05**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/30/11 07:30**						
Field Parameters								
pH	SU	4.5	DEP FT1100	0.1	0.1		06/29/11 10:05	SDH
Water Temperature	°C	24.8	DEP FT1400	0.1	0.1		06/29/11 10:05	SDH
Specific conductance	umhos/cm	249	DEP FT1200	0.1	0.1		06/29/11 10:05	SDH
Dissolved Oxygen	mg/L	0.3	DEP FT1500	0.1	0.1		06/29/11 10:05	SDH
Inorganics								
Chloride	mg/L	7.8	EPA 300.0	0.20	0.050		07/01/11 09:33	MEJ

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

September 9, 2011
Work Order: 1105413
Revised Report

Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-J09-20**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-63**						
Date/Time Collected		**06/29/11 10:10**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/30/11 07:30**						
Field Parameters								
pH	SU	4.7	DEP FT1100	0.1	0.1		06/29/11 10:10	SDH
Water Temperature	°C	24.1	DEP FT1400	0.1	0.1		06/29/11 10:10	SDH
Specific conductance	umhos/cm	368	DEP FT1200	0.1	0.1		06/29/11 10:10	SDH
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		06/29/11 10:10	SDH
Inorganics								
Chloride	mg/L	13	EPA 300.0	0.20	0.050		07/01/11 09:33	MEJ
Sample Description		**DP-J09-26**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-64**						
Date/Time Collected		**06/29/11 10:15**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/30/11 07:30**						
Field Parameters								
pH	SU	4.5	DEP FT1100	0.1	0.1		06/29/11 10:15	SDH
Water Temperature	°C	24.0	DEP FT1400	0.1	0.1		06/29/11 10:15	SDH
Specific conductance	umhos/cm	306	DEP FT1200	0.1	0.1		06/29/11 10:15	SDH
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		06/29/11 10:15	SDH
Inorganics								
Chloride	mg/L	13	EPA 300.0	0.20	0.050		07/01/11 09:33	MEJ
Sample Description		**DP-J12-13**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-65**						
Date/Time Collected		**06/29/11 10:20**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/30/11 07:30**						
Field Parameters								
pH	SU	4.6	DEP FT1100	0.1	0.1		06/29/11 10:20	SDH
Water Temperature	°C	24.9	DEP FT1400	0.1	0.1		06/29/11 10:20	SDH
Specific conductance	umhos/cm	249	DEP FT1200	0.1	0.1		06/29/11 10:20	SDH
Dissolved Oxygen	mg/L	0.3	DEP FT1500	0.1	0.1		06/29/11 10:20	SDH
Inorganics								
Chloride	mg/L	5.8	EPA 300.0	0.20	0.050		07/01/11 09:33	MEJ

Hazen and Sawyer
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Tampa, FL 33619

September 9, 2011
Work Order: 1105413
Revised Report

Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-J12-15**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-66**						
Date/Time Collected		**06/29/11 10:25**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/30/11 07:30**						
Field Parameters								
pH	SU	4.6	DEP FT1100	0.1	0.1		06/29/11 10:25	SDH
Water Temperature	°C	24.7	DEP FT1400	0.1	0.1		06/29/11 10:25	SDH
Specific conductance	umhos/cm	287	DEP FT1200	0.1	0.1		06/29/11 10:25	SDH
Dissolved Oxygen	mg/L	0.3	DEP FT1500	0.1	0.1		06/29/11 10:25	SDH
Inorganics								
Chloride	mg/L	7.3	EPA 300.0	0.20	0.050		07/01/11 18:20	MEJ
Sample Description		**DP-J12-20**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-67**						
Date/Time Collected		**06/29/11 10:30**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/30/11 07:30**						
Field Parameters								
pH	SU	4.9	DEP FT1100	0.1	0.1		06/29/11 10:30	SDH
Water Temperature	°C	24.5	DEP FT1400	0.1	0.1		06/29/11 10:30	SDH
Specific conductance	umhos/cm	356	DEP FT1200	0.1	0.1		06/29/11 10:30	SDH
Dissolved Oxygen	mg/L	0.4	DEP FT1500	0.1	0.1		06/29/11 10:30	SDH
Inorganics								
Chloride	mg/L	12	EPA 300.0	0.20	0.050		07/01/11 18:20	MEJ
Sample Description		**DP-J12-27**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-68**						
Date/Time Collected		**06/29/11 10:35**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/30/11 07:30**						
Field Parameters								
pH	SU	4.7	DEP FT1100	0.1	0.1		06/29/11 10:35	SDH
Water Temperature	°C	24.4	DEP FT1400	0.1	0.1		06/29/11 10:35	SDH
Specific conductance	umhos/cm	310	DEP FT1200	0.1	0.1		06/29/11 10:35	SDH
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		06/29/11 10:35	SDH
Inorganics								
Chloride	mg/L	15	EPA 300.0	0.20	0.050		07/01/11 18:20	MEJ

Hazen and Sawyer
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Tampa, FL 33619

September 9, 2011
Work Order: 1105413
Revised Report

Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-K10-7**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-69**						
Date/Time Collected		**06/29/11 10:45**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/30/11 07:30**						
Field Parameters								
pH	SU	5.1	DEP FT1100	0.1	0.1		06/29/11 10:45	SDH
Water Temperature	°C	27.4	DEP FT1400	0.1	0.1		06/29/11 10:45	SDH
Specific conductance	umhos/cm	176	DEP FT1200	0.1	0.1		06/29/11 10:45	SDH
Dissolved Oxygen	mg/L	1.3	DEP FT1500	0.1	0.1		06/29/11 10:45	SDH
Inorganics								
Chloride	mg/L	5.2	EPA 300.0	0.20	0.050		07/01/11 18:20	MEJ
Sample Description		**DP-K12-5**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-70**						
Date/Time Collected		**06/29/11 10:40**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/30/11 07:30**						
Field Parameters								
pH	SU	4.7	DEP FT1100	0.1	0.1		06/29/11 10:40	SDH
Water Temperature	°C	27.5	DEP FT1400	0.1	0.1		06/29/11 10:40	SDH
Specific conductance	umhos/cm	80	DEP FT1200	0.1	0.1		06/29/11 10:40	SDH
Dissolved Oxygen	mg/L	0.7	DEP FT1500	0.1	0.1		06/29/11 10:40	SDH
Inorganics								
Chloride	mg/L	2.5	EPA 300.0	0.20	0.050		07/01/11 18:20	MEJ
Sample Description		**DP-M07-21**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-71**						
Date/Time Collected		**06/29/11 10:50**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/30/11 07:30**						
Field Parameters								
pH	SU	4.9	DEP FT1100	0.1	0.1		06/29/11 10:50	SDH
Water Temperature	°C	24.5	DEP FT1400	0.1	0.1		06/29/11 10:50	SDH
Specific conductance	umhos/cm	366	DEP FT1200	0.1	0.1		06/29/11 10:50	SDH
Dissolved Oxygen	mg/L	0.3	DEP FT1500	0.1	0.1		06/29/11 10:50	SDH
Inorganics								
Chloride	mg/L	14	EPA 300.0	0.20	0.050		07/01/11 18:20	MEJ

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September 9, 2011
Work Order: 1105413
Revised Report

Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-M07-27**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-72**						
Date/Time Collected		**06/29/11 10:55**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/30/11 07:30**						
Field Parameters								
pH	SU	5.0	DEP FT1100	0.1	0.1		06/29/11 10:55	SDH
Water Temperature	°C	24.3	DEP FT1400	0.1	0.1		06/29/11 10:55	SDH
Specific conductance	umhos/cm	303	DEP FT1200	0.1	0.1		06/29/11 10:55	SDH
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		06/29/11 10:55	SDH
Inorganics								
Chloride	mg/L	13	EPA 300.0	0.20	0.050		07/01/11 18:20	MEJ
Sample Description		**DP-M12-10**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-73**						
Date/Time Collected		**06/29/11 11:00**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/30/11 07:30**						
Field Parameters								
pH	SU	5.1	DEP FT1100	0.1	0.1		06/29/11 11:00	SDH
Water Temperature	°C	27.0	DEP FT1400	0.1	0.1		06/29/11 11:00	SDH
Specific conductance	umhos/cm	177	DEP FT1200	0.1	0.1		06/29/11 11:00	SDH
Dissolved Oxygen	mg/L	0.9	DEP FT1500	0.1	0.1		06/29/11 11:00	SDH
Inorganics								
Chloride	mg/L	4.8	EPA 300.0	0.20	0.050		07/01/11 18:20	MEJ
Sample Description		**DP-N12-14**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-74**						
Date/Time Collected		**06/29/11 11:10**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/30/11 07:30**						
Field Parameters								
pH	SU	4.4	DEP FT1100	0.1	0.1		06/29/11 11:10	SDH
Water Temperature	°C	25.4	DEP FT1400	0.1	0.1		06/29/11 11:10	SDH
Specific conductance	umhos/cm	177	DEP FT1200	0.1	0.1		06/29/11 11:10	SDH
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		06/29/11 11:10	SDH
Inorganics								
Chloride	mg/L	4.8	EPA 300.0	0.20	0.050		07/01/11 18:20	MEJ

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

September 9, 2011
Work Order: 1105413
Revised Report

Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-N12-18**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-75**						
Date/Time Collected		**06/29/11 11:15**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/30/11 07:30**						
Field Parameters								
pH	SU	4.7	DEP FT1100	0.1	0.1		06/29/11 11:15	SDH
Water Temperature	°C	25.2	DEP FT1400	0.1	0.1		06/29/11 11:15	SDH
Specific conductance	umhos/cm	247	DEP FT1200	0.1	0.1		06/29/11 11:15	SDH
Dissolved Oxygen	mg/L	0.3	DEP FT1500	0.1	0.1		06/29/11 11:15	SDH
Inorganics								
Chloride	mg/L	6.2	EPA 300.0	0.20	0.050		07/01/11 18:20	MEJ
Sample Description		**DP-N12-21**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-76**						
Date/Time Collected		**06/29/11 11:20**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/30/11 07:30**						
Field Parameters								
pH	SU	4.8	DEP FT1100	0.1	0.1		06/29/11 11:20	SDH
Water Temperature	°C	24.9	DEP FT1400	0.1	0.1		06/29/11 11:20	SDH
Specific conductance	umhos/cm	309	DEP FT1200	0.1	0.1		06/29/11 11:20	SDH
Dissolved Oxygen	mg/L	0.2	DEP FT1500	0.1	0.1		06/29/11 11:20	SDH
Inorganics								
Ammonia as N	mg/L	0.005 U	EPA 350.1	0.010	0.005		07/11/11 11:13	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	07/05/11 09:30	07/05/11 16:35	MMF
Chloride	mg/L	9.4	EPA 300.0	0.20	0.050		06/30/11 13:06	MEJ
Fluoride	mg/L	0.20	EPA 300.0	0.040	0.010		06/30/11 13:06	MEJ
Nitrate (as N)	mg/L	5.1	EPA 300.0	0.04	0.01		06/30/11 13:06	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		06/30/11 13:06	MEJ
Orthophosphate as P	mg/L	0.025 I	EPA 300.0	0.040	0.010		06/30/11 13:06	MEJ
Sulfate	mg/L	84	EPA 300.0	0.60	0.20		06/30/11 13:06	MEJ
Total Alkalinity	mg/L	5.2 I	SM 2320B	8.0	2.0		07/02/11 12:30	KTC
Total Kjeldahl Nitrogen	mg/L	0.69	EPA 351.2	0.20	0.05	07/12/11 11:21	07/13/11 09:16	SMD
Nitrate+Nitrite (N)	mg/L	5.1	EPA 300.0	0.08	0.02		06/30/11 13:06	MEJ
Metals								
Boron	mg/L	0.050 U	EPA 200.7	0.10	0.050	07/05/11 16:21	07/08/11 16:26	VWC
Calcium	mg/L	32	EPA 200.7	0.050	0.010	07/05/11 16:21	07/06/11 18:50	VWC
Iron	mg/L	0.042 I	EPA 200.7	0.10	0.020	07/05/11 16:21	07/06/11 18:50	VWC
Magnesium	mg/L	8.2	EPA 200.7	0.050	0.010	07/05/11 16:21	07/06/11 18:50	VWC

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Tampa, FL 33619

September 9, 2011
Work Order: 1105413
Revised Report

Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-N12-21**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-76**						
Date/Time Collected		**06/29/11 11:20**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/30/11 07:30**						
Manganese	mg/L	0.093	EPA 200.7	0.010	0.0010	07/05/11 16:21	07/06/11 18:50	VWC
Potassium	mg/L	15	EPA 200.7	0.050	0.010	07/05/11 16:21	07/06/11 18:50	VWC
Sodium	mg/L	4.3	EPA 200.7	0.050	0.010	07/05/11 16:21	07/06/11 18:50	VWC
		Short Environmental Laboratories						
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	1 U	SM 5310C	4	1		07/15/11 15:20	CC
Inorganics								
Total Organic Carbon	mg/L	2.6 I	SM 5310C	4	1		07/19/11 14:30	CC
Sample Description		**DP-N12-24**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-77**						
Date/Time Collected		**06/29/11 11:30**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/30/11 07:30**						
Field Parameters								
pH	SU	4.6	DEP FT1100	0.1	0.1		06/29/11 11:30	SDH
Water Temperature	°C	24.7	DEP FT1400	0.1	0.1		06/29/11 11:30	SDH
Specific conductance	umhos/cm	354	DEP FT1200	0.1	0.1		06/29/11 11:30	SDH
Dissolved Oxygen	mg/L	0.1	DEP FT1500	0.1	0.1		06/29/11 11:30	SDH
Inorganics								
Chloride	mg/L	16	EPA 300.0	0.20	0.050		07/05/11 17:25	MEJ
Sample Description		**DP-N12-27**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-78**						
Date/Time Collected		**06/29/11 11:35**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/30/11 07:30**						
Field Parameters								
pH	SU	4.7	DEP FT1100	0.1	0.1		06/29/11 11:35	SDH
Water Temperature	°C	24.6	DEP FT1400	0.1	0.1		06/29/11 11:35	SDH
Specific conductance	umhos/cm	365	DEP FT1200	0.1	0.1		06/29/11 11:35	SDH
Dissolved Oxygen	mg/L	0.1 U	DEP FT1500	0.1	0.1		06/29/11 11:35	SDH
Inorganics								

Hazen and Sawyer
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Tampa, FL 33619

September 9, 2011
Work Order: 1105413
Revised Report

Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *		Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-N12-27**							
Matrix		**Groundwater**							
SAL Sample Number		**1105413-78**							
Date/Time Collected		**06/29/11 11:35**							
Collected by		**Sean Harmon**							
Date/Time Received		**06/30/11 07:30**							
Ammonia as N	mg/L	0.005	U	EPA 350.1	0.010	0.005		07/11/11 11:13	SMD
Chemical Oxygen Demand	mg/L	10	U	EPA 410.4	25	10	07/05/11 09:30	07/05/11 16:35	MMF
Chloride	mg/L	13		EPA 300.0	0.20	0.050		06/30/11 13:06	MEJ
Fluoride	mg/L	0.20		EPA 300.0	0.040	0.010		06/30/11 13:06	MEJ
Nitrate (as N)	mg/L	9.6		EPA 300.0	0.04	0.01		06/30/11 13:06	MEJ
Nitrite (as N)	mg/L	0.01	U	EPA 300.0	0.04	0.01		06/30/11 13:06	MEJ
Orthophosphate as P	mg/L	0.022	I	EPA 300.0	0.040	0.010		06/30/11 13:06	MEJ
Sulfate	mg/L	84		EPA 300.0	0.60	0.20		06/30/11 13:06	MEJ
Total Alkalinity	mg/L	5.2	I	SM 2320B	8.0	2.0		07/02/11 12:30	KTC
Total Kjeldahl Nitrogen	mg/L	1.4		EPA 351.2	0.20	0.05	07/12/11 11:21	07/13/11 09:16	SMD
Nitrate+Nitrite (N)	mg/L	9.6		EPA 300.0	0.08	0.02		06/30/11 13:06	MEJ
Metals									
Boron	mg/L	0.050	U	EPA 200.7	0.10	0.050	07/05/11 16:21	07/08/11 16:30	VWC
Calcium	mg/L	32		EPA 200.7	0.050	0.010	07/05/11 16:21	07/06/11 19:07	VWC
Iron	mg/L	0.041	I	EPA 200.7	0.10	0.020	07/05/11 16:21	07/06/11 19:07	VWC
Magnesium	mg/L	11		EPA 200.7	0.050	0.010	07/05/11 16:21	07/06/11 19:07	VWC
Manganese	mg/L	0.043		EPA 200.7	0.010	0.0010	07/05/11 16:21	07/06/11 19:07	VWC
Potassium	mg/L	22		EPA 200.7	0.050	0.010	07/05/11 16:21	07/06/11 19:07	VWC
Sodium	mg/L	5.2		EPA 200.7	0.050	0.010	07/05/11 16:21	07/06/11 19:07	VWC
		Short Environmental Laboratories							
Inorganic, Dissolved									
Dissolved Organic Carbon	mg/L	2.2	I	SM 5310C	4	1		07/15/11 15:20	CC
Inorganics									
Total Organic Carbon	mg/L	2.2	I	SM 5310C	4	1		07/19/11 14:30	CC
Sample Description		**DP-N12-27-D**							
Matrix		**Groundwater**							
SAL Sample Number		**1105413-79**							
Date/Time Collected		**06/29/11 11:40**							
Collected by		**Sean Harmon**							
Date/Time Received		**06/30/11 07:30**							
Field Parameters									
pH	SU	4.7		DEP FT1100	0.1	0.1		06/29/11 11:40	SDH
Water Temperature	°C	24.6		DEP FT1400	0.1	0.1		06/29/11 11:40	SDH
Specific conductance	umhos/cm	365		DEP FT1200	0.1	0.1		06/29/11 11:40	SDH

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September 9, 2011
Work Order: 1105413
Revised Report

Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *		Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-N12-27-D**							
Matrix		**Groundwater**							
SAL Sample Number		**1105413-79**							
Date/Time Collected		**06/29/11 11:40**							
Collected by		**Sean Harmon**							
Date/Time Received		**06/30/11 07:30**							
Dissolved Oxygen	mg/L	0.1	U	DEP FT1500	0.1	0.1		06/29/11 11:40	SDH
Inorganics									
Ammonia as N	mg/L	0.005	U	EPA 350.1	0.010	0.005		07/11/11 11:13	SMD
Chemical Oxygen Demand	mg/L	10	U	EPA 410.4	25	10	07/05/11 09:30	07/05/11 16:35	MMF
Chloride	mg/L	13		EPA 300.0	0.20	0.050		06/30/11 13:06	MEJ
Fluoride	mg/L	0.32		EPA 300.0	0.040	0.010		06/30/11 13:06	MEJ
Nitrate (as N)	mg/L	9.6		EPA 300.0	0.04	0.01		06/30/11 13:06	MEJ
Nitrite (as N)	mg/L	0.01	U	EPA 300.0	0.04	0.01		06/30/11 13:06	MEJ
Orthophosphate as P	mg/L	0.012	I	EPA 300.0	0.040	0.010		06/30/11 13:06	MEJ
Sulfate	mg/L	84		EPA 300.0	0.60	0.20		06/30/11 13:06	MEJ
Total Alkalinity	mg/L	6.2	I	SM 2320B	8.0	2.0		07/02/11 12:30	KTC
Total Kjeldahl Nitrogen	mg/L	1.3		EPA 351.2	0.20	0.05	07/12/11 11:21	07/13/11 09:16	SMD
Nitrate+Nitrite (N)	mg/L	9.6		EPA 300.0	0.08	0.02		06/30/11 13:06	MEJ
Metals									
Boron	mg/L	0.050	U	EPA 200.7	0.10	0.050	07/05/11 16:21	07/08/11 16:33	VWC
Calcium	mg/L	31		EPA 200.7	0.050	0.010	07/05/11 16:21	07/06/11 19:11	VWC
Iron	mg/L	0.037	I	EPA 200.7	0.10	0.020	07/05/11 16:21	07/06/11 19:11	VWC
Magnesium	mg/L	11		EPA 200.7	0.050	0.010	07/05/11 16:21	07/06/11 19:11	VWC
Manganese	mg/L	0.042		EPA 200.7	0.010	0.0010	07/05/11 16:21	07/06/11 19:11	VWC
Potassium	mg/L	22		EPA 200.7	0.050	0.010	07/05/11 16:21	07/06/11 19:11	VWC
Sodium	mg/L	5.0		EPA 200.7	0.050	0.010	07/05/11 16:21	07/06/11 19:11	VWC
		Short Environmental Laboratories							
Inorganic, Dissolved									
Dissolved Organic Carbon	mg/L	2.1	I	SM 5310C	4	1		07/15/11 15:20	CC
Inorganics									
Total Organic Carbon	mg/L	2.2	I	SM 5310C	4	1		07/19/11 14:30	CC
Sample Description		**DP-O10-18**							
Matrix		**Groundwater**							
SAL Sample Number		**1105413-80**							
Date/Time Collected		**06/29/11 12:10**							
Collected by		**Sean Harmon**							
Date/Time Received		**06/30/11 07:30**							
Field Parameters									
pH	SU	4.9		DEP FT1100	0.1	0.1		06/29/11 12:10	SDH

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Hazen and Sawyer
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Tampa, FL 33619

September 9, 2011
Work Order: 1105413
Revised Report

Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-O10-18**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-80**						
Date/Time Collected		**06/29/11 12:10**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/30/11 07:30**						
Water Temperature	°C	25.1	DEP FT1400	0.1	0.1		06/29/11 12:10	SDH
Specific conductance	umhos/cm	335	DEP FT1200	0.1	0.1		06/29/11 12:10	SDH
Dissolved Oxygen	mg/L	0.7	DEP FT1500	0.1	0.1		06/29/11 12:10	SDH
Inorganics								
Chloride	mg/L	9.7	EPA 300.0	0.20	0.050		07/05/11 17:25	MEJ
Sample Description		**DP-O10-24**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-81**						
Date/Time Collected		**06/29/11 12:15**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/30/11 07:30**						
Field Parameters								
pH	SU	4.7	DEP FT1100	0.1	0.1		06/29/11 12:15	SDH
Water Temperature	°C	24.7	DEP FT1400	0.1	0.1		06/29/11 12:15	SDH
Specific conductance	umhos/cm	366	DEP FT1200	0.1	0.1		06/29/11 12:15	SDH
Dissolved Oxygen	mg/L	0.3	DEP FT1500	0.1	0.1		06/29/11 12:15	SDH
Inorganics								
Chloride	mg/L	15	EPA 300.0	0.20	0.050		07/05/11 17:25	MEJ
Sample Description		**DP-Q15-21**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-82**						
Date/Time Collected		**06/29/11 12:35**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/30/11 07:30**						
Field Parameters								
pH	SU	4.8	DEP FT1100	0.1	0.1		06/29/11 12:35	SDH
Water Temperature	°C	25.2	DEP FT1400	0.1	0.1		06/29/11 12:35	SDH
Specific conductance	umhos/cm	358	DEP FT1200	0.1	0.1		06/29/11 12:35	SDH
Dissolved Oxygen	mg/L	0.3	DEP FT1500	0.1	0.1		06/29/11 12:35	SDH
Inorganics								
Chloride	mg/L	13	EPA 300.0	0.20	0.050		07/05/11 17:25	MEJ

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

September 9, 2011
Work Order: 1105413
Revised Report

Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**DP-Q15-26**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-83**						
Date/Time Collected		**06/29/11 12:40**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/30/11 07:30**						
Field Parameters								
pH	SU	4.8	DEP FT1100	0.1	0.1		06/29/11 12:40	SDH
Water Temperature	°C	25.3	DEP FT1400	0.1	0.1		06/29/11 12:40	SDH
Specific conductance	umhos/cm	385	DEP FT1200	0.1	0.1		06/29/11 12:40	SDH
Dissolved Oxygen	mg/L	0.4	DEP FT1500	0.1	0.1		06/29/11 12:40	SDH
Inorganics								
Chloride	mg/L	15	EPA 300.0	0.20	0.050		07/05/11 17:25	MEJ
Sample Description		**PZ03-H11-6**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-84**						
Date/Time Collected		**06/27/11 12:03**						
Collected by		**Sean Harmon**						
Date/Time Received		**01/01/80 00:00**						
Field Parameters								
pH	SU	4.5	DEP FT1100	0.1	0.1		06/27/11 12:03	SDH
Water Temperature	°C	28.4	DEP FT1400	0.1	0.1		06/27/11 12:03	SDH
Specific conductance	umhos/cm	165	DEP FT1200	0.1	0.1		06/27/11 12:03	SDH
Dissolved Oxygen	mg/L	3.0	DEP FT1500	0.1	0.1		06/27/11 12:03	SDH
Inorganics								
Ammonia as N	mg/L	0.010	EPA 350.1	0.010	0.005		07/11/11 11:13	SMD
Chemical Oxygen Demand	mg/L	10 U	EPA 410.4	25	10	07/05/11 09:30	07/05/11 16:35	MMF
Chloride	mg/L	6.2	EPA 300.0	0.20	0.050		06/29/11 10:15	MEJ
Fluoride	mg/L	0.14	EPA 300.0	0.040	0.010		06/29/11 10:15	MEJ
Nitrate (as N)	mg/L	0.85	EPA 300.0	0.04	0.01		06/29/11 10:15	MEJ
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		06/29/11 09:00	MEJ
Orthophosphate as P	mg/L	0.010 U	EPA 300.0	0.040	0.010		06/29/11 10:15	MEJ
Sulfate	mg/L	44	EPA 300.0	0.60	0.20		06/29/11 10:15	MEJ
Total Alkalinity	mg/L	2.0 U	SM 2320B	8.0	2.0		07/02/11 12:30	KTC
Total Kjeldahl Nitrogen	mg/L	0.34	EPA 351.2	0.20	0.05	07/12/11 11:21	07/13/11 09:16	SMD
Nitrate+Nitrite (N)	mg/L	0.85	EPA 300.0	0.08	0.02		06/29/11 10:15	MEJ
Metals								
Boron	mg/L	0.050 U	EPA 200.7	0.10	0.050	07/05/11 16:21	07/08/11 16:43	VWC
Calcium	mg/L	11	EPA 200.7	0.050	0.010	07/05/11 16:21	07/06/11 19:14	VWC
Iron	mg/L	0.022 I	EPA 200.7	0.10	0.020	07/05/11 16:21	07/06/11 19:14	VWC
Magnesium	mg/L	2.7	EPA 200.7	0.050	0.010	07/05/11 16:21	07/06/11 19:14	VWC

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

September 9, 2011
Work Order: 1105413
Revised Report

Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**PZ03-H11-6**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-84**						
Date/Time Collected		**06/27/11 12:03**						
Collected by		**Sean Harmon**						
Date/Time Received		**01/01/80 00:00**						
Manganese	mg/L	0.052	EPA 200.7	0.010	0.0010	07/05/11 16:21	07/06/11 19:14	VWC
Potassium	mg/L	4.8	EPA 200.7	0.050	0.010	07/05/11 16:21	07/06/11 19:14	VWC
Sodium	mg/L	5.8	EPA 200.7	0.050	0.010	07/05/11 16:21	07/06/11 19:14	VWC
		Short Environmental Laboratories						
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	3.4 I	SM 5310C	4	1		07/21/11 09:36	CC
Inorganics								
Total Organic Carbon	mg/L	4.8	SM 5310C	4	1		07/19/11 14:30	CC
Sample Description		**PZ04-BKG-9**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-85**						
Date/Time Collected		**06/27/11 08:40**						
Collected by		**Sean Harmon**						
Date/Time Received								
Field Parameters								
pH	SU	5.6	DEP FT1100	0.1	0.1		06/27/11 08:40	SDH
Water Temperature	°C	25.9	DEP FT1400	0.1	0.1		06/27/11 08:40	SDH
Specific conductance	umhos/cm	100	DEP FT1200	0.1	0.1		06/27/11 08:40	SDH
Dissolved Oxygen	mg/L	4.2	DEP FT1500	0.1	0.1		06/27/11 08:40	SDH
Inorganics								
Chloride	mg/L	3.3	EPA 300.0	0.20	0.050		07/05/11 17:25	MEJ
Sample Description		**PZ07-D05-7**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-86**						
Date/Time Collected		**06/27/11 11:40**						
Collected by		**Sean Harmon**						
Date/Time Received								
Field Parameters								
pH	SU	4.7	DEP FT1100	0.1	0.1		06/27/11 11:40	SDH
Water Temperature	°C	27.3	DEP FT1400	0.1	0.1		06/27/11 11:40	SDH
Specific conductance	umhos/cm	288	DEP FT1200	0.1	0.1		06/27/11 11:40	SDH
Dissolved Oxygen	mg/L	2.5	DEP FT1500	0.1	0.1		06/27/11 11:40	SDH
Inorganics								

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

September 9, 2011
Work Order: 1105413
Revised Report

Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *		Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**PZ07-D05-7**							
Matrix		**Groundwater**							
SAL Sample Number		**1105413-86**							
Date/Time Collected		**06/27/11 11:40**							
Collected by		**Sean Harmon**							
Date/Time Received									
Chloride	mg/L	21		EPA 300.0	0.20	0.050		07/05/11 17:25	MEJ
Sample Description		**PZ11-E09-10**							
Matrix		**Groundwater**							
SAL Sample Number		**1105413-87**							
Date/Time Collected		**06/27/11 11:00**							
Collected by		**Sean Harmon**							
Date/Time Received		**01/01/80 00:00**							
Field Parameters									
pH	SU	5.3		DEP FT1100	0.1	0.1		06/27/11 11:00	SDH
Water Temperature	°C	27.6		DEP FT1400	0.1	0.1		06/27/11 11:00	SDH
Specific conductance	umhos/cm	454		DEP FT1200	0.1	0.1		06/27/11 11:00	SDH
Dissolved Oxygen	mg/L	1.8		DEP FT1500	0.1	0.1		06/27/11 11:00	SDH
Inorganics									
Ammonia as N	mg/L	0.10		EPA 350.1	0.010	0.005		07/11/11 11:13	SMD
Chemical Oxygen Demand	mg/L	10	U	EPA 410.4	25	10	07/05/11 09:30	07/05/11 16:35	MMF
Chloride	mg/L	36		EPA 300.0	0.20	0.050		06/28/11 16:50	MEJ
Fluoride	mg/L	0.038	I	EPA 300.0	0.040	0.010		06/29/11 10:15	MEJ
Nitrate (as N)	mg/L	18		EPA 300.0	0.04	0.01		06/28/11 16:50	MEJ
Nitrite (as N)	mg/L	0.01	U	EPA 300.0	0.04	0.01		06/29/11 09:00	MEJ
Orthophosphate as P	mg/L	0.010	U	EPA 300.0	0.040	0.010		06/29/11 10:15	MEJ
Sulfate	mg/L	59		EPA 300.0	0.60	0.20		06/29/11 10:15	MEJ
Total Alkalinity	mg/L	9.4		SM 2320B	8.0	2.0		07/02/11 12:30	KTC
Total Kjeldahl Nitrogen	mg/L	2.3		EPA 351.2	0.20	0.05	07/12/11 11:21	07/13/11 09:16	SMD
Nitrate+Nitrite (N)	mg/L	18		EPA 300.0	0.08	0.02		06/29/11 09:00	MEJ
Metals									
Boron	mg/L	0.093	I	EPA 200.7	0.10	0.050	07/05/11 16:21	07/08/11 16:47	VWC
Calcium	mg/L	34		EPA 200.7	0.050	0.010	07/05/11 16:21	07/06/11 19:18	VWC
Iron	mg/L	0.29		EPA 200.7	0.10	0.020	07/05/11 16:21	07/06/11 19:18	VWC
Magnesium	mg/L	8.9		EPA 200.7	0.050	0.010	07/05/11 16:21	07/06/11 19:18	VWC
Manganese	mg/L	0.23		EPA 200.7	0.010	0.0010	07/05/11 16:21	07/06/11 19:18	VWC
Potassium	mg/L	10		EPA 200.7	0.050	0.010	07/05/11 16:21	07/06/11 19:18	VWC
Sodium	mg/L	30		EPA 200.7	0.050	0.010	07/05/11 16:21	07/06/11 19:18	VWC

Short Environmental Laboratories

Inorganic, Dissolved

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

September 9, 2011
Work Order: 1105413
Revised Report

Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *		Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**PZ11-E09-10**							
Matrix		**Groundwater**							
SAL Sample Number		**1105413-87**							
Date/Time Collected		**06/27/11 11:00**							
Collected by		**Sean Harmon**							
Date/Time Received		**01/01/80 00:00**							
		Short Environmental Laboratories							
Dissolved Organic Carbon	mg/L	1.5	I	SM 5310C	4	1		07/21/11 09:36	CC
Inorganics									
Total Organic Carbon	mg/L	2.2	I	SM 5310C	4	1		07/19/11 14:30	CC
Sample Description		**PZ11-E09-10-D**							
Matrix		**Groundwater**							
SAL Sample Number		**1105413-88**							
Date/Time Collected		**06/27/11 11:05**							
Collected by		**Sean Harmon**							
Date/Time Received		**01/01/80 00:00**							
Field Parameters									
pH	SU	5.3		DEP FT1100	0.1	0.1		06/27/11 11:05	SDH
Water Temperature	°C	27.6		DEP FT1400	0.1	0.1		06/27/11 11:05	SDH
Specific conductance	umhos/cm	454		DEP FT1200	0.1	0.1		06/27/11 11:05	SDH
Dissolved Oxygen	mg/L	1.8		DEP FT1500	0.1	0.1		06/27/11 11:05	SDH
Inorganics									
Ammonia as N	mg/L	0.13		EPA 350.1	0.010	0.005		07/11/11 11:13	SMD
Chemical Oxygen Demand	mg/L	10	U	EPA 410.4	25	10	07/05/11 09:30	07/05/11 16:35	MMF
Chloride	mg/L	35		EPA 300.0	0.20	0.050		06/28/11 16:50	MEJ
Fluoride	mg/L	0.020	I	EPA 300.0	0.040	0.010		06/29/11 10:15	MEJ
Nitrate (as N)	mg/L	18		EPA 300.0	0.04	0.01		06/28/11 16:50	MEJ
Orthophosphate as P	mg/L	0.010	U	EPA 300.0	0.040	0.010		06/29/11 10:15	MEJ
Sulfate	mg/L	62		EPA 300.0	0.60	0.20		06/29/11 10:15	MEJ
Total Alkalinity	mg/L	9.4		SM 2320B	8.0	2.0		07/02/11 12:30	KTC
Total Kjeldahl Nitrogen	mg/L	2.2		EPA 351.2	0.20	0.05	07/12/11 11:21	07/13/11 09:16	SMD
Nitrate+Nitrite (N)	mg/L	18		EPA 300.0	0.04	0.01		06/28/11 16:50	MEJ
Metals									
Boron	mg/L	0.095	I	EPA 200.7	0.10	0.050	07/05/11 16:21	07/08/11 16:50	VWC
Calcium	mg/L	35		EPA 200.7	0.050	0.010	07/05/11 16:21	07/06/11 19:21	VWC
Iron	mg/L	0.26		EPA 200.7	0.10	0.020	07/05/11 16:21	07/06/11 19:21	VWC
Magnesium	mg/L	9.3		EPA 200.7	0.050	0.010	07/05/11 16:21	07/06/11 19:21	VWC
Manganese	mg/L	0.22		EPA 200.7	0.010	0.0010	07/05/11 16:21	07/06/11 19:21	VWC
Potassium	mg/L	11		EPA 200.7	0.050	0.010	07/05/11 16:21	07/06/11 19:21	VWC
Sodium	mg/L	32		EPA 200.7	0.050	0.010	07/05/11 16:21	07/06/11 19:21	VWC

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

September 9, 2011
Work Order: 1105413
Revised Report

Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**PZ11-E09-10-D**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-88**						
Date/Time Collected		**06/27/11 11:05**						
Collected by		**Sean Harmon**						
Date/Time Received		**01/01/80 00:00**						
		Short Environmental Laboratories						
Inorganic, Dissolved								
Dissolved Organic Carbon	mg/L	1.6 I	SM 5310C	4	1		07/21/11 09:36	CC
Inorganics								
Total Organic Carbon	mg/L	2.7 I	SM 5310C	4	1		07/19/11 14:30	CC
Sample Description		**PZ11-E09-10-D**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-88RE1**						
Date/Time Collected		**06/27/11 11:05**						
Collected by		**Sean Harmon**						
Date/Time Received		**01/01/80 00:00**						
Inorganics								
Nitrite (as N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		06/28/11 16:50	MEJ
Nitrate+Nitrite (N)	mg/L	0.01 U	EPA 300.0	0.04	0.01		06/28/11 16:50	MEJ
Sample Description		**PZ15-A11-6**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-89**						
Date/Time Collected		**06/27/11 10:40**						
Collected by		**Sean Harmon**						
Date/Time Received								
Field Parameters								
pH	SU	5.3	DEP FT1100	0.1	0.1		06/27/11 10:40	SDH
Water Temperature	°C	29.4	DEP FT1400	0.1	0.1		06/27/11 10:40	SDH
Specific conductance	umhos/cm	195	DEP FT1200	0.1	0.1		06/27/11 10:40	SDH
Dissolved Oxygen	mg/L	3.1	DEP FT1500	0.1	0.1		06/27/11 10:40	SDH
Inorganics								
Chloride	mg/L	17	EPA 300.0	0.20	0.050		07/05/11 17:25	MEJ

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September 9, 2011
Work Order: 1105413
Revised Report

Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**PZ16-C12-28**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-90**						
Date/Time Collected		**06/27/11 10:32**						
Collected by		**Sean Harmon**						
Date/Time Received								
Field Parameters								
pH	SU	5.5	DEP FT1100	0.1	0.1		06/27/11 10:32	SDH
Water Temperature	°C	25.1	DEP FT1400	0.1	0.1		06/27/11 10:32	SDH
Specific conductance	umhos/cm	306	DEP FT1200	0.1	0.1		06/27/11 10:32	SDH
Dissolved Oxygen	mg/L	0.5	DEP FT1500	0.1	0.1		06/27/11 10:32	SDH
Inorganics								
Chloride	mg/L	19	EPA 300.0	0.20	0.050		07/05/11 17:25	MEJ
Sample Description		**PZ17-I15-26**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-91**						
Date/Time Collected		**06/27/11 12:39**						
Collected by		**Sean Harmon**						
Date/Time Received								
Field Parameters								
pH	SU	4.9	DEP FT1100	0.1	0.1		06/27/11 12:39	SDH
Water Temperature	°C	25.4	DEP FT1400	0.1	0.1		06/27/11 12:39	SDH
Specific conductance	umhos/cm	307	DEP FT1200	0.1	0.1		06/27/11 12:39	SDH
Dissolved Oxygen	mg/L	1.6	DEP FT1500	0.1	0.1		06/27/11 12:39	SDH
Inorganics								
Chloride	mg/L	14	EPA 300.0	0.20	0.050		07/05/11 17:25	MEJ
Sample Description		**PZ18-R12-26**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-92**						
Date/Time Collected		**06/27/11 13:02**						
Collected by		**Sean Harmon**						
Date/Time Received								
Field Parameters								
pH	SU	5.1	DEP FT1100	0.1	0.1		06/27/11 13:02	SDH
Water Temperature	°C	26.6	DEP FT1400	0.1	0.1		06/27/11 13:02	SDH
Specific conductance	umhos/cm	252	DEP FT1200	0.1	0.1		06/27/11 13:02	SDH
Dissolved Oxygen	mg/L	0.6	DEP FT1500	0.1	0.1		06/27/11 13:02	SDH
Inorganics								
Chloride	mg/L	13	EPA 300.0	0.20	0.050		07/05/11 17:25	MEJ

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10002 Princess Palm Ave, Suite 200
Tampa, FL 33619

September 9, 2011
Work Order: 1105413
Revised Report

Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**PZ19-G10-26**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-93**						
Date/Time Collected		**06/27/11 09:31**						
Collected by		**Sean Harmon**						
Date/Time Received								
Field Parameters								
pH	SU	5.0	DEP FT1100	0.1	0.1		06/27/11 09:31	SDH
Water Temperature	°C	23.9	DEP FT1400	0.1	0.1		06/27/11 09:31	SDH
Specific conductance	umhos/cm	294	DEP FT1200	0.1	0.1		06/27/11 09:31	SDH
Dissolved Oxygen	mg/L	0.6	DEP FT1500	0.1	0.1		06/27/11 09:31	SDH
Inorganics								
Chloride	mg/L	15	EPA 300.0	0.20	0.050		07/05/11 17:25	MEJ
Sample Description		**PZ20-G10-15**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-94**						
Date/Time Collected		**06/27/11 09:05**						
Collected by		**Sean Harmon**						
Date/Time Received								
Field Parameters								
pH	SU	5.3	DEP FT1100	0.1	0.1		06/27/11 09:05	SDH
Water Temperature	°C	25.7	DEP FT1400	0.1	0.1		06/27/11 09:05	SDH
Specific conductance	umhos/cm	300	DEP FT1200	0.1	0.1		06/27/11 09:05	SDH
Dissolved Oxygen	mg/L	2.6	DEP FT1500	0.1	0.1		06/27/11 09:05	SDH
Inorganics								
Chloride	mg/L	17	EPA 300.0	0.20	0.050		07/06/11 02:29	MEJ
Sample Description		**PZ21-E11-26**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-95**						
Date/Time Collected		**06/27/11 09:56**						
Collected by		**Sean Harmon**						
Date/Time Received								
Field Parameters								
pH	SU	4.9	DEP FT1100	0.1	0.1		06/27/11 09:56	SDH
Water Temperature	°C	24.8	DEP FT1400	0.1	0.1		06/27/11 09:56	SDH
Specific conductance	umhos/cm	288	DEP FT1200	0.1	0.1		06/27/11 09:56	SDH
Dissolved Oxygen	mg/L	0.9	DEP FT1500	0.1	0.1		06/27/11 09:56	SDH
Inorganics								
Chloride	mg/L	17	EPA 300.0	0.20	0.050		07/06/11 02:29	MEJ

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September 9, 2011
Work Order: 1105413
Revised Report

Laboratory Report

Project Name **GCREC Mound Groundwater Analyses**

Parameters	Units	Results *	Method	PQL	MDL	Prepared	Analyzed	By
Sample Description		**PZ24-BKG-26**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-96**						
Date/Time Collected		**06/27/11 08:29**						
Collected by		**Sean Harmon**						
Date/Time Received								
Field Parameters								
pH	SU	4.9	DEP FT1100	0.1	0.1		06/27/11 08:29	SDH
Water Temperature	°C	24.4	DEP FT1400	0.1	0.1		06/27/11 08:29	SDH
Specific conductance	umhos/cm	296	DEP FT1200	0.1	0.1		06/27/11 08:29	SDH
Dissolved Oxygen	mg/L	0.7	DEP FT1500	0.1	0.1		06/27/11 08:29	SDH
Inorganics								
Chloride	mg/L	19	EPA 300.0	0.20	0.050		07/06/11 02:29	MEJ
Sample Description		**EQ Blank**						
Matrix		**Groundwater**						
SAL Sample Number		**1105413-97**						
Date/Time Collected		**06/29/11 13:15**						
Collected by		**Sean Harmon**						
Date/Time Received		**06/30/11 07:30**						
Field Parameters								
pH	SU	6.8	DEP FT1100	0.1	0.1		06/29/11 13:15	SDH
Water Temperature	°C	28.8	DEP FT1400	0.1	0.1		06/29/11 13:15	SDH
Specific conductance	umhos/cm	10	DEP FT1200	0.1	0.1		06/29/11 13:15	SDH
Dissolved Oxygen	mg/L	4.9	DEP FT1500	0.1	0.1		06/29/11 13:15	SDH
Inorganics								
Chloride	mg/L	0.050 U	EPA 300.0	0.20	0.050		07/06/11 02:29	MEJ

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

September 9, 2011
Work Order: 1105413
Revised Report

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BF12918 - Ion Chromatography 300.0 Prep										
Blank (BF12918-BLK1)					Prepared & Analyzed: 06/29/11					
Sulfate	0.20 U	0.60	0.20	mg/L						
Chloride	0.050 U	0.20	0.050	mg/L						
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						
Orthophosphate as P	0.010 U	0.040	0.010	mg/L						
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
Fluoride	0.010 U	0.040	0.010	mg/L						
LCS (BF12918-BS1)					Prepared & Analyzed: 06/29/11					
Nitrite (as N)	1.39	0.04	0.01	mg/L	1.4		99	85-115		
Orthophosphate as P	0.944	0.040	0.010	mg/L	0.90		105	85-115		
Nitrate (as N)	1.61	0.04	0.01	mg/L	1.7		95	85-115		
Sulfate	8.64	0.60	0.20	mg/L	9.0		96	85-115		
Fluoride	0.841	0.040	0.010	mg/L	0.90		93	85-115		
Chloride	2.75	0.20	0.050	mg/L	3.0		92	85-115		
LCS Dup (BF12918-BSD1)					Prepared & Analyzed: 06/29/11					
Nitrate (as N)	1.62	0.04	0.01	mg/L	1.7		95	85-115	0.6	200
Nitrite (as N)	1.43	0.04	0.01	mg/L	1.4		102	85-115	3	200
Sulfate	8.76	0.60	0.20	mg/L	9.0		97	85-115	1	200
Chloride	2.87	0.20	0.050	mg/L	3.0		96	85-115	4	200
Orthophosphate as P	0.968	0.040	0.010	mg/L	0.90		108	85-115	3	200
Fluoride	0.845	0.040	0.010	mg/L	0.90		94	85-115	0.5	200
Matrix Spike (BF12918-MS1)		**Source: 1105413-48**			Prepared & Analyzed: 06/29/11					
Nitrate (as N)	19.2 +O	0.04	0.01	mg/L	1.7	19.8	NR	85-115		
Nitrite (as N)	1.43	0.04	0.01	mg/L	1.4	ND	102	85-115		
Sulfate	62.6	0.60	0.20	mg/L	9.0	52.9	108	85-115		
Orthophosphate as P	0.871	0.040	0.010	mg/L	0.90	ND	97	85-115		
Chloride	34.8 +O	0.20	0.050	mg/L	3.0	32.7	70	80-120		
Fluoride	0.867	0.040	0.010	mg/L	0.90	0.0143	95	85-115		

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

September 9, 2011
Work Order: 1105413
Revised Report

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BF12918 - Ion Chromatography 300.0 Prep										
Matrix Spike (BF12918-MS2)		**Source: 1104499-02**			Prepared & Analyzed: 06/29/11					
Chloride	56.7 +O	0.20	0.050	mg/L	3.0	57.1	NR	80-120		
Nitrite (as N)	1.37	0.04	0.01	mg/L	1.4	ND	98	85-115		
Sulfate	31.7	0.60	0.20	mg/L	9.0	22.3	104	85-115		
Orthophosphate as P	2.78 +O	0.040	0.010	mg/L	0.90	2.20	64	85-115		
Nitrate (as N)	11.0	0.04	0.01	mg/L	1.7	9.09	112	85-115		
Fluoride	1.06	0.040	0.010	mg/L	0.90	0.104	106	85-115		
Batch BF12920 - Ion Chromatography 300.0 Prep										
Blank (BF12920-BLK1)					Prepared & Analyzed: 06/29/11					
Chloride	0.050 U	0.20	0.050	mg/L						
LCS (BF12920-BS1)					Prepared & Analyzed: 06/29/11					
Chloride	3.29	0.20	0.050	mg/L	3.0		110	85-115		
LCS Dup (BF12920-BSD1)					Prepared & Analyzed: 06/29/11					
Chloride	3.30	0.20	0.050	mg/L	3.0		110	85-115	0.3	200
Matrix Spike (BF12920-MS1)		**Source: 1105643-04**			Prepared & Analyzed: 06/29/11					
Chloride	56.9	0.20	0.050	mg/L	30	26.3	102	80-120		
Matrix Spike (BF12920-MS2)		**Source: 1105413-07**			Prepared & Analyzed: 06/29/11					
Chloride	41.0 +O	0.20	0.050	mg/L	3.0	34.9	203	80-120		
Batch BF13004 - Ion Chromatography 300.0 Prep										
Blank (BF13004-BLK1)					Prepared & Analyzed: 06/30/11					
Nitrite (as N)	0.01 U	0.04	0.01	mg/L						
Orthophosphate as P	0.010 U	0.040	0.010	mg/L						
Nitrate (as N)	0.01 U	0.04	0.01	mg/L						
Fluoride	0.010 U	0.040	0.010	mg/L						
Chloride	0.050 U	0.20	0.050	mg/L						
Sulfate	0.20 U	0.60	0.20	mg/L						

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10002 Princess Palm Ave, Suite 200
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September 9, 2011
Work Order: 1105413
Revised Report

Inorganics - Quality Control

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Batch BF13004 - Ion Chromatography 300.0 Prep										
LCS (BF13004-BS1)					Prepared & Analyzed: 06/30/11					
Nitrate (as N)	1.71	0.04	0.01	mg/L	1.7		101	85-115		
Fluoride	0.962	0.040	0.010	mg/L	0.90		107	85-115		
Chloride	3.00	0.20	0.050	mg/L	3.0		100	85-115		
Sulfate	9.12	0.60	0.20	mg/L	9.0		101	85-115		
Orthophosphate as P	0.907	0.040	0.010	mg/L	0.90		101	85-115		
Nitrite (as N)	1.42	0.04	0.01	mg/L	1.4		101	85-115		
LCS Dup (BF13004-BSD1)					Prepared & Analyzed: 06/30/11					
Orthophosphate as P	0.944	0.040	0.010	mg/L	0.90		105	85-115	4	200
Nitrate (as N)	1.71	0.04	0.01	mg/L	1.7		101	85-115	0	200
Fluoride	0.959	0.040	0.010	mg/L	0.90		107	85-115	0.3	200
Sulfate	9.10	0.60	0.20	mg/L	9.0		101	85-115	0.2	200
Chloride	2.99	0.20	0.050	mg/L	3.0		100	85-115	0.3	200
Nitrite (as N)	1.40	0.04	0.01	mg/L	1.4		100	85-115	1	200
Matrix Spike (BF13004-MS1)		**Source: 1105413-88**			Prepared & Analyzed: 06/30/11					
Fluoride	12.2	0.040	0.010	mg/L	9.0	4.00	91	85-115		
Sulfate	142	0.60	0.20	mg/L	90	54.1	98	85-115		
Orthophosphate as P	8.94	0.040	0.010	mg/L	9.0	0.175	97	85-115		
Nitrate (as N)	35.1	0.04	0.01	mg/L	17	17.8	102	85-115		
Nitrite (as N)	13.7	0.04	0.01	mg/L	14	ND	98	85-115		
Chloride	65.0	0.20	0.050	mg/L	30	34.9	100	80-120		
Matrix Spike (BF13004-MS2)		**Source: 1105748-07**			Prepared & Analyzed: 06/30/11					
Fluoride	1.49	0.040	0.010	mg/L	0.90	0.660	92	85-115		
Chloride	28.5	0.20	0.050	mg/L	3.0	25.1	113	80-120		
Nitrite (as N)	1.26	0.04	0.01	mg/L	1.4	ND	90	85-115		
Orthophosphate as P	0.973	0.040	0.010	mg/L	0.90	0.125	94	85-115		
Nitrate (as N)	2.09	0.04	0.01	mg/L	1.7	0.219	110	85-115		
Sulfate	88.1 +O	0.60	0.20	mg/L	9.0	81.5	73	85-115		

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

September 9, 2011
Work Order: 1105413
Revised Report

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BF13005 - Ion Chromatography 300.0 Prep										
Blank (BF13005-BLK1)					Prepared & Analyzed: 06/30/11					
Chloride	0.050 U	0.20	0.050	mg/L						
LCS (BF13005-BS1)					Prepared & Analyzed: 06/30/11					
Chloride	2.90	0.20	0.050	mg/L	3.0		97	85-115		
LCS Dup (BF13005-BSD1)					Prepared & Analyzed: 06/30/11					
Chloride	2.92	0.20	0.050	mg/L	3.0		97	85-115	0.7	200
Matrix Spike (BF13005-MS1)		**Source: 1105413-32**			Prepared & Analyzed: 06/30/11					
Chloride	17.9	0.20	0.050	mg/L	3.0	14.7	107	80-120		
Matrix Spike (BF13005-MS2)		**Source: 1105413-43**			Prepared & Analyzed: 06/30/11					
Chloride	17.9	0.20	0.050	mg/L	3.0	14.6	110	80-120		
Batch BF13023 - Ion Chromatography 300.0 Prep										
Blank (BF13023-BLK1)					Prepared & Analyzed: 06/30/11					
Chloride	0.050 U	0.20	0.050	mg/L						
LCS (BF13023-BS1)					Prepared & Analyzed: 06/30/11					
Chloride	2.98	0.20	0.050	mg/L	3.0		99	85-115		
LCS Dup (BF13023-BSD1)					Prepared & Analyzed: 06/30/11					
Chloride	2.99	0.20	0.050	mg/L	3.0		100	85-115	0.3	200
Matrix Spike (BF13023-MS1)		**Source: 1105413-07**			Prepared & Analyzed: 06/30/11					
Chloride	65.5	0.20	0.050	mg/L	30	34.9	102	80-120		

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

September 9, 2011
Work Order: 1105413
Revised Report

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BF13023 - Ion Chromatography 300.0 Prep										
Matrix Spike (BF13023-MS2)		**Source: 1105413-22**			Prepared & Analyzed: 06/30/11					
Chloride	23.9	0.20	0.050	mg/L	3.0	21.4	83	80-120		
Batch BG10102 - Ion Chromatography 300.0 Prep										
Blank (BG10102-BLK1)					Prepared & Analyzed: 07/01/11					
Chloride	0.050 U	0.20	0.050	mg/L						
LCS (BG10102-BS1)					Prepared & Analyzed: 07/01/11					
Chloride	2.85	0.20	0.050	mg/L	3.0		95	85-115		
LCS Dup (BG10102-BSD1)					Prepared & Analyzed: 07/01/11					
Chloride	2.91	0.20	0.050	mg/L	3.0		97	85-115	2	200
Matrix Spike (BG10102-MS1)		**Source: 1105413-53**			Prepared & Analyzed: 07/01/11					
Chloride	7.69	0.20	0.050	mg/L	3.0	4.54	105	80-120		
Matrix Spike (BG10102-MS2)		**Source: 1105413-65**			Prepared & Analyzed: 07/01/11					
Chloride	8.87	0.20	0.050	mg/L	3.0	5.81	102	80-120		
Batch BG10108 - Ion Chromatography 300.0 Prep										
Blank (BG10108-BLK1)					Prepared: 06/30/11 Analyzed: 07/01/11					
Chloride	0.050 U	0.20	0.050	mg/L						
LCS (BG10108-BS1)					Prepared: 06/30/11 Analyzed: 07/01/11					
Chloride	3.09	0.20	0.050	mg/L	3.0		103	85-115		

Hazen and Sawyer
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Tampa, FL 33619

September 9, 2011
Work Order: 1105413
Revised Report

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BG10108 - Ion Chromatography 300.0 Prep										
LCS Dup (BG10108-BSD1)					Prepared: 06/30/11 Analyzed: 07/01/11					
Chloride	3.07	0.20	0.050	mg/L	3.0		102	85-115	0.6	200
Matrix Spike (BG10108-MS1)		**Source: 1105771-02**			Prepared: 06/30/11 Analyzed: 07/01/11					
Chloride	0.050 U,+O	0.20	0.050	mg/L	3.0	15400	NR	80-120		
Matrix Spike (BG10108-MS2)		**Source: 1105413-75**			Prepared: 06/30/11 Analyzed: 07/01/11					
Chloride	9.22	0.20	0.050	mg/L	3.0	6.18	101	80-120		
Batch BG10201 - alkalinity										
Blank (BG10201-BLK1)					Prepared & Analyzed: 07/02/11					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
Blank (BG10201-BLK2)					Prepared & Analyzed: 07/02/11					
Total Alkalinity	2.0 U	8.0	2.0	mg/L						
LCS (BG10201-BS1)					Prepared & Analyzed: 07/02/11					
Total Alkalinity	120	8.0	2.0	mg/L	120		100	90-110		
LCS (BG10201-BS2)					Prepared & Analyzed: 07/02/11					
Total Alkalinity	120	8.0	2.0	mg/L	120		100	90-110		
Matrix Spike (BG10201-MS1)		**Source: 1105413-04**			Prepared & Analyzed: 07/02/11					
Total Alkalinity	150	8.0	2.0	mg/L	120	21	100	80-120		
Matrix Spike (BG10201-MS2)		**Source: 1105413-84**			Prepared & Analyzed: 07/02/11					
Total Alkalinity	120	8.0	2.0	mg/L	120	ND	100	80-120		

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

September 9, 2011
Work Order: 1105413
Revised Report

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BG10201 - alkalinity										
Matrix Spike Dup (BG10201-MSD1)		**Source: 1105413-04**			Prepared & Analyzed: 07/02/11					
Total Alkalinity	150	8.0	2.0	mg/L	120	21	100	80-120	0	26
Matrix Spike Dup (BG10201-MSD2)		**Source: 1105413-84**			Prepared & Analyzed: 07/02/11					
Total Alkalinity	120	8.0	2.0	mg/L	120	ND	100	80-120	0	26
Batch BG10516 - COD prep										
Blank (BG10516-BLK1)					Prepared & Analyzed: 07/01/11					
Chemical Oxygen Demand	10 U	25	10	mg/L						
LCS (BG10516-BS1)					Prepared & Analyzed: 07/01/11					
Chemical Oxygen Demand	47	25	10	mg/L	50		94	90-110		
Matrix Spike (BG10516-MS1)		**Source: 1105413-04**			Prepared & Analyzed: 07/01/11					
Chemical Oxygen Demand	55	25	10	mg/L	50	12	86	85-115		
Matrix Spike Dup (BG10516-MSD1)		**Source: 1105413-04**			Prepared & Analyzed: 07/01/11					
Chemical Oxygen Demand	55	25	10	mg/L	50	12	86	85-115	0	32
Batch BG10524 - Ion Chromatography 300.0 Prep										
Blank (BG10524-BLK1)					Prepared: 06/30/11 Analyzed: 07/05/11					
Chloride	0.050 U	0.20	0.050	mg/L						
LCS (BG10524-BS1)					Prepared: 06/30/11 Analyzed: 07/05/11					
Chloride	2.75	0.20	0.050	mg/L	3.0		92	85-115		

Hazen and Sawyer
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Tampa, FL 33619

September 9, 2011
Work Order: 1105413
Revised Report

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BG10524 - Ion Chromatography 300.0 Prep										
LCS Dup (BG10524-BSD1)					Prepared: 06/30/11 Analyzed: 07/05/11					
Chloride	2.89	0.20	0.050	mg/L	3.0		96	85-115	5	200
Matrix Spike (BG10524-MS1)		**Source: 1105413-80**			Prepared: 06/30/11 Analyzed: 07/05/11					
Chloride	13.0	0.20	0.050	mg/L	3.0	9.73	109	80-120		
Matrix Spike (BG10524-MS2)		**Source: 1105413-93**			Prepared: 06/30/11 Analyzed: 07/05/11					
Chloride	18.3	0.20	0.050	mg/L	3.0	15.3	100	80-120		
Batch BG10525 - Ion Chromatography 300.0 Prep										
Blank (BG10525-BLK1)					Prepared & Analyzed: 07/06/11					
Chloride	0.050 U	0.20	0.050	mg/L						
LCS (BG10525-BS1)					Prepared & Analyzed: 07/06/11					
Chloride	3.22	0.20	0.050	mg/L	3.0		107	85-115		
LCS Dup (BG10525-BSD1)					Prepared & Analyzed: 07/06/11					
Chloride	2.88	0.20	0.050	mg/L	3.0		96	85-115	11	200
Matrix Spike (BG10525-MS1)		**Source: 1105695-03**			Prepared & Analyzed: 07/06/11					
Chloride	1,120	0.20	0.050	mg/L	300	812	103	80-120		
Matrix Spike (BG10525-MS2)		**Source: 1105728-03**			Prepared & Analyzed: 07/06/11					
Chloride	26.4 +O	0.20	0.050	mg/L	3.0	24.8	53	80-120		
Batch BG10535 - COD prep										
Blank (BG10535-BLK1)					Prepared & Analyzed: 07/05/11					
Chemical Oxygen Demand	10 U	25	10	mg/L						

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

September 9, 2011
Work Order: 1105413
Revised Report

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BG10535 - COD prep										
LCS (BG10535-BS1)					Prepared & Analyzed: 07/05/11					
Chemical Oxygen Demand	49	25	10	mg/L	50		98	90-110		
Matrix Spike (BG10535-MS1)		**Source: 1105775-01**			Prepared & Analyzed: 07/05/11					
Chemical Oxygen Demand	1,700	25	10	mg/L	1000	810	87	85-115		
Matrix Spike Dup (BG10535-MSD1)		**Source: 1105775-01**			Prepared & Analyzed: 07/05/11					
Chemical Oxygen Demand	1,700	25	10	mg/L	1000	810	87	85-115	0	32
Batch BG10704 - TOC prep										
Blank (BG10704-BLK1)					Prepared & Analyzed: 07/07/11					
Total Organic Carbon	0.860 I	1.0	0.50	mg/L						
LCS (BG10704-BS1)					Prepared & Analyzed: 07/07/11					
Total Organic Carbon	10.4	1.0	0.50	mg/L	10		104	90-110		
Matrix Spike (BG10704-MS1)		**Source: 1105413-04**			Prepared & Analyzed: 07/07/11					
Total Organic Carbon	14.0	1.0	0.50	mg/L	10	5.46	85	85-115		
Matrix Spike Dup (BG10704-MSD1)		**Source: 1105413-04**			Prepared & Analyzed: 07/07/11					
Total Organic Carbon	13.8	1.0	0.50	mg/L	10	5.46	83	85-115	1	10
Batch BG10731 - Digestion for TKN by EPA 351.2										
Blank (BG10731-BLK1)					Prepared & Analyzed: 07/07/11					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						

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

September 9, 2011
Work Order: 1105413
Revised Report

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BG10731 - Digestion for TKN by EPA 351.2										
LCS (BG10731-BS1)					Prepared & Analyzed: 07/07/11					
Total Kjeldahl Nitrogen	2.73	0.20	0.05	mg/L	2.5		108	90-110		
Matrix Spike (BG10731-MS1)		**Source: 1105678-03**			Prepared & Analyzed: 07/07/11					
Total Kjeldahl Nitrogen	4.19	0.20	0.05	mg/L	2.5	1.20	118	80-120		
Matrix Spike Dup (BG10731-MSD1)		**Source: 1105678-03**			Prepared & Analyzed: 07/07/11					
Total Kjeldahl Nitrogen	3.85	0.20	0.05	mg/L	2.5	1.20	104	80-120	8	20
Batch BG11108 - Ammonia by SEAL										
Blank (BG11108-BLK1)					Prepared & Analyzed: 07/11/11					
Ammonia as N	0.005 U	0.010	0.005	mg/L						
Blank (BG11108-BLK2)					Prepared & Analyzed: 07/11/11					
Ammonia as N	0.005 U	0.010	0.005	mg/L						
LCS (BG11108-BS1)					Prepared & Analyzed: 07/11/11					
Ammonia as N	0.49	0.010	0.005	mg/L	0.50		98	90-110		
LCS (BG11108-BS2)					Prepared & Analyzed: 07/11/11					
Ammonia as N	0.50	0.010	0.005	mg/L	0.50		100	90-110		
Matrix Spike (BG11108-MS1)		**Source: 1105678-01**			Prepared & Analyzed: 07/11/11					
Ammonia as N	0.48	0.010	0.005	mg/L	0.50	0.029	90	90-110		
Matrix Spike (BG11108-MS2)		**Source: 1105715-07**			Prepared & Analyzed: 07/11/11					
Ammonia as N	0.54	0.010	0.005	mg/L	0.50	0.055	98	90-110		

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

September 9, 2011
Work Order: 1105413
Revised Report

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BG11108 - Ammonia by SEAL										
Matrix Spike Dup (BG11108-MSD1)		**Source: 1105678-01**			Prepared & Analyzed: 07/11/11					
Ammonia as N	0.47	0.010	0.005	mg/L	0.50	0.029	89	90-110	2	10
Matrix Spike Dup (BG11108-MSD2)		**Source: 1105715-07**			Prepared & Analyzed: 07/11/11					
Ammonia as N	0.53	0.010	0.005	mg/L	0.50	0.055	95	90-110	3	10
Batch BG11209 - Digestion for TKN by EPA 351.2										
Blank (BG11209-BLK1)					Prepared: 07/12/11 Analyzed: 07/13/11					
Total Kjeldahl Nitrogen	0.05 U	0.20	0.05	mg/L						
LCS (BG11209-BS1)					Prepared: 07/12/11 Analyzed: 07/13/11					
Total Kjeldahl Nitrogen	2.36	0.20	0.05	mg/L	2.5		93	90-110		
Matrix Spike (BG11209-MS1)		**Source: 1105689-07**			Prepared: 07/12/11 Analyzed: 07/13/11					
Total Kjeldahl Nitrogen	2.96	0.20	0.05	mg/L	2.5	0.685	90	80-120		
Matrix Spike Dup (BG11209-MSD1)		**Source: 1105689-07**			Prepared: 07/12/11 Analyzed: 07/13/11					
Total Kjeldahl Nitrogen	3.12	0.20	0.05	mg/L	2.5	0.685	96	80-120	5	20

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

September 9, 2011
Work Order: 1105413
Revised Report

Inorganic, Dissolved - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BH10118 - DOC prep										
Blank (BH10118-BLK1)					Prepared: 06/28/11 Analyzed: 07/07/11					
Dissolved Organic Carbon	0.50 U	1.0	0.50	mg/L						
LCS (BH10118-BS1)					Prepared: 06/28/11 Analyzed: 07/07/11					
Dissolved Organic Carbon	10.6	1.0	0.50	mg/L	10		106	90-110		

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

September 9, 2011
Work Order: 1105413
Revised Report

Metals - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BG10532 - Metals Preparation for EPA Method 200.7										
Blank (BG10532-BLK1)					Prepared & Analyzed: 07/06/11					
Manganese	0.0010 U	0.010	0.0010	mg/L						
Potassium	0.058	0.050	0.010	mg/L						
Iron	0.020 U	0.10	0.020	mg/L						
Sodium	0.012 I	0.050	0.010	mg/L						
Calcium	0.017 I	0.050	0.010	mg/L						
Boron	0.050 U	0.10	0.050	mg/L						
Magnesium	0.010 U	0.050	0.010	mg/L						
LCS (BG10532-BS1)					Prepared & Analyzed: 07/06/11					
Manganese	0.39	0.010	0.0010	mg/L	0.40		98	85-115		
Calcium	21	0.050	0.010	mg/L	20		106	85-115		
Boron	0.37	0.10	0.050	mg/L	0.40		93	85-115		
Sodium	21	0.050	0.010	mg/L	20		105	85-115		
Potassium	20	0.050	0.010	mg/L	20		100	85-115		
Magnesium	21	0.050	0.010	mg/L	20		105	85-115		
Iron	8.3	0.10	0.020	mg/L	8.0		103	85-115		
Matrix Spike (BG10532-MS1)		**Source: 1105187-01**			Prepared: 07/06/11 Analyzed: 07/07/11					
Boron	)00,000,000 +O	0.10	0.050	mg/L	0.40	00000000	0	70-130		
Sodium	550 +O	0.050	0.010	mg/L	20	560	NR	70-130		
Manganese	0.77	0.010	0.0010	mg/L	0.40	0.37	100	70-130		
Calcium	150	0.050	0.010	mg/L	20	130	85	70-130		
Potassium	48	0.050	0.010	mg/L	20	28	98	70-130		
Iron	15	0.10	0.020	mg/L	8.0	7.0	101	70-130		
Magnesium	61	0.050	0.010	mg/L	20	43	93	70-130		
Matrix Spike (BG10532-MS2)		**Source: 1105413-19**			Prepared & Analyzed: 07/06/11					
Sodium	28	0.050	0.010	mg/L	20	8.4	97	70-130		
Calcium	47	0.050	0.010	mg/L	20	30	87	70-130		
Boron	0.49	0.10	0.050	mg/L	0.40	0.10	97	70-130		
Manganese	0.59	0.010	0.0010	mg/L	0.40	0.19	99	70-130		
Magnesium	28	0.050	0.010	mg/L	20	8.5	98	70-130		
Potassium	29	0.050	0.010	mg/L	20	11	92	70-130		
Iron	8.1	0.10	0.020	mg/L	8.0	0.067	100	70-130		

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

September 9, 2011
Work Order: 1105413
Revised Report

Metals - Quality Control

Analyte	Result		PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BG10532 - Metals Preparation for EPA Method 200.7											
Matrix Spike Dup (BG10532-MSD1)			**Source: 1105187-01**			Prepared & Analyzed: 07/06/11					
Sodium	540	+O	0.050	0.010	mg/L	20	560	NR	70-130	2	30
Magnesium	59		0.050	0.010	mg/L	20	43	81	70-130	4	30
Potassium	44		0.050	0.010	mg/L	20	28	82	70-130	7	30
Calcium	140		0.050	0.010	mg/L	20	130	60	70-130	3	30
Iron	14		0.10	0.020	mg/L	8.0	7.0	88	70-130	8	30
Boron	)00,000,000	+O	0.10	0.050	mg/L	0.40	00000000	0	70-130	0	30
Manganese	0.74		0.010	0.0010	mg/L	0.40	0.37	94	70-130	3	30
Matrix Spike Dup (BG10532-MSD2)			**Source: 1105413-19**			Prepared: 07/06/11 Analyzed: 07/07/11					
Boron	0.50		0.10	0.050	mg/L	0.40	0.10	99	70-130	2	30
Sodium	29		0.050	0.010	mg/L	20	8.4	104	70-130	5	30
Potassium	32		0.050	0.010	mg/L	20	11	105	70-130	8	30
Calcium	50		0.050	0.010	mg/L	20	30	100	70-130	6	30
Manganese	0.63		0.010	0.0010	mg/L	0.40	0.19	108	70-130	6	30
Magnesium	30		0.050	0.010	mg/L	20	8.5	107	70-130	6	30
Iron	8.8		0.10	0.020	mg/L	8.0	0.067	110	70-130	9	30
Batch BG10534 - Metals Preparation for EPA Method 200.7											
Blank (BG10534-BLK1)						Prepared: 07/05/11 Analyzed: 07/06/11					
Potassium	0.010	U	0.050	0.010	mg/L						
Magnesium	0.092		0.050	0.010	mg/L						
Manganese	0.0010	U	0.010	0.0010	mg/L						
Calcium	0.011	I	0.050	0.010	mg/L						
Sodium	0.018	I	0.050	0.010	mg/L						
Iron	0.036	I	0.10	0.020	mg/L						
Boron	0.050	U	0.10	0.050	mg/L						

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

September 9, 2011
Work Order: 1105413
Revised Report

Metals - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BG10534 - Metals Preparation for EPA Method 200.7										
LCS (BG10534-BS1)					Prepared: 07/05/11 Analyzed: 07/06/11					
Iron	8.4	0.10	0.020	mg/L	8.0		105	85-115		
Calcium	21	0.050	0.010	mg/L	20		107	85-115		
Boron	0.38	0.10	0.050	mg/L	0.40		96	85-115		
Magnesium	21	0.050	0.010	mg/L	20		106	85-115		
Sodium	21	0.050	0.010	mg/L	20		107	85-115		
Manganese	0.42	0.010	0.0010	mg/L	0.40		105	85-115		
Potassium	21	0.050	0.010	mg/L	20		103	85-115		
Matrix Spike (BG10534-MS1)		**Source: 1105413-76**			Prepared: 07/05/11 Analyzed: 07/07/11					
Boron	0.45	0.10	0.050	mg/L	0.40	ND	112	70-130		
Potassium	36	0.050	0.010	mg/L	20	15	106	70-130		
Magnesium	30	0.050	0.010	mg/L	20	8.2	108	70-130		
Sodium	25	0.050	0.010	mg/L	20	4.3	104	70-130		
Calcium	54	0.050	0.010	mg/L	20	32	109	70-130		
Manganese	0.52	0.010	0.0010	mg/L	0.40	0.093	107	70-130		
Iron	8.8	0.10	0.020	mg/L	8.0	0.042	110	70-130		
Matrix Spike (BG10534-MS2)		**Source: 1105519-04**			Prepared: 07/05/11 Analyzed: 07/06/11					
Manganese	0.43	0.010	0.0010	mg/L	0.40	0.0078	105	70-130		
Sodium	56	0.050	0.010	mg/L	20	37	95	70-130		
Magnesium	40	0.050	0.010	mg/L	20	20	102	70-130		
Iron	8.5	0.10	0.020	mg/L	8.0	0.14	104	70-130		
Potassium	25	0.050	0.010	mg/L	20	4.8	103	70-130		
Calcium	77	0.050	0.010	mg/L	20	55	108	70-130		
Boron	0.55	0.10	0.050	mg/L	0.40	0.15	100	70-130		
Matrix Spike Dup (BG10534-MSD1)		**Source: 1105413-76**			Prepared: 07/05/11 Analyzed: 07/06/11					
Sodium	25	0.050	0.010	mg/L	20	4.3	105	70-130	0.1	30
Potassium	36	0.050	0.010	mg/L	20	15	107	70-130	0.3	30
Manganese	0.52	0.010	0.0010	mg/L	0.40	0.093	108	70-130	0.5	30
Calcium	53	0.050	0.010	mg/L	20	32	103	70-130	2	30
Magnesium	30	0.050	0.010	mg/L	20	8.2	107	70-130	0.4	30
Boron	0.45	0.10	0.050	mg/L	0.40	ND	111	70-130	0.7	30
Iron	8.9	0.10	0.020	mg/L	8.0	0.042	111	70-130	0.9	30

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

September 9, 2011
Work Order: 1105413
Revised Report

Metals - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch BG10534 - Metals Preparation for EPA Method 200.7										
Matrix Spike Dup (BG10534-MSD2)		**Source: 1105519-04**			Prepared: 07/05/11 Analyzed: 07/06/11					
Iron	8.4	0.10	0.020	mg/L	8.0	0.14	103	70-130	0.7	30
Sodium	57	0.050	0.010	mg/L	20	37	99	70-130	2	30
Calcium	78	0.050	0.010	mg/L	20	55	112	70-130	1	30
Potassium	25	0.050	0.010	mg/L	20	4.8	101	70-130	2	30
Boron	0.54	0.10	0.050	mg/L	0.40	0.15	98	70-130	1	30
Magnesium	41	0.050	0.010	mg/L	20	20	105	70-130	1	30
Manganese	0.43	0.010	0.0010	mg/L	0.40	0.0078	104	70-130	0.3	30

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

September 9, 2011
Work Order: 1105413
Revised Report

Inorganic, Dissolved - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
BLK (BATCH-BLK1 (Water))					Prepared & Analyzed:					
Dissolved Organic Carbon	0.5 U	1	0.5	mg/L				0-0		0
BS (BATCH-BS1 (Water))					Prepared & Analyzed:					
Dissolved Organic Carbon	0.5 U	1	0.5	mg/L				90-110		10
MS (BATCH-MS1 (Water))					Prepared & Analyzed:					
Dissolved Organic Carbon	0.5 U	1	0.5	mg/L				85-125		25
MSD (BATCH-MSD1 (Water))					Prepared & Analyzed:					
Dissolved Organic Carbon	0.5 U	1	0.5	mg/L				85-125		25

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

September 9, 2011
Work Order: 1105413
Revised Report

Inorganics - Quality Control

Analyte	Result	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
BLK (BATCH-BLK1 (Water))					Prepared & Analyzed:					
Total Organic Carbon	0.5 U	1	0.5	mg/L				0-0		0
BS (BATCH-BS1 (Water))					Prepared & Analyzed:					
Total Organic Carbon	0.5 U	1	0.5	mg/L				90-110		
MS (BATCH-MS1 (Water))					Prepared & Analyzed:					
Total Organic Carbon	0.5 U	1	0.5	mg/L				85-115		10
MSD (BATCH-MSD1 (Water))					Prepared & Analyzed:					
Total Organic Carbon	0.5 U	1	0.5	mg/L				85-115		10

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

September 9, 2011
Work Order: 1105413
Revised Report

* Qualifiers, Notes and Definitions

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

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

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

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

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

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

SAL Project No. 1105413

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: GCREC Mound Groundwater Analyses

Samplers: (Signature)

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

PARAMETER / CONTAINER DESCRIPTION

SAL Use Only Sample No.	Sample Description	Date	Time	Matrix	Composite	Grab	1LP, Cool Chloride	1LP, Cool Total Alkalinity, F, NO_3, OP, SO_4	250mL P, H_2SO_4 TKN, Nox, NH_3, COD	250mLaG, Cool DOC	40mLaV, HCl TOC	250mL P, HNO_3 B, Cd, K, Fe, Mg, Na	Field Temperature	Field pH	Field Conductivity	Field DO					
01	DP-AA9-14	6/27/11	8:28	GW		X	1						24.5	4.60	752	1.32					
02	DP-AA9-22	6/27/11	9:04	GW		X	1						24.7	5.19	279	0.26	279				
03	DP-AA9-27	6/27/11	9:16	GW		X	1						24.7	5.08	295	0.67					
04	DP-C11-8	6/27/11	9:38	GW		X		1	1	1	2	1	27.8	5.83	385	3.05					
05	~~DP-D07-6~~ 11054B-054 STE LIFT STA	6-28-11	1350	GW		X		1	1	✓	✓	1	~~Dry~~	~~Dry~~	~~Dry~~	~~Dry~~	(6-28-11)				
06	DP-D07-9	06/28/11	0805	GW		X	1						24.1	4.04	539	1.86					
07	DP-D08-9	6/27/11	13:50	GW		X	1						27.4	5.33	411	1.75					
08	DP-D09-8	6/27/11	12:38	GW		X		1	1	1	2	1	27.0	4.38	670	1.09					
09	DP-D09-15	6/27/11	13:10	GW		X		1	1	1	2	1	26.2	5.19	461	0.88					
10	DP-D11-11	6/27/11	10:54	GW		X	1						26.3	5.23	464	1.06					
11	DP-D12-11	6/27/11	10:30	GW		X		1	1	1	2	1	26.2	4.94	487	0.34					
12	DP-D7.5-14	6/29/11	1225	GW		X	1						24.4	4.5	483.3	0.43					

Containers Prepared/ Relinquished:	Date/Time: 1950 06-23-11	Received:	Date/Time: 1000 6-24-11
Relinquished:	Date/Time: 1500 6-27-11	Received:	Date/Time: 1500 6-27-11
Relinquished:	Date/Time: 1550 6-28-11	Received:	Date/Time:
Relinquished:	Date/Time: 0730 6-30-11	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:

1105413

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

Chain of Custody

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

SAL Project No. 1105413

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: GCREC Mound Groundwater Analyses

Samplers: (Signature)

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

PARAMETER / CONTAINER DESCRIPTION

SAL Use Only Sample No.	Sample Description	Date	Time	Matrix	Composite	Grab	1LP, Cool Chloride	1LP, Cool Total Alkalinity, F, NO_3, OP, SO_4	250mL P, H_2SO_4 TKN, Nox, NH_3, COD	250mLaG, Cool DOC	40mLaV, HCl TOC	250mL P, HNO_3 B, Cd, K, Fe, Mg, Na	Field Temperature	Field pH	Field Conductivity	Field DO
25	DP-F08-20	062811	0940	GW		X	1						24.7	5.3	347.0	0.45
26	DP-F08-28	062811	0945	GW		X	1						24.3	5.4	323.7	0.26
27	DP-F10-11	062811	0950	GW		X	1						25.3	4.9	492.2	0.38
28	DP-F11-11	062811	0955	GW		X	1						26.0	4.8	447.0	0.31
29	DP-F11-15	062811	1000	GW		X	1						24.6	4.7	486.5	0.15
30	DP-F11-18	062811	1005	GW		X	1						24.5	5.0	359.3	0.33
31	DP-F11-21	062811	1010	GW		X	1						24.4	4.9	310.1	0.37
32	DP-F11-24	062811	1020	GW		X	1						24.4	4.8	310.4	0.23
33	DP-F11-27	062811	1025	GW		X	1						24.3	4.9	331.3	0.18
34	DP-F12-10	062811	1030	GW		X	1						25.3	4.3	500	0.16
35	DP-F15-14	629 11	1250	GW		X	1						24.2	4.5	486.9	0.28
36	DP-F15-20	629 11	1255	GW		X	1						24.4	4.6	359.2	0.29

Relinquished	Date/Time	Received	Date/Time
Containers Prepared/ Relinquished:	Date/Time: 1450 062811	Received:	Date/Time: 1000 6 24 11
Relinquished:	Date/Time: 1550 6 28 11	Received:	Date/Time:
Relinquished:	Date/Time: 730 6 30 11	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:

1105413

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

Chain of Custody

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

SAL Project No. 1105413

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: GCREC Mound Groundwater Analyses

Samplers: (Signature)

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

PARAMETER / CONTAINER DESCRIPTION

SAL Use Only Sample No.	Sample Description	Date	Time	Matrix	Composite	Grab	1LP, Cool Chloride	1LP, Cool Total Alkalinity, F, NO_3, OP, SO_4	250mL P, H_2SO_4 TKN, Nox, NH_3, COD	250mLaG, Cool DOC	40mLaV, HCl TOC	250mL P, HNO_3 B, Cd, K, Fe, Mg, Na	Field Temperature	Field pH	Field Conductivity	Field DO
13	DP-E04-8	062811	0910	GW		X	1						26.0	4.7	185.1	1.59
14	DP-E07-10	062811	0905	GW		X	1						25.5	4.5	245.2	0.24
15	DP-E08-8	062811	0900	GW		X	1						25.8	4.5	348.3	0.28
16	DP-E11-12	062811	0850	GW		X	1						24.9	5.0	488.6	0.28
17	DP-E12-10	062811	0820	GW		X	1						25.1	4.9	502	0.29
18	DP-E12-15	062811	0825	GW		X	1						24.7	5.2	462.4	0.37
19	DP-E12-22	062811	0830	GW		X		1	1	1	2	1	24.2	4.8	328.2	0.35
20	DP-E12-22-D	062811	0835	GW		X		1	1	1	2	1	24.2	4.8	328.2	0.35
21	DP-E12-28	062811	0840	GW		X	1						24.2	4.8	320.2	0.34
22	DP-F04-17	062811	0925	GW		X	1						25.1	6.1	373.8	0.33
23	DP-F04-32	062811	0930	GW		X	1						24.6	6.1	335.3	0.26
24	DP-F05-5	062811	0935	GW		X	1						Dry	Dry	Dry	Dry

Containers Prepared/ Relinquished:	Date/Time: 1445 6 23 11	Received:	Date/Time: 1000 6 24 11
Relinquished:	Date/Time: 1350 6 28 11	Received:	Date/Time:
Relinquished:	Date/Time: 730 6 30 11	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:

1105413
Add Bromide to
DP-F04-17
DP-F04-32

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Chain of Custody

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

SAL Project No 1105413

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: GCREC Mound Groundwater Analyses

Samplers: (Signature)

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

PARAMETER / CONTAINER DESCRIPTION

SAL Use Only Sample No.	Sample Description	Date	Time	Matrix	Composite	Grab	1LP, Cool Chloride	1LP, Cool Total Alkalinity, F, NO_3, OP, SO_4	250mL P, H_2SO_4 TKN, Nox, NH_3, COD	250mLaG, Cool DOC	40mLaV, HCl TOC	250mL P, HNO_3 B, Cd, K, Fe, Mg, Na	Field Temperature	Field pH	Field Conductivity	Field DO
37	DP-F15-26	6/29/11	1300	GW		X	1						24.2	4.3	320.3	0.24
38	DP-G07-13	06/28/11	1210	GW		X	1						29.9	5.4	255.0	3.13
39	DP-G07-15	06/28/11	1215	GW		X	1						25.6	5.0	295.5	0.83
40	DP-G07-17	06/28/11	1220	GW		X	1						24.5	5.0	337.3	0.77
41	DP-G07-21	06/28/11	1235	GW		X		1	1	1	2	1	24.8	5.1	333.4	1.32
42	DP-G07-24	06/28/11	1245	GW		X	1						24.6	4.9	285.5	0.63
43	DP-G07-27	06/28/11	1250	GW		X	1						25.0	5.0	325.4	1.75
44	~~DP-G08-5~~ Trip Blank 6/29 1105413-44A 1330	~~06/28/11~~	~~1200~~	GW		X	1						~~Dry~~	~~Dry~~	~~Dry~~	~~Dry~~
45	DP-G09-11	06/28/11	1150	GW		X	1						27.9	5.4	279.1	2.87
46	DP-G11-8	06/28/11	1145	GW		X	1						27.6	4.6	312.0	1.05
47	DP-G12-9	06/28/11	1045	GW		X		1	1	1	2	1	26.5	4.22	358.9	0.24
48	DP-G12-15	06/28/11	1055	GW		X		1	1	1	2	1	25.2	4.7	477.7	0.20

SH 06/29/11

Containers Prepared/ Relinquished:	Date/Time: 1450 06/28/11	Received:	Date/Time: 1000 6/29/11
Relinquished:	Date/Time: 1550 6/28/11	Received:	Date/Time:
Relinquished:	Date/Time: 730 6/30/11	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:

1105413

DP-G08-5 Bottle used for trip blank. Per 6/29/11 1330 Josephin

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Rev Date 11/19/01

Chain of Custody

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

SAL Project No. 1105413

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: GCREC Mound Groundwater Analyses

Samplers: (Signature)

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

PARAMETER / CONTAINER DESCRIPTION

SAL Use Only Sample No.	Sample Description	Date	Time	Matrix	Composite	Grab	1LP, Cool Chloride	1LP, Cool Total Alkalinity, F, NO_3, OP, SO_4	250mL P, H_2SO_4 TKN, Nox, NH_3, COD	250mLaG, Cool DOC	40mLaV, HCl TOC	250mL P, HNO_3 B, Cd, K, Fe, Mg, Na	Field Temperature	Field pH	Field Conductivity	Field DO					
49	DP-G12-18	06 28 11	1100	GW		X	1						24.6	4.8	443.2	0.24					
50	DP-G12-21	06 28 11	1110	GW		X		1	1	1	2	1	24.4	4.9	361.3	0.10					
51	DP-G12-~~27~~ 24	06 28 11	1115	GW		X		1	1	1	2	1	24.3	4.8	345.8	0.12					
52	DP-G12-~~27~~ 27	06 28 11	1130	GW		X	1	1	1	1	2	1	24.8	4.8	334.3	0.20					
53	DP-H06-7	06 28 11	1305	GW		X	1						~~Dry~~	~~Dry~~	~~Dry~~	~~Dry~~	temp 30.2	pH 5.9	cond 164.3	do 4.66	
54	DP-H09-12	06 28 11	1315	GW		X	1						25.8	5.0	274.7	0.76					
55	DP-H10-11	06 28 11	1325	GW		X		1	1	1	2	1	28.5	5.6	228.5	5.08					
56	DP-I06-14	6 29 11	930	GW		X		1	1	1	2	1	24.4	4.7	217.5	0.27					
57	DP-I06-20	6 29 11	935	GW		X	1						24.1	4.9	361.4	0.33					
58	DP-I06-26	6 29 11	940	GW		X	1						24.2	5.0	312.4	0.25					
59	DP-I12-6	6 29 11	925	GW		X	1						26.6	4.7	138.0	0.43					
60	DP-J08-6	6 29 11	950	GW		X	1						27.3	5.9	182.8	3.12	well water	Dry			

Relinquished	Date/Time	Received	Date/Time
Containers Prepared/ Relinquished:	Date/Time: 1450 6 28 11	Received:	Date/Time: 1000 6 29 11
Relinquished:	Date/Time: 1550 6 28 11	Received:	Date/Time:
Relinquished:	Date/Time: 730 6 30 11	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:

1105413

Chain of Custody xls
Rev Date 11/19/01

Chain of Custody

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

SAL Project No. 1105413

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: GCREC Mound Groundwater Analyses

Samplers: (Signature)

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

PARAMETER / CONTAINER DESCRIPTION

SAL Use Only Sample No	Sample Description	Date	Time	Matrix	Composite	Grab	1LP, Cool Chloride	1LP, Cool Total Alkalinity, F, NO_3, OP, SO_4	250mL P, H_2SO_4 TKN, Nox, NH_3, COD	250mLaG, Cool DOC	40mLaV, HCl TOC	250mL P, HNO_3 B, Cd, K, Fe, Mg, Na	Field Temperature	Field pH	Field Conductivity	Field DO					
61	DP-J09-12	62911	1000	GW		X	1						25.7	4.8	189.1	0.37					
62	DP-J09-14	62911	1005	GW		X	1						24.8	4.5	249.3	0.26					
63	DP-J09-20	62911	1010	GW		X	1						24.1	4.7	368.2	0.20					
64	DP-J09-26	62911	1015	GW		X	1						24.0	4.5	306.4	0.21					
65	DP-J12-13	62911	1020	GW		X	1						24.9	4.6	249.2	0.27					
66	DP-J12-15	62911	1025	GW		X	1						24.7	4.6	287.0	0.24					
67	DP-J12-20	62911	1030	GW		X	1						24.5	4.9	355.8	0.41					
68	DP-J12-27	62911	1035	GW		X	1						24.4	4.7	310.1	0.19					
69	DP-K10-7	62911	1045	GW		X	1						27.4	5.1	175.6	1.30	WEAT	Dry			
70	DP-K12-5	62911	1040	GW		X	1						27.5	4.7	80.3	0.71					
71	DP-M07-21	62911	1050	GW		X	1						24.5	4.9	366.1	0.27					
72	DP-M07-27	62911	1055	GW		X	1						24.3	5.0	302.9	0.18					

Containers Prepared/ Relinquished:	Date/Time: 1450 6-28-11	Received:	Date/Time: 1000 6 29 11
Relinquished:	Date/Time: 1550 6 28 11	Received:	Date/Time:
Relinquished:	Date/Time: 730 6 30 11	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:

1105413

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

Chain of Custody

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

SAL Project No. 1105413

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: GCREC Mound Groundwater Analyses

Samplers: (Signature)

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

PARAMETER / CONTAINER DESCRIPTION

SAL Use Only Sample No	Sample Description	Date	Time	Matrix	Composite	Grab	1LP, Cool Chloride	1LP, Cool Total Alkalinity, F, NO_3, OP, SO_4	250mL P, H_2SO_4 TKN, Nox, NH_3, COD	250mLaG, Cool DOC	40mLaV, HCl TOC	250mL P, HNO_3 B, Cd, K, Fe, Mg, Na	Field Temperature	Field pH	Field Conductivity	Field DO
73	DP-M12-10	6/29/11	1100	GW		X	1						27.0	5.1	176.8	0.84
74	DP-N12-14	6/29/11	1110	GW		X	1						25.4	4.4	177.2	0.18
75	DP-N12-18	6/29/11	1115	GW		X	1						25.2	4.7	246.9	0.32
76	DP-N12-21	6/29/11	1120	GW		X		1	1	1	2	1	24.9	4.8	309.2	0.20
77	DP-N12-24	6/29/11	1130	GW		X	1						24.7	4.6	354.2	0.13
78	DP-N12-27	6/29/11	1135	GW		X		1	1	1	2	1	24.6	4.7	364.4	0.10
79	DP-N12-27-D	6/29/11	1140	GW		X		1	1	1	2	1	24.6	4.7	364.9	0.10
80	DP-O10-18	6/29/11	1210	GW		X	1						25.1	4.9	335.4	0.69
81	DP-O10-24	6/29/11	1215	GW		X	1						24.7	4.7	366.1	0.31
82	DP-Q15-21	6/29/11	1235	GW		X	1						25.2	4.8	357.8	0.32
83	DP-Q15-26	6/29/11	1240	GW		X	1						25.3	4.8	384.9	0.35
84	PZ03-H11-6	06/27/11	1205	GW		X		1	1	1	2	1	78.1	4.5	164.9	3.01

Containers Prepared/ Relinquished:	Date/Time: 1450 6-23-11	Received:	Date/Time: 1000 6-24-11
Relinquished:	Date/Time: 1845 6-28-11	Received:	Date/Time:
Relinquished:	Date/Time: 730 6-30-11	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:

1105413

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

Chain of Custody

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

SAL Project No. 1105413

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: GCREC Mound Groundwater Analyses

Samplers: (Signature)

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

PARAMETER / CONTAINER DESCRIPTION

SAL Use Only Sample No.	Sample Description	Date	Time	Matrix	Composite	Grab	1LP, Cool Chloride	1LP, Cool Total Alkalinity, F, NO_3, OP, SO_4	250mL P, H_2SO_4 TKN, Nox, NH_3, COD	250mLaG, Cool DOC	40mLaV, HCl TOC	250mL P, HNO_3 B, Cd, K, Fe, Mg, Na	Field Temperature	Field pH	Field Conductivity	Field DO
85	PZ04-BKG-9	062711	0840	GW		X	1						25.9	5.6	110.2	4.25
86	PZ07-D05-7	062711	1140	GW		X	1						[illegible]	[illegible]	[illegible]	2.50
87	PZ11-E09-10	062711	1100	GW		X		1	1	1	2	1	[illegible]	5.3	453.9	1.77
88	PZ11-E09-10-D	062711	1105	GW		X		1	1	1	2	1	[illegible]	5.3	453.9	1.77
89	PZ15-A11-6	062711	1040	GW		X	1						[illegible]	5.26	[illegible]	3.13
90	PZ16-C12-28	062711	1032	GW		X	1						25.1	5.5	305.9	0.47
91	PZ17-I15-26	062711	1239	GW		X	1						25.4	4.9	307.3	1.60
92	PZ18-R12-26	062711	1302	GW		X	1						26.6	5.1	251.9	0.59
93	PZ19-G10-26	062711	0931	GW		X	1						23.9	5.0	294.4	0.65
94	PZ20-G10-15	062711	0905	GW		X	1						25.7	5.3	300.3	2.61
95	PZ21-E11-26	062711	0956	GW		X	1						24.8	4.9	267.6	0.87
96	PZ24-BKG-26	062711	0829	GW		X	1						24.4	4.9	295.6	0.73

Relinquished	Date/Time	Received	Date/Time
Containers Prepared/ Relinquished:	Date/Time: 1450 06.27.11	Received:	Date/Time: 1000 6 24 11
Relinquished:	Date/Time: 1330 6 28 11	Received:	Date/Time:
Relinquished:	Date/Time: 730 6 30 11	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:

1105413

Chain of Custody xls
Rev Date 11/19/01

Chain of Custody

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

SAL Project No. 1105413

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: GCREC Mound Groundwater Analyses

Samplers: (Signature)

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

PARAMETER / CONTAINER DESCRIPTION

SAL Use Only Sample No.	Sample Description	Date	Time	Matrix	Composite	Grab	1LP, Cool Chloride	1LP, Cool Total Alkalinity, F, NO_3, OP, SO_4	250mL P, H_2SO_4 TKN, Nox, NH_3, COD	250mLaG, Cool DOC	40mLaV, HCl TOC	250mL P, HNO_3 B, Cd, K, Fe, Mg, Na	Field Temperature	Field pH	Field Conductivity	Field DO
97	~~PZ25-A06~~ 10 EQ Blank 6 29 11	~~[illegible]~~	1315 ~~N/A~~	GW		X	1						~~[illegible]~~	~~[illegible]~~	~~[illegible]~~	~~[illegible]~~
	1105413-97A												28.8	6.8	9.8	4.90
(	~~H054B-05A STE~~ ~~Lift Station~~	06/28/11	1350)													
								6-28-11								

Containers Prepared/ Relinquished:	Date/Time: 1450 06-28-11	Received:	Date/Time: 1000 6-29-11
Relinquished:	Date/Time: 1550 6 28 11	Received:	Date/Time:
Relinquished:	Date/Time: 730 6 30 11	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:

1105413
PZ25-A06-10 Bottle used for EQ Blank. per Joseph.
6 29 11 1315

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:	Josefin Edeback-Hurst, PE
				Phone:	813-630-4498
Date Sampled	06/27/11	SAL Project #	1105413	Project Name	GCREC Mound Groundwater Analyses
Well Number	PZ15-A11-6	Sample ID	89	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)	6.35	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	7.50	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)				TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	

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

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

ONE WELL VOLUME	0.069	1/4 WELL VOLUME	0.017	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	1006	PURGE TIME END		TOTAL PURGED	

INST. ID					SAL-SAM-63-4	SAL-SAM-65-4	SAL-SAM-63-4	SAL-SAM-55-5	SAL-SAM-0-2		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
1009	0.30	0.30	0.10	Dry	5.26	29.4	1951	3.13		cloudy	none
1012	0.30	0.60									
1015	0.30	0.90									

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

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 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	~~1016~~ 1040	SAMPLING ENDED	~~1016~~ 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	clear								
COMMENTS	well went dry let recover enough to grab sample. + took readings per Josephine. would not recover in sufficient amount of time to get all readings.								

PUMP CODES: PP=Peristaltic Pump, GP= Submersible Grundfos Pump, 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:	Josefin Edeback-Hurst, PE
				Phone:	813-630-4498
Date Sampled	062711	SAL Project #	1105413	Project Name	GCREC Mound Groundwater Analyses
Well Number	PZ24-BKG-26-D	Sample ID	96	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	2.0	WELL CAPACITY (gal/ft)	0.16	Screen Interval (Feet)	UNK To UNK	Static Depth to Water (Feet)	10.82	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	30.3	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)		TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	

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

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

ONE WELL VOLUME	3.17	1/4 WELL VOLUME	0.79	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	0815	PURGE TIME END	0828	TOTAL PURGED	6.5
INST. ID	X	X	X	X	SAL-SAM-63-4	SAL-SAM-65-4	SAL-SAM-63-4	SAL-SAM-55-3	SAL-SAM-02

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
0822	3.5	3.5	0.50	12.2	4.9	24.4	295.4	0.91	146	clear	none
0825	1.5	5.0	|	|	4.9	24.4	296.0	0.84	144	|	|
0828	1.5	6.5	|	|	4.9	24.4	295.6	0.73	141	|	|

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL					SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP (TL) TT			SAMPLE TUBING LEGNTH IN WELL (FEET)				SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED	0829	SAMPLING ENDED	0829	FIELD CLEANED	Y (N)	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	clear								
COMMENTS									

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

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

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	Josefin Edeback-Hurst, PE
				Phone:	813-630-4498
Date Sampled	062711	SAL Project #	1105413	Project Name	GCREC Mound Groundwater Analyses
Well Number	PZ20-G10-15	Sample ID	94	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	0.75	WELL CAPACITY (gal/ft)	0.02	Screen Interval (Feet)	UNK	To	UNK	Static Depth to Water (Feet)	8.08	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	19.04	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)				TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	

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

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

ONE WELL VOLUME	0.21	1/4 WELL VOLUME	0.054	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	0255	PURGE TIME END	0904	TOTAL PURGED	0.90
INST. ID				SAL-SAM-63-04	SAL-SAM-65-04	SAL-SAM-63-4	SAL-SAM-55-I	SAL-SAM-0 2	

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (µS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
0858	0.30	0.30	0.10	13.62	5.4	25.8 SH	299.4	2.54	230 SH	BROWN	NONE
0901	0.30	0.60			5.4	25.7	299.9	2.60	225 SH		
0904	0.30	0.90			5.3	25.7	300.3	2.61 SH	228 SH		

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

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

SAMPLING DATA

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

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

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

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	Josefin Edeback-Hurst, PE
				Phone:	813-630-4498
Date Sampled	062711	SAL Project #	1105413	Project Name	GCREC Mound Groundwater Analyses
Well Number	PZ04-BKG-9	Sample ID	85	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)	7.90	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	9.1	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)				TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	

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

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

ONE WELL VOLUME	0.072	1/4 WELL VOLUME	0.018	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	0830	PURGE TIME END	0839	TOTAL PURGED	0.90
INST. ID				SAL-SAM-63-4	SAL-SAM-65-4	SAL-SAM-63-4	SAL-SAM-55-3	SAL-SAM-02	

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
0833	0.30	0.30	0.10	8.75	5.6	100.1	25.9	4.60	16.3	Clear	None
0836	0.30	0.60	|	|	5.6	99.6	25.9	4.31	16.1	|	|
0839	0.30	0.90	|	|	5.6	100.2	25.9	4.25	16.1	|	|
		(JH) 6-28-11				switch	6-28-11				

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	0840	SAMPLING ENDED	0840	FIELD CLEANED	Y (N)	CLEANING STEPS	
FIELD FILTERED?	(Y) N	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED				SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)
WEATHER CONDITIONS	Clear						
COMMENTS							

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

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

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	Josefin Edeback-Hurst, PE
				Phone:	813-630-4498
Date Sampled	062711	SAL Project #	1105413	Project Name	GCREC Mound Groundwater Analyses
Well Number	PZ19-G10-26	Sample ID	93	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)	7.95	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	30.0	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)		TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	

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

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

ONE WELL VOLUME	3.59	1/4 WELL VOLUME	0.89	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	0907	PURGE TIME END	0931	TOTAL PURGED	5.75

INST. ID					SAL-SAM-63-4	SAL-SAM-65-4	SAL-SAM-63-4	SAL-SAM-55-3	SAL-SAM-02		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
0922	3.75	3.75	0.25	10.63	5.0	24.1	289.7	0.71	42.3	Cloudy	None
0926	1.0	4.75		10.63	5.0	24.0	293.5	0.70	40.1		
0930	1.0	5.75		10.63	5.0	23.9	294.4	0.65	38.3		

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)	SH SAL			SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP (TL) TT		SAMPLE TUBING LEGNTH IN WELL (FEET)			SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED	0931	SAMPLING ENDED	0931	FIELD CLEANED	Y (N)	CLEANING STEPS	
FIELD FILTERED?	Y (N)	FILTER SIZE (μm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)
SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)						
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED					
WEATHER CONDITIONS	clear						
COMMENTS							

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

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

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	Josefin Edeback-Hurst, PE
				Phone:	813-630-4498
Date Sampled	062711	SAL Project #	1105413	Project Name	GCREC Mound Groundwater Analyses
Well Number	PZ21-E11-26	Sample ID	95	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)	7.45	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	21.5	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)				TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	

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

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

ONE WELL VOLUME	2.21	1/4 WELL VOLUME	0.55	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	0940	PURGE TIME END		TOTAL PURGED	
INST. ID				SAL-SAM-63-4	SAL-SAM-65-4	SAL-SAM-63-4	SAL-SAM-55-3	SAL-SAM-0 2	

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
0949	2.25	2.25	0.75	9.63	5.0	24.8	284.5	1.16	23.8	clear	none
0952	0.75	3.00	|	|	4.9	24.6	284.6	0.99	25.6	|	|
0955	0.75	3.75	|	|	4.9	24.6	287.6	0.87	28.3	|	|

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	0956	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								
COMMENTS									

PUMP CODES: PP=Peristaltic Pump, GP= Submersible Grundfos Pump, 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:	Josefin Edeback-Hurst, PE
				Phone:	813-630-4498
Date Sampled	06/21/11	SAL Project #	1105413	Project Name	GCREC Mound Groundwater Analyses
Well Number	PZ16-C12-28	Sample ID	90	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	0.75	WELL CAPACITY (gal/ft)	0.02	Screen Interval (Feet)	UNK To UNK	Static Depth to Water (Feet)	3.93	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	79.0	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)		TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	

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

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

ONE WELL VOLUME	0.50	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	1020	PURGE TIME END		TOTAL PURGED	
INST. ID				SAL-SAM-63-4	SAL-SAM-65-4	SAL-SAM-63-4	SAL-SAM-55-3	SAL-SAM-0 2	

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
1025	0.50	0.50	0.10	N/A	5.6	250	295.2	0.79	64.6	cloudy	none
1028	0.30	0.80	0.10	|	5.5	25.1	301.6	0.62	63.1	|	
1031	0.30	1.10	0.10	|	5.5	25.1	305.9	0.47	60.8	|	

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	1037	SAMPLING ENDED	1037	FIELD CLEANED	Y N	CLEANING STEPS	
FIELD FILTERED?	Y N	FILTER SIZE (μm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N N/A
SEMI-VOLS COLLECTED THROUGH TRAP?	Y N N/A						
PRESERVATION CHECKED IN FIELD?	Y N N/A	LIST PRESERVATIVES ADDED					
WEATHER CONDITIONS	Clear						
COMMENTS							

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

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

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	Josefin Edeback-Hurst, PE
				Phone:	813-630-4498
Date Sampled	062711	SAL Project #	1105413	Project Name	GCREC Mound Groundwater Analyses
Well Number	PZ07-D05-7	Sample ID	86	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)	7.44	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	9.02	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)				TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	

Purge Technique: q Submerged Screen (1,1/4,1/4 Well) q Submerged Screen (1EQ Volume, 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	1130	PURGE TIME END	1139	TOTAL PURGED	0.90

INST. ID					SAL-SAM-63-4	SAL-SAM-65-4	SAL-SAM-63-4	SAL-SAM-55-3	SAL-SAM-0-2		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
1133	0.30	0.30	0.16	8.73	4.7	27.2	287.8	3.29	15.33	clear	none
1136	0.30	0.60		8.73	4.7	27.3	288.0	2.71	10.46		
1139	0.30	0.90		8.73	4.7	27.3	287.5	2.50	9.18		

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	1140	SAMPLING ENDED	1140	FIELD CLEANED	Y (N)	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	clear								
COMMENTS									

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

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

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	Josefin Edeback-Hurst, PE
				Phone:	813-630-4498
Date Sampled	062711	SAL Project #	1105413	Project Name	GCREC Mound Groundwater Analyses
Well Number	PZ03-H11-6	Sample ID	84	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	1.19	WELL CAPACITY (gal/ft)	0.06	Screen Interval (Feet)	UNK	To	UNK	Static Depth to Water (Feet)	7.34	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	9.05	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)				TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	

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

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

ONE WELL VOLUME	0.10	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	1253	PURGE TIME END	1202	TOTAL PURGED	0.90

INST. ID					SAL-SAM-63-4	SAL-SAM-65-4	SAL-SAM-63-4	SAL-SAM-55-3	SAL-SAM-02		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
1156	0.30	0.30	0.10	8.85	4.5	28.9	168.3	3.01	6.34	clear	A 6-28-11 none
1159	0.30	0.60		8.85	4.5	28.3	166.5	3.03	3.89		
1202	0.30	0.90		8.85	4.5	28.4	164.9	3.01	2.64		

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

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 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+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	1203	SAMPLING ENDED	1203	FIELD CLEANED	Y (N)	CLEANING STEPS			
FIELD FILTERED?	Y (N)	FILTER SIZE (µm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)	SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED							
WEATHER CONDITIONS	clear								
COMMENTS									

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

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

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	Josefin Edeback-Hurst, PE
				Phone:	813-630-4498
Date Sampled	062711	SAL Project #	1105413	Project Name	GCREC Mound Groundwater Analyses
Well Number	PZ17-I15-26	Sample ID	91	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	0.15	WELL CAPACITY (gal/ft)	0.02	Screen Interval (Feet)	UNK To UNK	Static Depth to Water (Feet)	8.42	PURGE PUMP CODE	PP GP IBP
TOTAL WELL DEPTH (Feet)	30.05	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)		TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	

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

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

ONE WELL VOLUME	0.43	1/4 WELL VOLUME	0.10	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	1227	PURGE TIME END		TOTAL PURGED	
INST. ID				SAL-SAM-63-4	SAL-SAM-65-4	SAL-SAM-63-4	SAL-SAM-55-3	SAL-SAM-02	

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
1232	0.30	0.50	0.10	N/A	4.9	25.5	307.2	1.[illegible]	68.9	cloudy	none
1235	0.30	0.80	|	|	4.9	25.4	307.3	[illegible].80	67.3	|	|
1238	0.30	1.10	|	|	4.9	25.4	307.3	1.60	65.5	|	|

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	1239	SAMPLING ENDED	1239	FIELD CLEANED	Y N	CLEANING STEPS	
FIELD FILTERED?	Y N	FILTER SIZE (µm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N 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:	Josefin Edeback-Hurst, PE
				Phone:	813-630-4498
Date Sampled	062711	SAL Project #	1105413	Project Name	GCREC Mound Groundwater Analyses
Well Number	PZ18-R12-26	Sample ID	92	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	0.75	WELL CAPACITY (gal/ft)	0.02	Screen Interval (Feet)	UNK To UNK	Static Depth to Water (Feet)	2.56	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	22.5	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)		TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	

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

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

ONE WELL VOLUME	0.45	1/4 WELL VOLUME	0.11	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	1250	PURGE TIME END	1301	TOTAL PURGED	1.10

INST. ID					SAL-SAM-63-4	SAL-SAM-65-4	SAL-SAM-63-4	SAL-SAM-55-3	SAL-SAM-2		
TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
1255	0.50	0.50	0.10	N/A	5.1	26.8	252.1	0.71	633.0	Brown	None
1255	0.30	0.80			5.1	26.6	251.8	0.79	397.0		
1301	0.30	1.10			5.1	26.6	251.9	0.59	260.0		

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	SAL			SAMPLER(S) SIGNATURES:			
TUBING MATERIAL CODE (CIRCLE ONE)	PP PE NP (TL) TT	SAMPLE TUBING LEGNTH IN WELL (FEET)				SAMPLE PUMP FLOW RATE (mL/min)	
SAMPLING INITIATED	1302	SAMPLING ENDED	1302	FIELD CLEANED	Y (N)	CLEANING STEPS	
FIELD FILTERED?	Y (N)	FILTER SIZE (μm)		DUPLICATE	Y (N)	VOC COLLECTED BY REVERSE FLOW?	Y N (N/A)
						SEMI-VOLS COLLECTED THROUGH TRAP?	Y N (N/A)
PRESERVATION CHECKED IN FIELD?	(Y) N N/A	LIST PRESERVATIVES ADDED					
WEATHER CONDITIONS	Clear						
COMMENTS							

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

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

Reviewed By: Date:

Revision Date 09/25/09

SOUTHERN ANALYTICAL LABORATORIES, INC.

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

GROUNDWATER SAMPLING LOG

Client Name:	Hazen and Sawyer	Location:		Contact:	Josefin Edeback-Hurst, PE
				Phone:	813-630-4498
Date Sampled	06 27 11	SAL Project #	1105413	Project Name	GCREC Mound Groundwater Analyses
Well Number	~~PZ23-D09-27~~ EQ Blank PZ23	Sample ID	97	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	0.75	WELL CAPACITY (gal/ft)	0.02	Screen Interval (Feet)	UNK	To	UNK	Static Depth to Water (Feet)	12.71	PURGE PUMP CODE	(PP) GP IBP
TOTAL WELL DEPTH (Feet)	13.60	REFERENCE ELEVATION (NGVD)		GROUND WATER ELEVATION (REFERENCE-STATIC)				TUBING DIAMETER (Inches)		TUBING CAPACITY (gal/ft)	

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

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

ONE WELL VOLUME	0.0173	1/4 WELL VOLUME	0.0045	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	1320	PURGE TIME END		TOTAL PURGED	
INST. ID				SAL-SAM-63-4	SAL-SAM-65-4	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)
1323	0.30	0.30	0.10								
1326	0.30	0.60	1		DRY						
1329	0.30	0.90	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	N/A	SAMPLING ENDED	N/A	FIELD CLEANED	Y N	CLEANING STEPS			
FIELD FILTERED?	Y N	FILTER SIZE (μm)		DUPLICATE	Y N	VOC COLLECTED BY REVERSE FLOW?	Y N 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 would not recover								

PUMP CODES: PP=Peristaltic Pump, GP= Submersible Grundfos Pump, 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:	Josefin Edeback-Hurst, PE
				Phone:	813-630-4498
Date Sampled	06/27/11	SAL Project #	1105413	Project Name	GCREC Mound Groundwater Analyses
Well Number	PZ11-E09-10	Sample ID	87	GPS LAT	
				GPS LONG	

PURGING DATA

WELL DIAMETER (Inches)	0.75	WELL CAPACITY (gal/ft)	0.02	Screen Interval (Feet)	UNK	To	UNK	Static Depth to Water (Feet)	1.35	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	0.111	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	1050	PURGE TIME END	1059	TOTAL PURGED	0.90	
INST. ID				SAL-SAM-63-4	SAL-SAM-65-4	SAL-SAM-63-4	SAL-SAM-55-3	SAL-SAM-02		

TIME	VOLUME PURGED (Gallons)	TOTAL VOLUME PURGED (Gallons)	PURGE RATE (gpm)	Depth to Water (Feet)	pH (SU) (Δ <0.2)	TEMP (oC) (Δ <0.2)	SP COND (uS/cm) (Δ <5%)	DO (mg/L) (% SAT <20)	TURBIDITY (NTUs) (<20 NTU)	COLOR (Describe)	ODOR (Describe)
1053	0.30	0.30	0.10	N/A	5.3	27.6	451.6	1.92	9.36	clear	none
1056	0.30	0.60			5.3	27.6	452.7	1.81	9.61		
1059	0.30	0.90			5.3	27.6	453.9	1.77	8.77		

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

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

SAMPLING DATA

SAMPLED BY / COMPANY (PRINT)	GAC			SAMPLER(S) SIGNATURES:			
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	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	Clear						
COMMENTS							

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

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